

UNEP GEF PIR Fiscal Year 2021

Reporting from 1 July 2020 to 30 June 2021

1. PROJECT IDENTIFICATION

1.1. Project details

Identification Table	GEF ID.: 5287	Umoja no.: SB-009265
Project Title	Solar Water Heater Market Development Project	
Duration months	Planned	48 months
	Extension(s)	N/A
Division(s) Implementing the project	UNEP, Economy Division, Energy & Climate Branch, Climate Mitigation Unit	
Name of co-implementing Agency	N/A	
Executing Agency(ies)	UN Environment, Regional Office for Latin America and the Caribbean (ROLAC)	
Names of Other Project Partners	Secretaría Nacional de Energía SNE (National Energy Secretariat)	
	Ministerio de Ambiente - MiAMBIENTE (Ministry of Environment)	
	Universidad Tecnológica de Panamá – UTP (Technological University of Panama)	
	Panama Green Building Council - PGBC	
	Banco General Panamá	
Project Type	Medium Size Project	
Project Scope	National	
Region	Latin America and Caribbean	
Countries	Panama	
Programme of Work	Programme of Work 2020-2021, subprogramme 1: climate change.	
GEF Focal Area(s)	Climate Change	
UNSDCF / UNDAF linkages	<p><u>Effect 3.1</u>                      By 2020, the State develops and implements public policies and enabling conditions for encourage sustainable economic growth that produces social benefits, avoids environmental degradation and help move towards a low-emission economy, efficient in the use of resources, socially inclusive and that generate growth opportunities and decent work.</p>	
Link to relevant SDG target(s) and SDG indicator(s)	<p>SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all.                      Target 7.2: By 2030, increase substantially the share of renewable energy in the global energy mix.                      7.2.1: Renewable energy share in the total final energy consumption</p>	

GEF financing amount	US\$ 1,918,182	
Co-financing amount	US\$ 8,142,000	
Date of CEO Endorsement	28 January 2015	
Start of Implementation	9 January 2018	
Date of first disbursement	19 March 2018	
Total disbursement as of 30 June 2021	US\$ 1,685,552	
Total expenditure as of 30 June 2021	US\$ 953,251.68	
Expected Mid-Term Review Date	December 2020	
Completion Date	Planned	28/2/2022
	Revised	N/A
Expected Terminal Evaluation Date	October 2022	
Expected Financial Closure Date	28/2/2023	

## 1.2. Project description

Project goal is to mitigate CO<sub>2</sub> emissions through the development of a solar thermal market in the residential, health, agro-industrial and hotel sectors in Panamá. The project is administered by the National Energy Secretariat (SNE) and executed by UNEP.

Project partners are SNE, MIAmbiente (Environmental Ministry), Banco General (Bank), UTP (National technological University of Panama), ITSE (National Institute for Technician formation), INADEH (National Institute for job formation), PGBC (Panamá Green Building Council).

**Component 1: Knowledge and information for informed policy decision-making.** This component aims to generate the basic knowledge and reference documents so that the country can develop a solar thermal market integrated into the government Agenda. This component includes the development a website where all information is available, a market potential assessment (both economic and emission related), fossil fuel subsidies analysis, solar thermal deployment action plan and monitoring of market evolution. Main partners are SNE, MIAmbiente, Banco General, UTP, ITSE, INADEH. Other partner include:JTIA (National Board of Engineers and Architects), CAPES (Panamanian Solar Chamber).

**Component 2: Quality control and supply side strengthening.** This component has two parts with different goals. One part is related to quality control and aims to develop national standards, conformity assessment and national testing facilities for solar thermal collectors, system and installations. The second part aims to incorporate solar thermal curricula in all educational levels as to have educated designers, installers and salespersons in order to build national capacity for sustaining the market development. Main partners are SNE, DGNTI (National Direction for normas and industrial technology), UTP, ITSE, INADEH, JTIA, CAPES and local suppliers.

**Component 3: End-user supportive mechanisms and enhanced awareness.** This component has two parts with different goals. The first part is oriented towards achieving one or more financial mechanisms implemented by the partner Banco General oriented towards acquisition and installation of solar thermal systems. The second part aims to generate awareness to end users in the four comprised sectors. It includes the development of meetings, workshops, awareness material and different campaigns for different media, informing solar thermal capabilities for fuel savings and CO<sub>2</sub> emission reduction. Main partners are SNE, Banco General and MIAmbiente.

**Component 4 - SWH pilot projects and demonstration.** This component aims towards designing and implementing pilot projects in the four project sectors. All interested end users in the four sectors receive a solar thermal design for their application. Pilot project implementation will be implemented in agreement with SNE. All information generated in the pilot projects will be used to demonstrate the efficiency of solar

thermal collectors for CO2 emission reduction and fossil fuel savings in Panama. Main partners are SNE and MIAmbiente.

Main partners are involved throughout the entire project in all different components.

### 1.3. History of project revisions

Version	Date	Main changes introduced in this revision
Rev 0 (CEO ED)	28/01/2015	Project as approved by the GEF
Rev 1	06/08/2018	Revision in budget, workplan and results framework after initial delays to start with project implementation
Rev 2	15/07/2020	Budget and workplan revision
Rev 3 (latest version at the time of this PIF)	27/05/2021	Budget and workplan revision

## 2. OVERVIEW OF PROJECT STATUS

### 2.1. UNEP Subprogramme(s)

<p>Programme of Work 2020-2021, subprogramme 1: climate change.</p>	<p><b>Specify the relevant Expected Accomplishment(s) &amp; Indicator(s)</b></p> <p><u>Expected accomplishment:</u> (b) Countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies</p> <p><u>Indicators:</u> (i) Number of countries supported by UNEP that make progress in adopting and/or implementing low greenhouse gas emission development plans, strategies and/or policies  (ii) Climate finance invested by countries or institutions for clean energy, energy efficiency and/or amount of decarbonized assets</p>
<p>The project made progress in supporting Panama to adopt and invest in clean technologies (in this case, solar water heaters, SWH). 6,604 m<sup>2</sup> of Solar water heater systems have been designed (out of a total of 16,600 m<sup>2</sup>); 37.2 m<sup>2</sup> of solar water heaters have been installed (out of a total of 3,200m<sup>2</sup>). As 81 % of the total amount of SWH m<sup>2</sup> installation will be performed with private sector resources, project management is preparing an update on private sector SWH investment interest, and -in coordination with SNE and General Bank- a strategy to provide rapid access to the SWH financial Mechanism will be developed to ensure compliance with the workplan. Progress was also made to support Panama in adopting and implementing policies and action plans related to the broad adoption of solar water heaters, including a policy for incentivizing adoption and an SWH Action Plan prepared and approved by the National Energy Secretariat. Finally, a financial mechanism was prepared to support this scaling up, in collaboration with the Banco General Panamá.</p>	

### 2.2. GEF Core Indicators (for all GEF 6 and later projects):

GEF Core Indicators	Indicative	expected	Results
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### 2.3. Implementation status and risk

	FY 2019	FY 2020	FY 2021	FY 20__
PIR #	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
Rating towards <b>outcomes</b> (section 3.1)	S	S	MS	
Rating towards <b>outputs</b> (section 3.2)	S	S	MS	
<b>Risk</b> rating (section 3.3)	L	L	M	

Rating towards outcomes: The project has made significant progress in terms of policy setting (component / outcome 1). In particular, Panama has incorporated the solar water heater (SWH) Action Plan developed by the project into the Energy Transition Agenda and also created a policy called “Programa Nacional Termosolar Panama” (PNTP; National Solar Thermal Program), which was endorsed by the national government. The project has also contributed to the creation of official standards for the testing and installation of SWH equipment in Panama, and provided extensive training (component / outcome 2). However, the project is facing challenges in outcome 3, that required the implementation of a financial mechanism for the promotion of SWH and depend mainly on co-finance. The delay in the implementation of the larger pilot projects, and the issues in monitoring the implemented ones have affected the achievement of outcome 4. These challenges had been identified during the Mid-Term Review process that took place in the second half of 2020. Overall, the project has a **marginally satisfactory** rating, due to these contrasting results.

A mid-term review (MTR) was undertaken in the second half of 2020, resulting in a **highly satisfactory rating**. However, some of the risks pointed out in the MTR (regarding the materialization of co-financing and procurement delays, discussed in section 3.3. of this PIR) have materialized into severe issues during this period. Recommendations from the MTR are captured by the mitigation actions proposed in table B of section 3.3 of this PIR.

Rating towards outputs: Component 1 is fully implemented, with only final impact assessment and projects reports pending. Outputs in component 2 are almost fully executed. The outputs in component 3 that depend on the materialization of contributions from specific stakeholders (the Fund for the Rational and Efficient Use of Energy (UREE) fund, and the financial mechanism to be established) one of the partners for the establishment of a financial mechanism could not yet be fully achieved, and measures to achieve this are discussed in the risks section (see table B in section 3.3 of this PIR). The awareness campaign (also in component 3) will finish in time, together with the project. Lastly, a large share of the pilots under component 4 could not yet be implemented, due to procurement challenges and difficulties resulting from the Covid 19 Lockdown, which in Panama included construction restrictions.

Overall risk rating: The overall project risk is considered medium (M), as two outcomes are currently compromised by the challenges faced by the project (i.e. the lacking financial mechanism under component 3, and the implementation and monitoring of the pilots under component 4). The main risks have been identified to be those related to procurement, the COVID pandemic, and the unmaterialized contributions from stakeholders.

### 2.4. Co-financing

<b>Planned Co-finance Total:</b>	Total Co-finance: 8,142,000 USD
<b>Actual to date:</b>	Actual (preliminary): 1,000,000 USD (approximate total estimated from Co-finance report June 2020) equivalent to 12,23% of planned co-finance. Total Co-Finance for each partner is under review and will be addressed in next Project Steering Committee (PSC) meeting on 30 <sup>th</sup> July 2021.
	The maximum and most important share of co-finance is from Banco General (3.1M USD) through the implementation of a specific financial mechanism. The

	<p>bank stated that for the moment there will be no financial mechanism and that a case-by-case analysis will be implemented. The bank considers that credit is already available for customers who desire to install a SWH system, and that this hasn't yet materialized due to the effect of the pandemic.</p>
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## 2.5. Stakeholder engagement

<p><b>Stakeholder engagement</b></p>	<p>One of the most salient aspects evidenced throughout the mid-term review process and interviews is the level of engagement and commitment from all stakeholders on the project. Stakeholder engagement has been sustained during project implementation and execution. Support from the SEN and MIAMBIENTE's has been key across administrations.</p> <p>Collaboration with industrial, construction, service and educational sectors through industrial symposiums and brainstorming meetings allowed the project team to collect suggestions on the four project components as well as increasing project ownership by a broader range of participants.</p> <p>The full list of all 108 SWH projects assessed throughout the project (each involving a different stakeholder) is available as Annex 1. During this reporting period, all Agro-industrial solar thermal technical and economic feasibility reports were presented to the beneficiaries<sup>1</sup>, requiring substantive interaction and receiving positive feedback. Regarding the educational sector, the pandemic enhanced the involvement of UTP (Technology University of Panama), INADEH (National Institute of Capacity Building and Professional Training) and ITSE (Specialized Technical Institute). UTP started the first diploma in solar thermal energy in online mode. The same with INADEH, forming installers. Also, through the SNE request, pilot project installation in public "Hospital Panama Solidario" allowed for a greater visibility and involvement of stakeholders. Specific meetings were also held with Banco General in order to motivate the implementation of a specific credit line for solar thermal. To this matter, several specific presentations were performed to high level executive board of the Bank.</p> <p>Workshops and 90min "<a href="#">Café Solar</a>" meetings were held with a broad range of stakeholders as well as technology specialists allowed participation and discussion of international success cases. Informative and participative workshops, continued virtually during COVID-19 pandemic. More information is available in the project's <a href="#">YouTube channel</a>.</p> <p>Because of the above-mentioned cooperation and participation arrangements, this project is considered a model for future implementations on the energy sector in Panama according to the assessment performed during the mid-term review.</p>
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## 2.6. Gender

<p><b>Gender mainstreaming</b></p>	<p>The project shows concrete efforts on gender equity beyond project design. Communication and training strategies were designed accounting for specific gender, educational level, professional and social environment particularities.</p> <p>Participation on training activities was 50/50 on gender, but the vast majority of participants with previous technical, vocational training were male, so special considerations were included to balance installer training for women with no previous technical qualifications.</p> <p>Three instances were developed regarding gender mainstreaming. The first one is a semi present course for solar thermal installers for women.</p>
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<sup>1</sup> This list includes the following firms: Avicola Melo; Cocina Central Pio Pio; Avicola Grecia; Deli Grecia; Bader Panama; Cerveceria Nacional; Planta Cárnicos Manuel Melo; Deli House; Proluxsa; Solary; Atanasiadis Carnicos.

	<p>This course was implemented between Fundación Calicanto and INADEH. It targets women in rural conditions, but not limited to it. The virtual part was performed by Fundación Calicanto with videos performed by female teachers. The presential part of the course was done at INADEH. The course is still on-going and has a total of 11 alumni, all women.</p> <p>The second activity was an event called “Workshops on solar thermal sensibilization for women”. It aimed to show the opportunities that exist in the solar thermal market for women.</p>
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**2.7. Environmental and social safeguards management**

<p><b>Environmental and social safeguards management</b></p>	<p>This project is low-risk, and as such no specific measures were set as part of the environmental and social safeguards<sup>2</sup>.</p> <p>The SWH projects involved in this project have been designed and implemented mainly in densely located populated areas. The project entails household or company level installation that fit on rooftops or small terrains. The location of the individual SWH systems facilitating a more sustainable use of energy nationwide. With the implementation of the SWH market development project and it SWH Action Plan, Panama counts with a tool to reduce 4.9 million tonnes of CO<sub>2</sub> in 2050.</p> <p>On social aspects, the project includes as one of the pilots projects the donation of an installation solar water heating system at the Golden Years Elderly Residence, belonging to the Panama municipality, where 54 elderly people are given medical care and housing. This project is increasing the quality of life of the population at greatest risk of contracting COVID 19, in addition to helping them in disinfecting their facilities, since previously they did not have hot water in the residence.</p> <p>In addition, the project has designed the solar water heating systems for public children’s canteens together with the SWH of 3 public hospitals where the highest percentage of births occurs nationwide.</p> <p>Furthermore, two of the SWH pilot projects beneficiaries are indigenous populations: Mulatupo (small hospital) and Ngäbe-Buglé (cooperative chocolate factory). Also, elderly women from Ngäbe-Buglé will be trained on SWH technologies to replicate their knowledge to other members of this community. The Mulatupo pilot involved the installation of two solar water heaters in the local rural hospital, giving them access to hot water for sanitization and personal hygiene. People were informed and training seminars for maintenance for them were developed once installation was finished. The chocolate factory is not yet installed and operational but was a beneficiary of a solar thermal feasibility design, so they are considering solar thermal. A third pilot project is on the way for a rural school in the Ngabe-Bugle community, seeking to provide hot water for cooking, replacing the use of wood.</p>
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**2.8. Knowledge management**

<p><b>Knowledge activities and products</b></p>	<p>The project generated contents for solar water heater education in all levels. Manuals for teachers and students, in university, technical and officer level. One of the most salient actions was the implementation of “Solar Bus” together with INADEH, which is a bus equipped with all kind of solar thermal educational and</p>
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<sup>2</sup> Unlike solar PV, solar thermal technology is 100% recyclable. When discarded, the entire equipment can be sold as scrap, melted, and transformed into collectors and tanks again, as it is basically, copper, aluminum, steel and glass.

	<p>real equipment that rides across the country giving access to the technology to all kind of students nationwide.</p> <p>In addition, technology fabrication manuals and business plan and investments plans were also developed and embraced by the private sector as a reference for deploying solar thermal technology.</p>
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**2.9. Stories to be shared**

<b>Stories to be shared</b>	<p>Panama's hotels began implementing solar thermal energy in their facilities through a pilot plan to reduce the amount of carbon emissions, improve the environment and comply with international treaties, reported the hotel guild</p> <p>The Albrook Inn hotel was the first to lend its facilities for the demonstration and project of the use of solar energy for water heating. This project will help to reduce electricity and fossil fuel expenses in the coming years.</p> <p>The project includes as one of the pilots projects the donation of an installation solar water heating system at the Golden Years Elderly Residence, belonging to the Panama municipality, where 54 elderly people are given medical care and housing. This project is increasing the quality of life of the population at greatest risk of contracting COVID 19, in addition to helping them in disinfecting their facilities, since previously they did not have hot water in the residence.</p> <p>In addition, the project has designed the solar water heating systems for public children's canteens together with the SWH of 3 public hospitals where the highest percentage of births occurs nationwide.</p> <p>Furthermore, two of the SWH pilot projects beneficiaries are indigenous populations: Mulatupo (small hospital) and Ngäbe-Buglé (cooperative chocolate factory). Also, elderly women from Ngäbe-Buglé will be trained on SWH technologies to replicate their knowledge to other members of this community.</p>
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### 3. PROJECT PERFORMANCE AND RISK

#### 3.1 Rating of progress towards achieving the project outcomes

Project objective and Outcomes	Indicator	Baseline level	End-of-project target	Summary by the EA of attainment of the indicator & target as of 30 June 2021	Progress rating <sup>3</sup>
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<sup>3</sup> Use GEF Secretariat required six-point scale system: Highly Satisfactory (HS), Satisfactory (S), Marginally Satisfactory (MS), Marginally Unsatisfactory (MU), Unsatisfactory (U), and Highly Unsatisfactory (HU).



Project objective and Outcomes	Indicator	Baseline level	End-of-project target	Summary by the EA of attainment of the indicator & target as of 30 June 2021	Progress rating <sup>3</sup>
<p><b>Objective:</b> Cost-effective CO2 reduction measures initiated by developing the market for solar thermal heating systems</p>	<p>A.1. Installed capacity A.2. Associated energy savings and GHG emission reduction</p> <p><u>Indirect impacts:</u></p> <p>B.1. Increased demand and sales of SWH systems</p> <p>B.2. Associated energy savings and GHG emission reduction</p>	<p>N/A</p>	<p>Installed capacity: • Direct: 3,220 m<sup>2</sup> • Direct + post-project direct: 16,600 m<sup>2</sup></p> <p>GHG emission savings: • Direct: 20.726 ktCO<sub>2</sub> • Direct + post-project direct: 106.55 ktCO<sub>2</sub></p> <p>End-user savings: • Direct: 2,949 MWh/yr • Direct + post-project: 15,185 MWh/yr</p> <p>System savings: • Direct: 3,012 MWh/yr • Direct + post-project direct: 15,527 MWh/yr</p> <p>• Bottom-up: 32,325 m<sup>2</sup> (replication factor = 3)</p> <p>GHG savings: • Bottom-up: 319.66 ktCO<sub>2</sub> (replication factor = 3)</p> <p>• Top-down: 659.6 ktCO<sub>2</sub> (coincidence factor = 60%)</p>	<p>As noted in the mid-term review (MTR), out of the 3,220 m<sup>2</sup> that were set as a direct target, a total of 600 m<sup>2</sup> correspond to pilot installations within the project's control. The project is expected to mobilize the installation of 2,620 m<sup>2</sup> in the private sector as a second step from SWH systems designed in the pilot project portfolio but the materialization of these installations depends on private investment decisions and is not guaranteed. While project displays considerable progress on most activities, a simple look at direct installation targets and actual installations might result on a misleading indication of underperformance, negatively affecting the project's perception of performance. Hence, the end-of-project target will be adjusted in an upcoming project revision.</p> <p>Below is the depiction of capacity installed and planned to be installed by the project:</p> <p><u>Installed Area of Pilot projects:</u> Veterinaria Summit 5 m<sup>2</sup> (Health Sector) Hospital Panama Solidario 12 m<sup>2</sup> (Health Sector) Residence Los Años Dorados 4 m<sup>2</sup> (Health Sector) Hospital Rural Inabaguíña 4 m<sup>2</sup> (Health Sector) Parque Internacional La Amistad 4 m<sup>2</sup> (Public Sector)</p> <p><u>Pending pilot projects in progress with procurement delay:</u> Hospital San Miguel Arcangel 104 m<sup>2</sup> Hospital Obaldia 186 m<sup>2</sup> Hospital Chicho Fabregas 104 m<sup>2</sup></p> <p><u>Indirect impact of installed area:</u> ENSA Servicios 8 m<sup>2</sup> (Private Sector) Hotel Albroom Inn 8 m<sup>2</sup> (Hotel Sector) Panama City 30 m<sup>2</sup> (Residential Sector) Panamá Oeste 2 m<sup>2</sup> (Residential Sector). Panama Pacifico 5 m<sup>2</sup> (Residential Sector). Hotel Riverside Inn 2 m<sup>2</sup> (Hotel Sector).</p> <p>The COVID-19 delayed the advance of all the pilot projects due to lockdown and recovery uncertainty of the different sectors. When activity resumed, a growing interest to advance with pilot installations was perceived by the project team. Large pilot projects were not implemented due specifically to administrative reasons (discussed below in section 3.1). The three main hospitals are undergoing final analysis after a long bidding process.</p>	<p>MS</p>

Project objective and Outcomes	Indicator	Baseline level	End-of-project target	Summary by the EA of attainment of the indicator & target as of 30 June 2021	Progress rating <sup>3</sup>
<p><b>Outcome 1:</b> Effective policy-regulatory framework- endorsed by the government</p>	<p>C. Number of policy instruments and regulations adopted to promote market of SWH</p>	<p>UREE does not include solar water heating specifically. National Energy Plan 2015-2050 was adopted including prioritization of solar energy use. Law 37 of 2013 (June 10th of 2013) which establishes the scheme of incentive for the promotion of construction, operation and maintenance of solar facilities and/or solar plants. The Sustainable Construction Guide for energy saving in buildings and measures, approved on November 17th of 2016, recommends the voluntary use of SWH</p>	<p>By 2020, one (1) revised set of regulations under UREE is proposed and endorsed to promote the use of SWH/solar thermal technology</p>	<p>This indicator has already been achieved and surpassed. The following policies have been implemented as a direct result in project activities:</p> <ul style="list-style-type: none"> <li>• Market potential assessment and analysis incorporated as a reference document in public policies and into NDC.</li> <li>• SWH action plan endorsed by the government and incorporated in the National Energy Transition Agenda including medium scenario goals from Market potential analysis</li> <li>• “Programa Nacional Termosolar Panama” (PNTP; National Solar Thermal Program, created by the SNE and endorsed by the national government. The PNTP will be led by SNE and the goal will be to design and coordinate with all national relevant stakeholders, the implementation of all political, economic and educational intervention that will permit the country to reach 1 million m<sup>2</sup> installed solar water heater +area by 2050.</li> <li>• The goal of 1 million m<sup>2</sup> installed solar water heater area by 2050 was incorporated into NDC goals.</li> <li>• Other related documents relevant to this outcome:</li> <li>• Fossil fuel subsidy analysis. Oriented towards informing the government, the share of subsidies that could be replaced with solar thermal deployment.</li> <li>• Mandatory use of solar thermal will become in force in the in next update of Sustainable Construction Guide in 2022.</li> </ul>	<p>HS</p>

Project objective and Outcomes	Indicator	Baseline level	End-of-project target	Summary by the EA of attainment of the indicator & target as of 30 June 2021	Progress rating <sup>3</sup>
<p><b>Outcome 2:</b> Voluntary quality control systems in place in the SWH industry to offer SWH products and services that customers are satisfied with.</p>	<p>D. The % of businesses that adopt and use voluntary SWH quality standards including monitoring and verification (M&amp;V) system</p>	<p>No standards exist, neither voluntary nor mandatory</p>	<p>One (1) quality control system in place by yr 3 of required standards and associated certification scheme, to be adopted by industry on a voluntary basis; All (100%) of brands with over a 20% market share are certified</p>	<p>The quality control system for SWH in Panama will consist of four elements:</p> <p>1) <u>Testing standards:</u> So far the project has developed all testing standards. Three official standards have already been issued regarding solar thermal by the DGNTI (<i>Direccion Nacional de Normas Técnicas e Industria</i>, national certification authority):</p> <ol style="list-style-type: none"> <li>1. DGNTI-COPANIT 519:2021 Solar power – Glossary</li> <li>2. DGNTI-COPANIT 518:2021 Solar power – Testing methods for solar collectors</li> <li>3. DGNTI - COPANIT 517 Solar power – Solar thermal systems and their components. Pre-made system. General requirements and testing method</li> </ol> <p>A fourth standard has been presented and is under discussion which responds to “Solar thermal collector and systems quality requisites”. This last one, is the basis for elaborating a mandatory conformity assessment (component 4) below) for solar thermal products based on the previous three published standards. Since there were no standards, the whole normative reference needed to be built.</p> <p>2) <u>Testing facilities:</u> Testing Laboratory at UTP Is finishing construction and will begin testing in October 2021. Laboratory testing will be in accordance to developed standards.</p> <p>3) <u>Minimum requirements standards:</u> The project is now developing minimum requirements standards. “Solar thermal collector and systems quality requisites”. This last standard is the basis for elaborating a mandatory conformity assessment for solar thermal products (element 4 below).</p> <p>4) <u>A conformity assessment protocol linking the certification scheme</u> (1-3 above) will be developed by the regulation authority (DGNTI) once the previous elements are ready.</p> <p>Up to date, no brands have dopted SWH quality standards since normative and testing infrastructure is not yet complete. However, conformity assessment is expected to be mandatory, which would guarantee that the second target is met.</p>	<p>S</p>

Project objective and Outcomes	Indicator	Baseline level	End-of-project target	Summary by the EA of attainment of the indicator & target as of 30 June 2021	Progress rating <sup>3</sup>
	E. Status of certification scheme and % increase of installers and products that are certified	No products or installers are certified	One certification scheme for SWH equipment and installers adhered to by over 50% of SWH providers	The certification scheme for equipment is discussed in the previous row. For installers, the project developed a Guide for competence standards associated with SWH in Panama together with a Certification scheme on SWH for SWH-qualified technicians and installers. Currently the certification scheme is been discussed with the National Institute of Professional Training for Human Development (INADEH) and its National Competition Commission (CONACOM), which is responsible for administering the certification system of basic, generic and labour competences; as well as ensuring the quality and relevance of education and training. Lastly, a Solar Thermal System Installation and procedures standard is being discussed by the board of Engineers and Architects of Panama (JTIA). Once approved, it will become mandatory.	S
	F. The % increase of surveyed customers who are satisfied with their SWH installations	Baseline survey on SWH installation customer satisfaction will be conducted in the first year of the project	50% of businesses have adopted and use voluntary standards	Up to date, project solar thermal installations have been performed on public institutions. Recently, after lockdown opening, the private sector is starting to consider solar thermal options. 100% of public users are surveyed by emails and interviews and satisfied. The project is finalizing the private sector surveys to update the database.	S
<b>Outcome 3</b>	H. Percentage of end users aware of the technical and financial viability of SWH applications, in each target sector (Hotel, health, industry, residential/ buildings).	A survey will be conducted in the first year of the project to assess current levels of awareness by end users of the technical and financial viability of SWH applications in each target category.	A minimum of 50% of end-users in each target sector are aware of the technical and financial viability of SWH applications by yr 3	<p>This indicator will be estimated through a survey at the end of execution. Many communication actions have been developed and it is expected that the indicator can be achieved:</p> <ul style="list-style-type: none"> <li>• Thirteen (13) "Cafe Solar" (workshops and online webinars regarding different topics on solar thermal) performed with an attendance of 37 persons average in each event.</li> <li>• Public media Campaign designed and under implementation nationwide.</li> <li>• Website updated with more awareness material and documents developed in the project.</li> <li>• Gender specific workshops implemented.</li> <li>• Marketing items designed and given to end users implemented.</li> <li>• Participation in meetings of the different sectors.</li> <li>• Specific numbers of "awareness" is difficult to assess. Every day, new mails arrive with interested end users.</li> </ul>	S

Project objective and Outcomes	Indicator	Baseline level	End-of-project target	Summary by the EA of attainment of the indicator & target as of 30 June 2021	Progress rating <sup>3</sup>
	I. Number of financial mechanisms being used for SWH applications.	No financing mechanisms being used to promote installation of SWH.	At least one financial mechanism used by yr 3 to support installation of SWH applications.	<p>A financial mechanism is to be established by the project using co-finance from Banco General. However, Banco General stated that for the moment, and until further notice, they will analyse each case individually under normal operating conditions of the bank (i.e. without a specific financial mechanism). As stated in a note from the bank, the signed commitment of 3.1 million USD will be administered on case-by-case basis, No financial mechanism or specific line with additional benefits for solar thermal is expected to be implemented by the Bank.</p> <p>The project will evaluate the design of an alternative mechanism under other institutions and new or existing funds (e.g. to develop a specific line under the UREE fund, which is yet to be created by the government<sup>4</sup>).</p>	U
<b>Outcome 4</b>	J. Percentage of SWH demonstration applications confirmed as being technically and financially viable	No data on technical and financial viability of SWH applications in Panama.	100% of project SWH demonstration applications show to be technically and financially viable	<p>A number of studies have been undertaken, assessing the viability of SWH applications, a 100% of which have been confirmed to be technically and financially viable. In particular:</p> <ul style="list-style-type: none"> <li>• 108 technical economic feasibility analyses across four sectors were carried out;</li> <li>• 6604 m<sup>2</sup> of potential solar water heaters and 215.000 litres of storage</li> <li>• 1440 tCO<sub>2</sub> savings per year</li> <li>• Average solar energy savings of 78%</li> <li>• Payback period was estimated to be 6 years</li> </ul>	S

<sup>4</sup> The SWH Action Plan contemplates the creation of a subsidy mechanism, where the state would cover 20% of the value of SWH system installations for the first 2 years, then cover 10% of its value for the following 3 years, to accelerate investment by the private sector.

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Project objective and Outcomes	Indicator	Baseline level	End-of-project target	Summary by the EA of attainment of the indicator & target as of 30 June 2021	Progress rating <sup>3</sup>
	K. Number of systems installed in project-linked demo projects.		At least 40 systems operating with a total SWH surface area of 3,220 m <sup>2</sup> operating by yr3, expanding to 16,600 m <sup>2</sup> after the project has ended (post-project).	As noted in the MTR, out of the 40 systems (=3,220 m <sup>2</sup> ) that were set as a direct target, only a total of 8 systems correspond to pilot installations to be financed through GEF funding <sup>5</sup> . The remaining systems correspond to the surface that would have been installed if some conditions outside of the project control held (e.g. the availability of private funds, the UREE fund, the financial mechanism from Banco General). However, the pandemic has been a challenge for these assumptions. Moreover, the 3 largest pilots to be financed by the project have been delayed due to administrative reasons (see the first indicator in this table; description of the issue and associated risk is further described in section 3.3).	MS

<sup>5</sup> The end-of-project target will be revised in an upcoming project revision.

3.2 Rating of progress implementation towards delivery of outputs

Outputs/Activities <sup>6</sup>	Expected completion date <sup>7</sup>	Implementation status as of 30 June 2020 (%)	Implementation status as of 30 June 2021 (%)	Progress rating justification <sup>8</sup> , description of challenges faced and explanations for any delay	Progress rating <sup>9</sup>
<b>COMPONENT 1:</b>					
<b>Output 1.1: One set of SWH-relevant regulations and policy instruments (incl. fiscal and other incentives) and recommended policy-regulatory framework reviewed</b>	December 2021	95 <sup>10</sup> %	98%	1.1.1 was completed in 2019, 1.1.2 was completed in 2020, 1.1.3 to be completed in 2021.	S
<b>Output 1.2: One market assessment and economic analysis of SWH options</b>	November 2021	60%	53%	This output includes a final report on the project impact a final market assessment and workshops presenting results. This will be done in the last months of the project. Difference with 2020 is due to wrong input progress value in PIR2020.	S
<b>Output 1.3: A Government-endorsed SWH action plan</b>	October 2020	95%	100 %	All required outputs were achieved	S
<b>Output 1.4: Monitoring and evaluation</b>	December 2021	52%	65%	This output includes all terminal evaluation reports and final project reports which have not been performed yet. Mid-term review and corresponding mid-term and update reports are completed.	S
<b>COMPONENT 2:</b>					
<b>Output 2.1: One capacity assessment for training needs completed on supply side, and building design and quality control system</b>	March 2019	100%	100 %	All required outputs were achieved as scheduled	S
<b>Output 2.2: SWH incorporated into curricula of at least two relevant educational institutions</b>	October 2019	100%	100 %	Curricula incorporated in: UTP-Solar thermal energy Diplomat ITSE-Solar thermal installers INADEH-Solar thermal installers – SOLARBUS for nationwide education in Panama. Training of trainers for UTP-ITSE-INADEH teacher Training of trainers for SPIA	S
<b>Output 2.3: Training for SWH installers and technology providers; one recognition scheme for installers completed</b>	March 2020	75%	100%	Suppliers and installers educated through Output 2.2 instances Solar thermal systems manufacturing Business Plan 10 students certified as solar thermal installers by CENCER. 21 students certified as solar thermal design and maintenance under UTP Diplomat.	S

<sup>6</sup> Outputs and activities (or deliverables) as described in the project logframe (and workplan) or in any updated project revision.

<sup>7</sup> The completion dates should be as per latest workplan (latest project revision).

<sup>8</sup> As much as possible, describe in terms of immediate gains to target groups, e.g. access to project deliverables, participation in receiving services; gains in knowledge, etc.

<sup>9</sup> To be provided by the UNEP Task Manager

<sup>10</sup> PIR 2020 mistakenly reported 100% of progress. This output includes the website update until the end of the project and could not have been 100% in Jun 2020.

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Outputs/Activities <sup>6</sup>	Expected completion date <sup>7</sup>	Implementation status as of 30 June 2020 (%)	Implementation status as of 30 June 2021 (%)	Progress rating justification <sup>8</sup> , description of challenges faced and explanations for any delay	Progress rating <sup>9</sup>
<b>Output 2.4: Two SWH and green building training courses designed and implemented</b>	June 2020	92%	100%	Course implemented for 20 people. 10 graduates.	S
<b>Output 2.5: One SWH standards and a quality control scheme developed</b>	December 2020	95%	99%	As mentioned in 3.1 all standards in place. Technical regulation on product conformity assessment is under discussion.	S
<b>Output 2.6: Capability to verify and test for compliance with the quality standards presented</b>	December 2021	71%	95%	Testing laboratory under construction. Equipment and construction materials have already been acquired and donated to UTP. Delayed due to Lockdown and Covid-19 restrictions.	S
<b>Output 2.7: Agreed business plan for the reinforcement of the Panamanian Solar Energy Chamber</b>	November 2019	100%	100%	All required outputs were achieved as scheduled	S
<b>COMPONENT 3:</b>					
<b>Output 3.1: Awareness creation and info events for key decision-makers in financial sector, end-use sectors and the technology providers sector</b>	December 2021	86%	95 %	All outputs achieved. Bi annual reports are pending for June and dissemination of results and reports associated to pilot projects are delayed due to procurement problems and Covid lockdown.	S
<b>Output 3.2: At least one end-user financing mechanisms established that can be used for investment in SWH</b>	June 2021	39%	58%	<p>The financial mechanism suffered several delays.</p> <p>The consultant dedicated to this deliverable did not complete his assignment and the contract was terminated. Moreover, Banco General (co-financer in charge of providing funding for the mechanism) mentioned that they do not need a specific financial mechanism for their institution, i.e. that credit lines that could accommodate SWH installation already exist for their clients. Banco General established that no new mechanism will be created, and a one-on-one client analysis will be performed according to each client needs.</p> <p>As a mitigation measure, the issue of a financial mechanism will still be assessed by the project, and a proposal for a financial mechanism<sup>11</sup> will be prepared in the first half of 2022<sup>12</sup>.</p>	U

<sup>11</sup> As indicated in the project document, such mechanism may include supporting SWH providers/ESCO, budget allocation in public sector together with SWH guidelines for public buildings; preferential financing for commercial companies and finance for residential (low-income; green mortgages, etc.) through the UREE fund (or other options), etc. The specific arrangements will be assessed and proposed in an upcoming consultancy.

<sup>12</sup> This considers an extension request to be requested in the second half of 2021 (discussed further among the mitigation actions in section 3.3., table B).



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Outputs/Activities <sup>6</sup>	Expected completion date <sup>7</sup>	Implementation status as of 30 June 2020 (%)	Implementation status as of 30 June 2021 (%)	Progress rating justification <sup>8</sup> , description of challenges faced and explanations for any delay	Progress rating <sup>9</sup>
<b>Output 3.3: A campaign with marketing and publicity activities, targeting different SWH market segments completed</b>	December 2021	96%	98 %	The campaign is currently under development and will be until the end of the project. This is the reason why it is not 100%.	S
<b>COMPONENT 4:</b>					
<b>Output 4.1: Identification, energy audits and SWH system proposal/feasibility</b>	July 2020	84%	87%	<p>Energy audits for solar thermal proposal/feasibility were performed:</p> <ul style="list-style-type: none"> <li>- 108 technical economic feasibility analysis across four project sectors were carried out:</li> <li>- 5205 m<sup>2</sup> of potential solar water heaters and 215,000 liters of storage</li> <li>-1440 tCO<sub>2</sub> savings per year</li> <li>-Average solar energy savings of 78%</li> <li>-Payback period of 6 years</li> </ul> <p>Energy audits for all other uses other than residential / commercial were not undertaken due to delays from the COVID 19 quarantine. Pending energy audits are expected to be completed once the project is extended.</p>	MS
<b>Output 4.2: SWH pilots supported with the installation of at least 40 units equivalent 3,220 m2 of SWH direct and 60 Mi kW</b>	Oct 2021	37%	53%	As discussed in section 3.1, out of the 3,220 m <sup>2</sup> that were set as a direct target, a total of 600 m <sup>2</sup> correspond to pilot installations within the project's control; the remaining depended on unmaterialized private financing. The project has been able to provide support for a total of 10 small scale systems that were actually implemented (5 full installation, 5 support in the dimensioning of privately financed systems). Moreover, the project has provided feasibility analyses for a total of 108 sites.	MU

3.3. Risk Rating

Table A. Risk-log

Risk	Risk affecting:	Risk Rating							Variation respect to last rating	
	Outcome outputs /	CEO ED	PIR 1	PIR 2	MTR <sup>13</sup>	PIR 3 (this PIR)	PIR 4	PIR 5	Δ	Justification
<p><u>Coordination of baseline activities</u> Weak institutional coordination may result in delays in activities outside of the project that have an impact on the latter. Likewise, slow interaction with the ministries involved may affect the pace of execution.</p>	All project outcomes	M	M	M	L	L			↓	<p>Coordination with the SNE during the execution of activities has been satisfactory throughout the duration of the execution phase. Furthermore, coordination was further improved with the adoption of the SWH Action Plan into the Energy Transition Agenda and the creation of the “Programa Nacional Termosolar Panama” (PNTP; National Solar Thermal Program, created by the SNE and endorsed by the national government).</p>
<p><u>Stakeholder contributions</u> Unmaterialized / delayed contributions from stakeholders (including co-financers) affect outputs or outcomes</p>	<p>Outcome 3 (output 3.2) Outcome 4 (outputs 4.2)</p>	M	M	M	M	H			↑	<p>The project is dependent on contributions that are outside of the project’s direct influence, such as the adoption of the Law on the Rational and Efficient Use of Energy (UREE law) and the implementation of a fund mandated by the latter (i.e. the “UREE fund”). As part of component 4, it was expected that the implementation of this fund would stimulate the demand for SWHs, many of which were expected to benefit from the project’s support in the design. As the UREE fund has not yet materialized, private installation of SWH that was supposed to contribute towards the main objective indicators in Annex A of the project document (indicators A.1 and A.2) may not materialize within the lifetime of the project. Note that the project was also supposed to provide a small contribution to this mechanism (\$75,000 as per the approved budget), that would support its initial implementation<sup>14</sup>.</p> <p>Likewise, the financing mechanism in output 3.2 was to be funded entirely by co-finance coming from the Banco General. However, Banco General has decided that there will be no specific mechanism for solar thermal nor low interest loans for end users, and that the terms of the financing will depend on each client’s profile.</p>
<p><u>Stakeholder engagement</u> The loss of motivation and interest of the targeted stakeholders to participate in training activities results in</p>	<p>Outcome 2 (outputs 2.1, 2.3, 2.4); outcome 3 (output 3.1)</p>	L	L	L	L	L			=	<p>As discussed in section 3.2, awareness creation and capacity building activities have been successfully implemented with very good results (see progress on output 2.1, 2.3, 2.4, and 3.1). Moreover, as part of output 2.2, technical capacities for SWH installation was added into the curricula of several education</p>

<sup>13</sup> Note that the mid-term review does not have a specific section for risks. However, values were given according to the content of the report.

<sup>14</sup> The project document does not indicate the exact scope of this support.

ineffective capacity building activities organized by the project.										institutions, ensuring the sustainability of the results.
<u>Demand uncertainty</u> The market development efforts and promotion mechanisms established are not sustainable due to uncertainty in and/or lack of demand for SWH	Project objective and outcome 4	M	L	L	L	L			=	As part of its activities, the project has carried out a detailed assessment on the demand for SWH and market characteristics, including a cost-benefit analysis vis-à-vis conventional alternative for various applications, thus addressing this barrier identified during project design.
<u>Political prioritization</u> Lack of political support may result in regulations and recommendations from the project specifically targeting SWH may not be adopted or prioritized by the authorities.	Outcome 1	M	M	L	L	L			=	Panama has incorporated the SWH Action Plan developed by the project (component 1) into the Energy Transition Agenda and also created a policy called "Programa Nacional Termosolar Panama" (PNTP; National Solar Thermal Program), created by the SNE and endorsed by the national government. The PNTP will be led by SNE and the goal will be to design and coordinate with all national relevant stakeholders, the implementation of all political, economic and educational intervention that will permit the country to reach 1 million m <sup>2</sup> installed solar water heater area by 2050. Therefore, political support was reflected in concrete policies endorsed by the country.
<u>Climate change</u> Climate change may affect viability of SWH applications	Project objective and outcome 4	L	L	L	L	L			=	More cloudy conditions could affect SWH output, but this effect would be extremely minimal. Regarding buildings, future building codes account for weather conditions, but will be revisited as part of the policy dimension of the project. More modules can be added as weather patterns change and consumption needs are not met.
<u>Procurement risks</u> The complexity of the procurement processes, together with slow administrative responses, may result in delays in project execution.  During execution, issues have already appeared, including delay on performing 5 pre inspections, 25 energy audits, SWH feasibility studies and SWH designs. Furthermore, delays on installation of 584 m <sup>2</sup> of SWH in the public health sector may seriously compromise the project's indicators.	Outcome 4 (output 4.2)		M	M	M	H			↑	The procurement process for the purchase of the SWH for the pilots (component 4) was made with UNDP. Unfortunately, since there was no experience on this subject with UNEP, additional delays emerged needing more documentation and signatures than expected. Also, after the approval of the procurement process migration from UNEP to UNDP, new procedures emerged due to internal changes in UNDP and this fact added additional 5 months of delay, related mainly to new documented information needs.  Bidding process technical evaluation was not performed until June 2021 and is still in progress. Even if granted swiftly, there is no time left until December 2021 to implement 600 m <sup>2</sup> of solar water heater systems. According to technical proposals, bidders can perform one pilot project at a time, estimating 3 months for each project, which in the best-case scenario (considering that PO is issued by July 2021) would lead to finalize the projects by April 2022.

<u>Environmental &amp; sanitary conditions</u> Travel restrictions, lock down, key personnel on leave, restrictions in construction activities and other COVID-19 related effects may result in delays in the execution of the project activities and slower responses from partners.	Output 4.2		M	M	M	H			↑	Same as stated in last risk. Additional COVID19 waves and consequent restrictions and lockdowns can delay the mentioned pilot projects even further in time.
<u>Data and knowledge management risk</u> Unclear information flows and storing or data handling issues, may result in difficulties in accessing project data / knowledge.					M	L			↓	This risk was identified during the MTR. While the task manager and the project manager each have their own storage strategy, this are not necessarily harmonic. Since 2020 the implementing agency has set up a standardized folder structure that consolidates all the information related to the project.
<u>Technological risk</u> Inadequate installation, operation and/or lack of appropriate parts/service leads to downtimes, delays and/or difficulties in the monitoring of data (data loss, corrupt, etc.)	Outcome 4 (output 4.2)					L			↑	Output 4.2 involves the collection and analysis of technical data from project demonstrations to showcase viability of SWH applications <sup>15</sup> . However, due to technical issues only one month of data is available as of June 30 2021, although system was commissioned one year earlier. Due to seasonal weather conditions, it is considered that at least one year of data is required to be able to draw valid conclusions.
<b>Consolidated project risk</b>			L	L	L	M			↑	The overall project risk is considered medium (M), as two outcomes are currently compromised by the challenges faced by the project (i.e. the lacking financial mechanism under component 3, and the implementation and monitoring of the pilots under component 4). The main risks have been identified to be those related to procurement, the COVID pandemic, and the unmaterialized contributions from stakeholders.

**Table B.** Outstanding medium & high risks

Risk	Actions decided during the previous reporting instance (PIR <sub>t-1</sub> , MTR, etc.)	Actions effectively undertaken this reporting period	Additional mitigation measures for the next periods		
			What	When	By whom
<u>Stakeholder contributions</u>	Secure financial mechanism by	Weekly meetings with Banco	1. Prepare a white paper with	1. September	Project Manager,

<sup>15</sup> The project collects data on water temperatures (inlet, outlet), solar radiation and water flow. By measuring these variables it is possible to assess real life examples of solar thermal systems operating in the specific context of Panama.

<p>Unmaterialized / delayed contributions from stakeholders (including co-financers) affect outputs or outcomes.</p>	<p>Banco General or other options (MTR)</p> <p>The MTR recommended to evaluate whether an interest at market rates is attractive enough to mobilize investment on current economical context.</p>	<p>General to inform the Mid Term review results and the need for the implementation of a financial mechanism from the Bank.</p> <p>Elaborated extensive and repeated presentations on SWH.</p> <p>Meetings with bank maximum authorities.</p> <p>Delivered information on 108 technical and economical feasibility report as requested.</p> <p>Banco General agreed to contact them one by one.</p> <p>Recommendations from the MTR will be implemented in the upcoming semester (see boxes to the right).</p>	<p>an <b>economic analysis and recommendations for a financial mechanism</b>, including through other entities / funds (including UREE) and drawing on global good practices. If the Banco General's existing offer is significantly attractive, the white paper must include recommendations on how the project can focus on communication and outreach activities to promote the Banco General's offer in the last months of the project.</p> <p>2. <b>Develop a project financial mechanism taskforce</b>, consisting of key project stakeholders (UNEP EA, SNE, other stakeholders) to hold monthly meetings on a way forward</p>	<p>2021 (outline &amp; TORs for hiring the consultant that will prepare the report, as well as timeline for the preparation of this deliverable)</p> <p>2. September 2021 first monthly meeting, with meeting minutes submitted to the UNEP task manager</p>	<p>Project Manager's supervisor, SNE.</p>
<p><u>Procurement risks</u></p> <p>The complexity of the procurement processes, together with slow administrative responses, may result in delays in project execution.</p> <p>Delays in installing 584 m<sup>2</sup> of SWH in the public health sector may seriously compromise the project's indicators.</p>	<p>Delegate key procurement processes to UNDP.</p> <p>Recommendations from the MTR: Prepare a procurement prioritization strategy</p>	<p>Follow Up UNDP, elaborate new document needs, inform UNEP on additional requirements such as Service Legal Agreements (SLA).</p> <p>Technical offers analyzed by committee.</p> <p>The larger procurement processes that had suffered from delays in the past are now under way through UNDP.</p>	<p>1. Prepare a <b>strategy and contingency plan for the implementation of the pilots</b>. This document should:</p> <ul style="list-style-type: none"> <li>- Assess required extension for the completion of pending pilots, including an assessment of potential administrative and technical delays</li> <li>- Assess availability of funds (PMC + technical)</li> </ul> <p>The contingency plan should build scenarios with different assumptions regarding the level of progress achieved by the (extended) technical completion date, and develop a strategy for each. The strategies should cover a) the institutional</p>	<p>1. September 2021</p> <p>2. October 2021</p>	<p>Project Manager, Project Manager's supervisor.</p>

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			<p>arrangements needed for the transfer of finished &amp; unfinished pilots to the SNE, and b) recommendations for the completion of any outstanding work. Meet with SNE to discuss this strategy and contingency plan.</p> <p>2. Present <b>extension request</b> in line with the strategy to allow time for the pilot project acquisition, implementation, monitoring, and maintenance.</p>		
<p><u>Environmental &amp; sanitary conditions</u> Travel restrictions, lock down, key personnel on leave, restrictions in construction activities and other COVID-19 related effects may result in delays in the execution of the project activities and slower responses from partners.</p>	<p>Adjust project to a scenario with increased uncertainty and reduced mobility</p>	<p>The project (budget + workplan) has been revised to reduce travelling and to switch to on-line modalities for various of its activities.</p>	<p>In the <b>strategy and contingency plan for the implementation of the pilots</b> from the previous row, include a <b>contingency plan</b> for the event that new construction restrictions (or other effects related to the pandemic) are established while the project hasn't yet completed the installation of the remaining pilots.</p>	<p>October 2021</p>	<p>Project manager, SNE focal point</p>

**High Risk (H):** There is a probability of greater than 75% that **assumptions** may fail to hold or materialize, and/or the project may face high risks.  
**Significant Risk (S):** There is a probability of between 51% and 75% that **assumptions** may fail to hold and/or the project may face substantial risks.  
**Medium Risk (M):** There is a probability of between 26% and 50% that **assumptions** may fail to hold or materialize, and/or the project may face only modest risks.  
**Low Risk (L):** There is a probability of up to 25% that **assumptions** may fail to hold or materialize, and/or the project may face only modest risks.