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United Nations Development Programme

Country: Timor-Leste

Initiation Plan

Project Title:	**Accelerating clean energy access to reduce inequality**
Expected UNSDCF/CPD Outcome(s):	**Outcome 2: People of Timor-Leste, especially the rural poor and vulnerable groups, derive social and economic benefits from improved access to and use of sustainable and resilient infrastructure.**
Expected CPD Output(s):	**SO2.3: Women and men in Timor-Leste, in particular school children and people living in rural areas, have increased access to and utilize safe and reliable water and improved sanitation and hygiene services, in an equitable and sustainable manner (GEN2).**
Initiation Plan Start/End Dates:	**December 01, 2025 – March 13, 2026**
Implementing Partner:	**UNDP Timor-Leste**

Brief Description

The solar-powered water system for Atauro Island is being rehabilitated to deliver clean, reliable water to its 1,259 residents in Suco Beloi and Suco Biqueli. The original system failed because it couldn't handle the island's steep terrain and hydrology, which ranges from 8 meters at Adara Aldea to 328 meters at the main water source. The new plan will move the main reservoir from the low-lying Arlo Aldea (165.6m) to a mid-elevation point called Metanau (approximately 165.6m), allowing gravity to naturally push water to the higher villages of Iliana (265m) and Duro (219m). This redesign will include building new concrete collector tanks at the source spring and at Metanau and Iliana, replacing undersized 2-inch poly-pipes with larger 3-inch pipes across key sections of the 23-kilometer network, rehabilitating existing galvanized iron (GI) pipes where feasible, and burying all poly-pipes near the 30 tap stands to protect them. A new solar pump will be installed to ensure consistent pressure.

This rehabilitation project is now on a clear path to completion by March 13, 2026. The work will begin on November 10, 2025, with finalizing the engineering design based on expert hydrology studies and getting approval from UNDP and the local community. Following this, a new contractor will be selected through an international tender process between November and December 2025. Construction, including building the new tanks and installing the pipes, is scheduled for January and February 2026. In early to mid-March 2026, the system will be tested, and the local Governing Management Forum (GMF) will be trained to operate and maintain it long-term. The official inauguration, celebrating the return of water to the island, is planned for March 13, 2026, with the community, local authorities, and UNDP in attendance. This solution is designed to be sustainable, ensuring that families, especially women and children who once walked up to 13 kilometers for water, can finally rely on a safe, local supply for years to come. In the long term, the project will significantly improve health outcomes by reducing waterborne diseases, freeing up time for education and economic activities, particularly for women who bear the primary burden of water collection, and fostering community resilience against climate-induced droughts. Beneficiaries, including vulnerable groups such as the elderly and schoolchildren in these remote sucos, will experience reduced inequality, with broader ripple effects supporting Timor-Leste's national target of 75% rural access to clean water by 2030 and demonstrating scalable renewable energy solutions for isolated islands worldwide.

Programme Period: 01.12.2025 – 31.14.2026

Quantum Project Number: 00126532
Quantum Output Number: 00126434

Gender Marker: GEN-2

Total resources required: $ 91,704.95
Total allocated resources: $ 91,704.95

- Regular
- Other:
  - Donor UNDP
  - Donor
  - Government

Unfunded budget:

In-kind Contributions

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Agreed by UNDP: Signed by: adeline carrier 91250C1EB4664A7...

I. PURPOSE AND EXPECTED OUTPUT

The rehabilitation of the solar-powered water supply system on Atauro Island is not merely a technical fix; it is a vital intervention to restore a fundamental human right: access to clean, reliable water for 1,259 residents of Suco Beloi and Suco Biqueli. For years, these communities have endured the hardship of walking up to 13 kilometers daily to collect water, relying on rainwater harvesting that often runs dry. The ACCESS project was initiated to provide a permanent, sustainable solution using solar power, but the initial implementation encountered significant setbacks due to unforeseen complexities in the island's terrain and hydrology. An Initiation Plan is now essential to provide a clear, structured, and technically sound roadmap to restart this critical component of the project. This plan will consolidate lessons learned from past challenges, validate a new engineering design that accounts for Atauro's unique topography, ranging from 8 meters at Adara Aldea to 328 meters at the main water source, and establish a realistic, phased implementation pathway within the remaining financial and time constraints. The goal is to transform a stalled initiative into a resilient, community-owned asset that delivers lasting benefits.

This comprehensive plan will be built around several core components:

1. **Technically validated redesign** addresses the root causes of the previous failure. This includes relocating the main water reservoir from the low-lying Arlo Aldea (165.6m) to the mid-elevation Metanau settlement (approximately 165.6m), enabling gravity-fed distribution to the higher villages of Iliana (265m) and Duro (219m). The plan will mandate replacing the undersized 2-inch poly-pipes with larger 3-inch pipes across key sections of the 23-kilometer network to handle the required water volume and pressure gradients. It will also involve constructing new concrete collector tanks at the source spring and at Metanau and Iliana, rehabilitating existing galvanized iron (GI) pipes where feasible, and burying all poly-pipes near the 30 tap stands to protect them from damage.
2. **Transparent procurement strategy** for selecting a qualified contractor through an international tender process, ensuring the chosen firm has the specific expertise required for mountainous terrain and solar-powered water systems. The estimated cost for this rehabilitation is US $ 91,704.95, which must be secured through urgent reallocation or additional funding, as the current budget is nearly exhausted.
3. **Robust sustainability framework centered** on the creation of a local Governing Management Forum (GMF). This GMF will consist of trained community members responsible for the day-to-day operation and long-term maintenance of the system. To support this, the plan will detail the establishment of a small, dedicated Guaranteed Maintenance Fund (GMF) to cover minor repairs and parts. It will also recommend providing adequate honoraria and binding service agreements to local operators for at least 3 to 5 years to ensure their continued commitment.
4. **Clear, phased implementation timeline** targeting full commissioning and inauguration by March 2026. This timeline is broken down into five distinct phases: Phase 1 (late October 2025) will focus on finalizing the engineering design, integrating findings from expert hydrological studies, and securing community and UNDP approval. Phase 2 (October- December 2025) will involve preparing and submitting bidding documents, publishing the international tender, and awarding the contract to a new contractor. Phase 3 (January- February 2026) will encompass the physical construction, including the following key activities:
    - General site preparation and mobilization/demobilization.
    - Construction of a new intake (including clearing, excavation, concrete works, and pipe installation at the intake).
    - Construction of 30 public tap stands.
    - Pipe works (supply and installation of GI, HDPE, and PVC pipes with accessories).
    - Pipe excavation.

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- Construction of reservoirs (including 20m³, 18m³, and 6m³ concrete tanks).
- Fence and protection work.
- Pump house construction.
- Construction of pipe support concrete blocks (88 units).

Phase 4 (Early Mid-March 2026) will be dedicated to testing the system's pressure and solar performance, training the newly formed GMF (including provision of tool kits for ongoing maintenance and safety/protection equipment for the crew), and finalizing the Operations & Maintenance (O&M) plan. Finally, Phase 5 (End of March 2026) will culminate in the official inauguration of the system, celebrated with the community, local authorities, and UNDP.

The financial structure for this rehabilitation is detailed and transparent. The total estimated cost is US$91,704.95, which breaks down into several major categories.

- Pipe Works: Involves the full supply and installation of new and rehabilitated galvanized iron (GI) pipes in various diameters (DN25, DN40, DN50, DN80) as well as high-density polyethylene (HDPE) pipes across the entire 23-kilometer water distribution network. This includes all required fittings (e.g., elbows, tees, couplings, valves), jointing materials, pressure testing, disinfection, and commissioning in accordance with relevant water supply standards.
- Construction of Concrete Tanks: Includes the design, reinforced concrete construction, and finishing of three water storage tanks, two larger tanks (20m³ and 18m³) and one smaller tank (6m³) with proper foundation preparation, structural steel reinforcement, waterproofing, overflow and drainage provisions, access ladders, and protective covers to prevent contamination.
- Fencing and Protection: Provides secure perimeter fencing, lockable gates, and protective enclosures around the 20m³ tank and adjacent pump house to deter unauthorized access, livestock intrusion, and vandalism, ensuring long-term asset integrity and public safety.
- Pump House Construction: Covers the complete construction of a weather-resistant pump house, including site preparation, reinforced concrete slab, block masonry walls, ventilation, roofing, secure doors, internal finishes, and provisions for future electrical and control panel installation, all designed for durability in coastal environmental conditions.
- Tap Stands: Installation of 30 communal tap stands with durable fixtures, concrete aprons, soak pits or drainage channels, and signage to promote hygiene and manage wastewater runoff, ensuring equitable and safe access for households and community users.
- Pipe Support Concrete Blocks: Fabrication and strategic placement of 88 concrete anchor and support blocks along the pipeline alignment, particularly at bends, slopes, and transitions to prevent pipe movement, minimize stress, and protect against ground settlement or erosion.
- Safety and Protection Equipment: Provision of complete personal protective equipment (PPE) for all on-site workers, including helmets, high-visibility vests, safety boots, gloves, eye protection, and appropriate signage, in compliance with occupational health and safety protocols.
- Tool Kits for Maintenance: Handover of standardized operation and maintenance (O&M) tool kits, including wrenches, pipe cutters, Teflon tape, pressure gauges, and spare fittings, to the local authority (GMF) to support routine system checks, leak repairs, and minor interventions.
- Mobilization and Demobilization: Includes transportation of personnel, equipment, and materials to the site; establishment of temporary site offices or storage; and post-construction cleanup, equipment removal, and site restoration.
- Contingency Allowance: A management reserve to address unforeseen technical, logistical, or environmental conditions encountered during implementation, such as unexpected ground conditions, material price fluctuations, or minor design adjustments without compromising quality or schedule.
- Quality Assurance and Supervision: Although not explicitly costed as a separate line item, effective implementation assumes on-site technical supervision, adherence to construction specifications,

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material quality checks, hydrostatic pressure testing of the pipeline, and final commissioning verification.

- Community Engagement and Handover Protocol: Includes stakeholder orientation, basic user training, and formal asset handover procedures to ensure local ownership, clarity on maintenance responsibilities, and sustainability of the rehabilitated system.

This investment is designed to deliver a resilient, equitable, technically sound, and sustainably managed water supply system for Atauro Island, aligned with national standards and international best practices for rural water infrastructure.

This Initiation Plan is designed to deliver tangible, transformative impact. By successfully rehabilitating the system, it will ensure that 1,259 residents, particularly women and children who bear the heaviest burden of water collection, finally receive reliable, equitable, and long-lasting access to clean water. This success will not only fulfil the immediate needs of the community but also contribute to broader national goals, such as Timor-Leste's Strategic Development Plan target of 75% rural access to clean water by 2030, while demonstrating how renewable energy can be effectively deployed to improve livelihoods and reduce inequality in some of the world's most remote and vulnerable areas.

The expected output of this Initiation Plan is a fully endorsed, actionable, and financially viable rehabilitation strategy, designed to ensure the system functions as intended and serves its beneficiaries for years to come:

Output 1: A fully functional Solar-powered water supply system, ensuring functionality and long-term benefits for 1,259 residents.

Activity Result 1: Finalise engineering design and secure approvals (Phase 1).

Activity Result 2: Procure a qualified contractor (Phase 2).

Activity Result 3: Execute physical construction (Phase 3).

Activity Result 4: Test system, train GMF, and Finalise O&M (Phase 4).

Activity Result 5: Workshop/Inaugurate system (Phase 5).

II. MANAGEMENT ARRANGEMENTS

The management arrangements for the Initiation Plan of the Atauro solar-powered water supply system rehabilitation are designed to ensure efficient execution, technical quality, and compliance, while leveraging existing institutional structures under the broader ACCESS project framework. Given the plan's focused scope on engineering validation, contractor procurement, short-term construction, and sustainability planning, a new project board is not required. Instead, the initiative will operate under the overall supervision of the UNDP Resident Representative and, if needed, can benefit from the PDIM Engineers of the Municipality of the Atauro Island and a streamlined implementation team aligned with UNDP's Programme and Operations Policies and Procedures (POPP).

Oversight and Quality Assurance (Substantive -Nonfinancial):

The UNDP Timor-Leste Country Office provides overall technical and managerial oversight. The GCF Project Manager will supervise, oversee, and manage all activities under the Initiation Plan. To ensure engineering integrity, three GCF civil engineers will conduct technical reviews, validate the redesigned system (including reservoir relocation to Metanau, pipe upsizing, and tank construction), and directly supervise the contracted rehabilitation contractor during implementation. At the programme level, the GCF Project Manager reports to the Programme Manager and the Head of the Environment and Climate Change Unit, under the strategic supervision of the UNDP Resident Representative.

Execution and Financial Support:

Execution support, including procurement, financial management, and administrative services, is delivered by the authorized UNDP Timor-Leste Operations Team, in coordination with the Government of Timor-Leste.

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These staff ensure that all processes adhere to UNDP POPP, donor requirements, and financial compliance standards, particularly in managing the $91,704.95 rehabilitation budget and facilitating urgent reallocation or supplementary funding.

Governance and Stakeholder Engagement:

The Initiation Plan operates under the overall supervision of the UNDP Resident Representative. Also, it engages experts from the Municipality of Atauro Island, the FEDA (Fundo Especial de Desenvolvimento de Atauro, or Special Development Fund for Atauro), and UNDP. The Board will receive concise updates on critical milestones, such as design approval, tender launch, and GMF establishment, to enable strategic oversight and timely decisions without creating parallel governance structures.

Community and Sustainability Mechanisms:

A Local Governing and Maintenance Committee (GMF) will be formed and trained during Phase 4 to assume long-term operation and maintenance responsibilities. UNDP will support the GMF through initial honorariums, a dedicated maintenance fund, and handover of toolkits, in line with Terminal Evaluation recommendations for sustainable asset management.

This lean, accountable structure ensures the Initiation Plan is implemented efficiently, with rigorous technical standards, clear reporting lines, and full alignment with national development goals and international donor protocols.

III. MONITORING

The monitoring framework for this Initiation Plan is designed to ensure transparent, accountable, and adaptive implementation over its approximately 4-month duration (01 December 2025 to 31 March 2026), aligning with the plan's scope of technical redesign, procurement, physical rehabilitation, and sustainability measures for the solar-powered water supply system on Atauro Island. Given the plan's compressed timeline and focus on pilot-like startup activities (e.g., engineering validation, contractor-led construction, and community training), a combination of monitoring tools and mechanisms will be used to track progress, mitigate risks, and assess outcomes. This includes regular reporting, field-based oversight, financial tracking, and stakeholder engagement, with adjustments based on emerging issues such as terrain-related delays or budget constraints. Monitoring will emphasize results-based management, drawing on UNDP's standard project oversight procedures. It will integrate environmental and social safeguards to verify the system's resilience and equitable benefits for 1,259 residents in Suco Beloi and Suco Biqueli.

Key Monitoring Components

- Progress Monitoring and Reporting: The GCF Project Manager will lead bi-weekly progress reviews during the active implementation phases (Phases 2-5), producing concise reports that detail advancements against the phased timeline, key performance indicators (e.g., completion of engineering design in Phase 1, contract award in Phase 2, and construction milestones in Phase 3). These reports will include quantitative metrics (e.g., kilometers of pipes installed, number of tap stands constructed) and qualitative assessments (e.g., adherence to technical specifications for reservoir relocation and pipe upgrades). Monthly consolidated reports will be submitted to the Programme Manager and the Head of the Environment and Climate Unit for review, with escalation to the UNDP Resident Representative if deviations exceed 10% from planned timelines or budgets.
- Field-Based Oversight and Site Visits: The three GCF Civil Engineers will conduct weekly site visits during Phase 3 (physical construction) to monitor activity results, such as the installation of GI/HDPE pipes, construction of concrete tanks (20m³, 18m³, and 6m³), fence/protection works, pump house, and pipe support blocks. Visits will include visual inspections, photographic documentation, and verification against the technically validated redesign. Community consultations will be integrated into these visits to gather feedback from residents and the emerging Governing Management Forum (GMF), ensuring that outputs such as gravity-fed distribution and solar performance align with beneficiary needs.
- Financial and Risk Monitoring: In line with UNDP Policies and Procedures (POPP), the Operations Staff, Luciano Freitas (Operations Manager) and Tazvidya Chivende (Procurement Manager), will conduct bi-weekly financial tracking to monitor expenditures against the total project budget of US $91704.95. This includes detailed oversight of all cost components: Pipe Works (58829.72), Construction of Concrete Tanks (15,507.68), Fence & Protection (1,883.89), Pump House

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Construction (1,782.33), Tap Stands -30 units (1,159.85), Pipe Support Blocks - 88 units (1,083.98), Safety & Protection Equipment (780.30), Tool Kits for GMF (386.60), Mobilization/Demobilization (2,857.29), and a 10% contingency allowance (7,433.31). A risk log will be maintained and reviewed monthly to proactively address potential issues, such as hydrological variability, community access constraints, or procurement delays, and to implement mitigation measures, where appropriate, including activating contingency funds. Independent spot audits may be triggered should expenditure variances exceed 5% of any budget line.

Performance Assessment and Adaptive Management: Outputs will be assessed through mid-term (end of Phase 2, 31 December 2025) and end-of-plan evaluations, using tools such as key performance indicators (KPIs) linked to core components: e.g., validation of the redesign (measured by expert hydrological integration), procurement transparency (via tender process documentation), sustainability framework (GMF formation and training completion), and timeline adherence (full commissioning by 13 March 2026). Assessments will involve stakeholder reviews, including representatives of the Government of Timor-Leste, to ensure alignment with national goals, such as achieving 75% rural water access by 2030. Adaptive adjustments, such as rephasing activities, will be approved by the GCF Project Manager based on these reviews.

- Community and Sustainability Monitoring: During Phase 4, GMF training sessions will include baseline surveys to monitor community ownership and readiness for operations & maintenance (O&M). Post-inauguration (Phase 5), a two-week follow-up will assess initial system functionality (e.g., water flow at 30 tap stands) and beneficiary satisfaction, particularly for women and children.

As a minimum requirement, an Initiation Phase Report will be prepared at the end of the plan (by 13 March 2026) to summarize achievements, lessons learned, challenges, and financial utilization. This report will attach the full project document for the rehabilitated system (including the endorsed rehabilitation strategy and O&M plan) or, if the initiation fails to produce a viable, complete project (e.g., due to unresolved funding issues), a detailed explanation of the reasons and recommendations for future actions. The report will be reviewed by the UNDP Resident Representative and shared with the Government of Timor-Leste to inform potential scale-up.

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IV. WORK PLAN

PERIOD: 01 December 2025 – March 31, 2026

EXPECTED OUTPUTS and baseline, indicators, including annual targets	PLANNED ACTIVITIES List activity results and associated actions	TIMEFRAME 2025 Q4	TIMEFRAME 2026 Q1	RESPONSIBLE PARTY	PLANNED BUDGET Funding Source	PLANNED BUDGET Budget Description	PLANNED BUDGET Amount
Output 1: A fully functional Solar-powered water supply system, ensuring functionality and long-term benefits for 1,259 residents. **Baseline:** - Stalled project with no reliable water access. - Implementation failed due to terrain and hydrological issues. **Indicators:** - Completion of validated redesign. - Successful contractor procurement (contract awarded. - GMF established and trained (number of members trained). - System commissioned and functional (number of tap stands operational. **Targets:** - Validated redesign by the end of	**1. Activity Result-1: Finalize engineering design and secure approvals (Phase 1).**	X		UNDP	UNDP	Engineering design and studies	0
	1.1 Integrate hydrological studies.						
	1.2 Validate redesign (reservoir relocation, pipe upgrades, tank construction).						
	1.3 Secure community and UNDP approval.						
	2. Activity Result-2: Procure a qualified contractor (Phase 2).	X		UNDP	UNDP	Procurement and tender processes	0
	2.1. Prepare and submit bidding documents.						
	2.2. Post tender.						
	2.3. Award contract to new contractor.						
	3. Activity Result-3: Execute physical construction (Phase 3).	X	X	Contracted Contractor (supervised by UNDP	UNDP	Pipe works; Concrete tanks; Fence/protection; Pump house; Tap stands; Pipe supports; Mobilization/demobilization; Safety equipment	$60,560.88
	3.1. General site preparation and mobilization/demobilization.						
	3.2. Construct new intake (clearing, excavation, concrete works, pipe installation).						
	3.3. Construct 30 public tap stands.						
	3.4. Perform pipe works (supply/install GI, HDPE, PVC pipes with accessories).						
	3.5. Conduct pipe excavation.						

Phase 1. - Contract awarded at the end of Phase 2. - GMF with at least 10 trained members by Phase 4. - 30 functional tap stands and 100% coverage for 1,259 residents by the end of the plan (March 13, 2026).	3.6. Construct reservoirs (20m³, 18m³, 6m³ concrete tanks).						
	3.7. Install fence and protection works.						
	3.8. Build pump house.						
	3.9. Construct 88 pipe support concrete blocks.						
	4. Activity Result-4: Test system, train GMF, and finalize O&M (Phase 4).		X	Contracted Contractor (supervised by UNDP	UNDP	Training, tool kits, safety equipment	$2,166.90
	4.1. Test pressure and solar performance.						
	4.2. Train GMF members (including tool kits provision).						
	4.3. Provide safety/protection equipment.						
	4.4. Finalize Operations & Maintenance plan.						
	5. Activity Result-5: Inaugurate system (Phase 5).			Contracted Contractor (supervised by UNDP	UNDP	Inauguration events	$1,072.22
	5.1. Official inauguration with community, authorities, UNDP, and handover to GMF.						
Project Management	**International Civil Engineer (IPSA-10)**	**X**	**X**				**$15,983.30**
	GMS	**X**	**X**				**$7,336.40**
	DPC	**X**	**X**				**$4,585.25**
TOTAL							**$91,704.95**