



Ambasciata d'Italia
Tripoli



Enhanced National Capabilities to Improve Water Security in Libya



3rd Progress Report

Implementing Organization: UNDP

Implementation period	01 January 2023 to 31 December 2026
Reporting Period	01 January 2025 to 31 July 2026
Italy contribution	USD 2,700,758 from the Italian Ministry of Foreign Affairs
Total delivery (expenses incurred & legal commitments)	USD 2,672,595 (99%)
Project background	Libya is grappling with a pressing water crisis, primarily due to its predominantly arid desert landscape. Most of its population resides in coastal regions, where arable land is limited, while central and southern areas face severe aridity and have smaller populations. The country heavily relies on groundwater, which results in its over-extraction, seawater intrusion, and a projected water deficit of 4,200 million cubic meters by 2025. In response to this issue, the project will make substantial contributions towards increasing water security, which aims simultaneously to guarantee the three pillars of sustainability (economic, social and environmental) and to address the diversity of risks and threats related to water. This “dual aim” is recognized by UN-Water, who define water security as “the capacity of a population to safeguard sustainable access to adequate quantities and of acceptable quality water for sustaining the livelihoods, human well-being and socio-economic development...”.¹ The project is structured around three main outputs seeking to strengthen national water governance and institutional frameworks by fostering collaboration among stakeholders, institutional capacity development, and integrating the water-energy nexus and climate change into decision-making processes to promote sustainability (Output 1), focusing on improving the national water infrastructure through development and implementation of a comprehensive management strategy, taking into account synergies between the water-energy nexus and climate change and prioritizing operational and maintenance efficiency (Output 2), and aiming to empower local communities for water security by implementing strategies and promoting public awareness of sustainable water usage practices, tailored to geographical and resource variations (Output 3). Together, these outputs aim to establish a resilient, well-informed, and proactive approach to water management in Libya.

¹ UN-Water. Water Security and the Global Water Agenda: A UN-Water Analytical Brief ; United Nations University—Institute for Water, Environment and Health: Hamilton, ON, Canada, 2013; ISBN 92-808-6038-0

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List of Acronyms

AICS	Italian Agency for Development Cooperation
AF	Adaptation Fund
GCF	Green Climate Fund
GDC	General Desalination Company of Libya
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
GPS	Global Positioning Systems
GWWC	General Water and Wastewater Company
IWRM	Integrated Water Resources Management
LPAC	Local Project Appraisal Committee
MMR	Man-Made River Project
MMRA	Man-Made River Project Authority
MoLG	Ministry of Local Government
MoP	Ministry of Planning
MoWR	Ministry of Water Resources
NESDB	National Social and Economics Development Board of Libya
NRW	Non-Revenue Water
NSAS	Joint Authority for the Study and Development of the Nubian Sandstone Aquifer System
NWC	National Water Committee
NWSS	National Water Security Strategy
OSS	Sahara and Sahel Observatory - Observatoire du Sahara et du Sahel
SWSI	Social Water Stress Index
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Scientific and Cultural Organization
UNICEF	United Nations Children Fund
SOPs	Standard Operating Procedures
WEFE Nexus	Water-Energy-Food-Ecosystems Nexus

I. EXECUTIVE SUMMARY

Amidst Libya's severe climate vulnerability, the UNDP Water Security project has effectively translated national policy into community-level impact, utilizing 96% of the USD 2.7M budget. The project has achieved a fundamental shift from ad-hoc interventions to strategic, sustainable water management.

Key achievements include:

- **Strategic National Framework:** Secured official government endorsement for the National Water Security Strategy (2025-2050), creating a unified roadmap for water preservation. Launched the first Water-Energy-Food-Ecosystems (WEFE) Nexus dialogue to break down institutional silos and foster integrated resource planning.
- **Climate-Proofing Critical Infrastructure:** Delivered a USD 186M damage assessment blueprint to rebuild water systems in five municipalities devastated by Storm Daniel. Advanced the digital transformation of the Man-Made River Authority (MMRA) to enhance the resilience of Libya's most vital water pipeline.
- **Community Resilience and Empowerment:** Provided over 50,000 residents with reliable access to clean water through targeted infrastructure upgrades. Pioneered a community-driven water management model in Yefren, which is now being replicated in Al Qalaa, Dhaher Al Jabal and Nalut municipalities.
- **Inclusive Governance:** Achieved a 25% increase in women's and youth representation in local water management, ensuring that the most affected community members have a decisive voice in water governance.

By linking high-level strategy with tangible local relief, the project is building a resilient, human-centered foundation for water security across Libya.

Looking Ahead: Scaling Up Local IWRM planning and water-borne disaster risk assessment

Building on the successful implementation of the Integrated Water Resources Management (IWRM) plan in Yefren, a core focus moving forward is the strategic scale-up of this community-driven model. The project will scale up this planning framework to neighbouring municipalities, including Al Qalaa, Dhaher Al Jabal, and Nalut, while securing additional investments and enhancing local technical capacities. This replication aims to foster inter-municipal cooperation and establish a standardized, scalable approach to sustainable water security across Libya's most water-stressed regions.

Additionally, building upon flood risk assessment conducted in Wadi Tanezufft, the project will scale up this vital methodology to other highly vulnerable, flood-prone wadis across Libya. Expanding advanced remote sensing, flood hazard and risk modelling mapping methodologies will be essential for enhancing national early warning capabilities, proactively mitigating climate-induced disaster risks.

II. PROGRESS OVERVIEW

Total project expenditures and legal commitments are US\$ 2,672,595 up to 31 July 2026. (**Annex 01**. Financial Report).

Results achieved and delivered in close collaboration with the Ministry of Planning (MoP), the Ministry of Water Resources (MoWR), the Ministry of Local Governance (MoLG), the Man-Made River Project Authority (MMRA), General Water and Wastewater Company of Libya (GWWC), General Desalination Company (GDC), the National Water Committee (NWC), the Municipalities of Yefren, Al Qalaa, Dhafer al Jabal and Nalut, are summarized below by output and corresponding activities. This section presents an overview of progress achieved during the reporting period.

OUTPUT 1: Enhanced water governance and institutional framework

1.1 Development of a National Water Security Strategy (NWSS) - completed

Officially launched in presence of the Prime minister of the Government of National Unity (GNU) and the Minister of Planning on 3 December 2024, the process to develop a robust National Water Security Strategy for Libya was successfully completed by the end of 2025. The NWSS was formally endorsed by the Government of Libya on 21 April 2026. Working in close synergy with the National Water Committee Technical Support Group, the MoP, the MoWR, the UNDP Water Security project experts team spearheaded the strategy development through inception, situational analysis, action plan development and final stages. High participation of key actors from the Libyan water sector was achieved through the structured institutional interviews, bilateral meetings with stakeholders, and several participatory multi-stakeholder validation workshops.

The NWSS development process faced several challenges mainly due to the fragmentation of the Libyan water sector and weak regulatory and governance framework. Timely and successfully identifying and addressing the challenges through a synchronised action of the UNDP project team and the NWSC Technical Support Group allowed for full control over the delays and minimized the process' no-cost extension down to six months, from 30 June to 31 December 2025.

This [2025-2050 Strategy](#)² is designed as an authoritative reference for all actors in the water sector – ministries, public companies, municipalities, and partners – so that projects, funds, and investments align with the NWSS priorities and contribute measurably to national goals. Strategy envisions water security and climate resilience achievements through a sustainable equilibrium between renewable resources and rational demand, under the leadership of a single public authority for the entire water sector. Decisions are data-driven, coordinated across sectors, and ensure fair, efficient service delivery. By 2050, the target is to curb down the current urban consumption of 240-320 litres per capita per day (l/c/d) down to below 150l/c/d for municipal water, reach 75% of renewable sources in the resource mix, and

² [Libya Launches 2050 National Water Security Strategy to Combat Scarcity and Build Climate Resilience | United Nations Development Programme](#)

contain non-revenue water (NRW) below 25% with infrastructure operating at 80% of design capacity.



Photos 1 and 2- H.E. Prime Minister Abdulhamid AIDbaiba, H.E. Minister Zidani (L) and H.E. Minister Awedan (R) officially endorsing the National Water Security Strategy (left) and Deputy Ambassador of Italy to Libya Mr Riccardo Villa addressing the audience at the NWSS endorsement event © UNDP

1.2 Launching first national Water-Energy-Food-Ecosystems (WEFE) nexus dialogue series

In coordination with the Ministry of Planning, the project designed and facilitated on 17 September 2025 a high-level Policy Dialogue on the Water-Energy-Food-Ecosystems (WEFE) Nexus, bringing together national institutions, academia, municipalities, civil society, and international partners to discuss motivations, challenges, and opportunities for Libya. The event was facilitated in collaboration with the Food and Agriculture Organization (FAO) and the African Development Bank (AfDB), the regional directors of which addressed the event.

Building on Libya's National Renewable Energy and Energy Efficiency (2023–2035), Draught Management and Mitigation Strategy, the ongoing preparation of the National Water Security Strategy (2025-2050), Carbon Inventory and Nationally Determined Contributions (NDCs), and the Workshop on Energy Economics facilitated by UNDP in collaboration with the National Economic and Social Development Board of Libya (NESDB) in November 2023, the participants highlighted the importance of embedding the WEFE Nexus into national frameworks. Key recommendations from the several panel discussions included strengthening governance and inter-ministerial coordination, improving efficiency in water and energy use, enhancing resilience to droughts and floods, restoring ecosystems, and mobilizing financing.

Opening the event, H.E. Mohamed Al-Zaidani, Minister of Planning, said: *"Libya has long recognized the importance of the nexus between water, energy, and food. By including ecosystems, we align national priorities more closely with the UN 2030 Agenda. The adoption of an integrated WEFE Nexus approach will help generate innovative solutions to advance sustainable development."*



OUTPUT 2: Improved water infrastructure management

2.1 Increase resilience of the water infrastructure in disaster prone areas

2.1.1 Development of Libya Daniel Storm and flooding 2023 water and wastewater infrastructure damage assessment and rehabilitation strategy - completed

The project actively participated in the Libya Storm and Flooding 2023 Fooding Rapid Damage and Needs Assessment (RDNA)³, led by the World Bank (WB) in collaboration with the UN and the European Union (EU). Following the RDNA recommendation (Water and sanitation, and water resource management sector assessment, pp. 150 – 162), from December 2023 to May 2024 the project completed an in-depth damage assessment of drainage, sewerage and water distribution networks, and developed a rehabilitation strategy thereof in all five affected municipalities (Derna, Susah, Qubah, Shahat and Sahel Al Jabal), estimating the total damages to USD 186 million. This activity was led by the Water Security team experts and dr Hubert Lohr, International Senior Water Resources expert. The expenses of were covered by the UNDP TRAC3 funding and the project budget.

The project closely collaborated with the Green Mountain Department of the General Water and Wastewater Company of Libya (GWWC), in charge of water supply and sanitation in the floods affected region, who recognized importance of the systemic and strategic approach to critical infrastructure reconstruction efforts that were already underway. Comprehensive damage data was collected, systematized and analyzed using desktop research of water sector documents, remote sensing data from the satellites, and most importantly through project team ground-truthing of the affected region and liaising with water sector officials in the field. Value added by ground truthing was in validation of damage data received through other channels.

Engineer Fathi Al-Arideh, Director of the GWWC Green Mountain (Al Jabal Al Akhdar) region in his letter to UNDP stated *"a deep appreciation for UNDP's and Italian Government's outstanding efforts in supporting various development areas, especially in the water sector. The valuable contributions UNDP has made in this context deserve the utmost recognition and gratitude."*

³ [Libya Storm and Flooding 2023 : Rapid Da Libya Launches 2050 National Water Security Strategy to Combat Scarcity and Build Climate Resilience | United Nations Development Programme e and Needs Assessment](#)



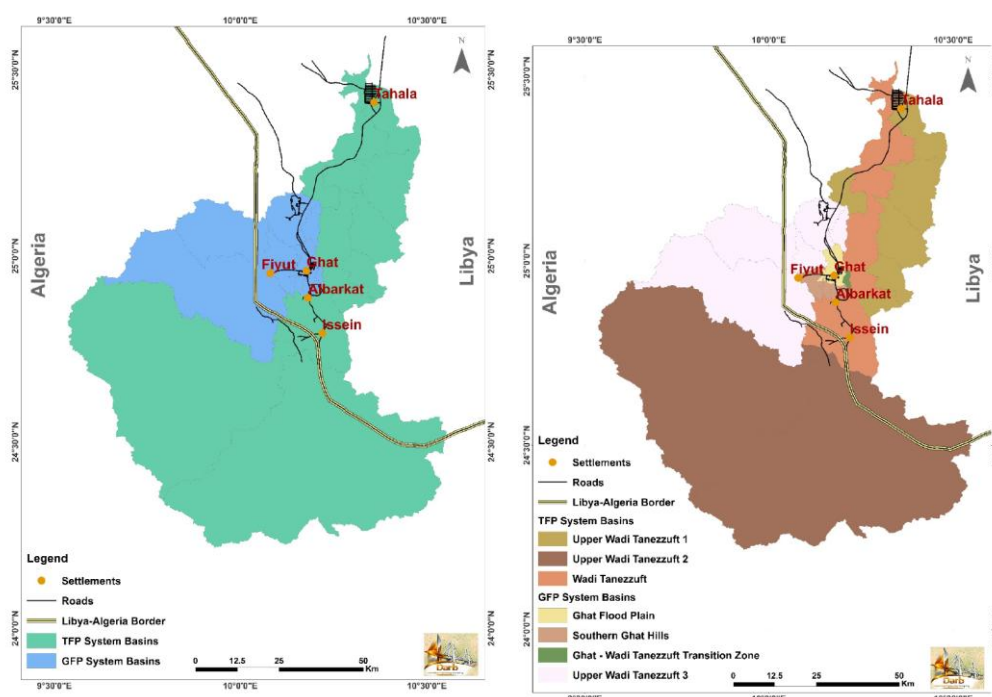
Photo 3 – Scoping the damage to water and wastewater infrastructure caused by Daniel Storm 2023 flooding © UNDP

2.1.2 Integrated, climate resilient flood risk management (FRM) in the Wadi Tanezzuft Watershed – ongoing

The high vulnerability and exposure of Libya’s water infrastructure to natural disasters became evident during the devastating flooding caused by the Storm Daniel, which struck northeast Libya in September 2023, and more recently during the August 2024 flash floods from Wadi Tanezzuft, affecting the cities of Ghat, Al Awynat, Tahala and Al Birkit in the Southwest, impacting a population of approximately 30,000 people. In line with the Water Security Project Document and recommendations from the UNDP’s Libya 2023 Storm and Flooding Water Infrastructure Damages Assessment, and in coordination with the Ministry of Water Resources (MoWR), the project aims to enhance resilience of water infrastructure in some of the largest flood-prone wadi watersheds.

Insofar, under the guidance of UNDP project experts, the national consultancy has completed the wadi watershed based hydrological modelling (25% of the activity scope) as foundation for subsequent flood risk mapping and appraisal-led design of structural and non-structural flood protection measures.

The conceptual hydrological routing framework was developed through combining advanced satellite (Sentinel 1 and 2) imagery and digital terrain maps to compensate complete absence of national hydro-meteorological data, NDWI-based flood-event mapping, GIS basin-system analysis, and field-informed local knowledge. The framework provides a coherent hydrological basis for rainfall interpretation, flood-event analysis, comparative assessment of the 2019 and 2024 floods, and subsequent computer simulated (HEC-HMS)⁴ basin-wide modelling for flood-risk management in Ghat and Tahala.



Figures 1 and 2 - Internal hydrological systems (left) and Grouped watershed units and lowlands domains of the Wadi Tanezzuft-Ghat basin system

2.2 Improve efficiency of the Man-Made River arterial water mains through technical studies

2.2.1 Assessment of land subsidence phenomenon at the MMRA Tazerbo water wellfields and its impact on the integrity of the critical water infrastructure -completed

This intervention was prioritized by the Man-Made River Authority (MMRA) during a series of consultations between the UNDP and the MMRA administrative board members and technical management held at the MMRA headquarters in Benghazi in May and June 2024. Due to the land subsidence, the water production from the vital water wellfields of Tazerbo had been more than halved for years, from the initially set 1 million cubic meters a day, while structural

4 USACE Hydrologic Engineering Centre's Hydrologic Modelling System.

integrity of the critical water extraction and distribution infrastructure might have been compromised.

A proportionally phased and integrated monitoring approach was developed, inclusive of ground surface, critical infrastructure and groundwater monitoring and adopted by both UNDP and the MMRA Department of Groundwater Management. The study presented a seven-step action plan to help MMRA prioritize and plan the implementation of the monitoring strategy and community engagement. Opportunities for complementary studies are presented to advance the hydrogeological and geological understanding to inform both ongoing subsidence risk management and long-term aquifer resource management.

The proposed monitoring and mitigation framework offers a proportional approach to safeguarding Tazerbo's groundwater infrastructure against subsidence risks. Its success will depend on coordinated implementation, integrated and iterative data evaluation, and proactive adaptation using the monitoring results. Successful implementation will require the allocation of adequate human, logistical, and financial resources, with capacity building to ensure adequate technical capacity to collect, manage, and interpret the data in the long term. Mitigation measures are proposed based on i) hazard avoidance through site selection, ii) hazard stabilization and iii) reduction through improvements to infrastructure. Continued, controlled wellfield abstractions ensure a prudent management approach.

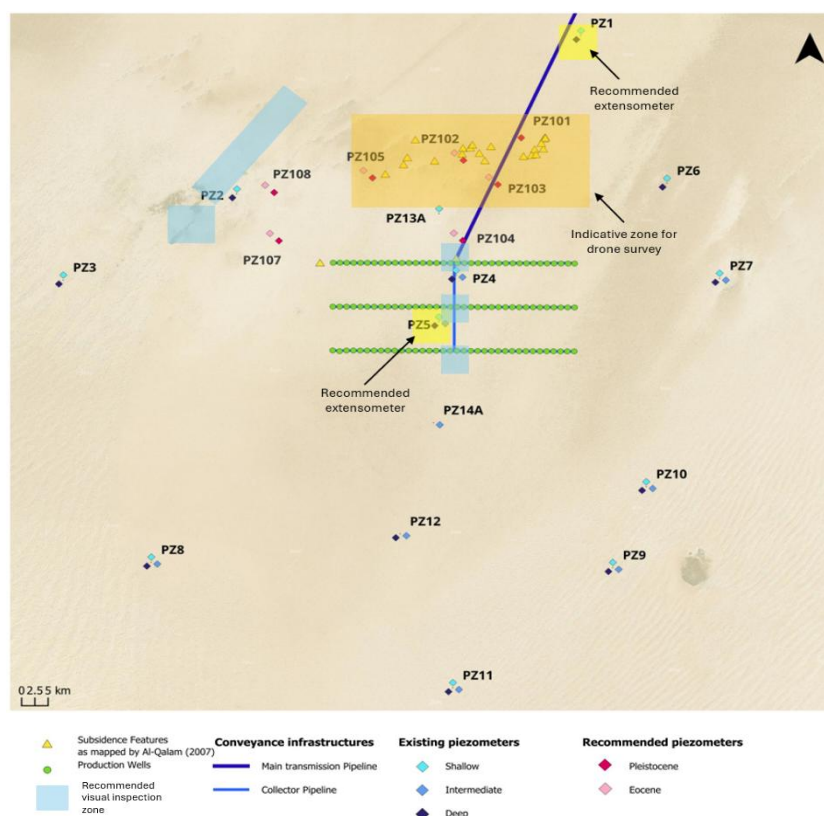


Figure 3 - Level 1 Integrated monitoring plan overview

2.2.2 Developing a Roadmap for smart digital transformation of the MMRA water supply management system - completed

Development of a roadmap for the MMRA's smart digital transformation aimed to contribute to a 10% improvement in its operational efficiency through enhanced monitoring and control (implementing smart sensors throughout water supply system for real-time monitoring of water flow, pressure and quality), optimized water distribution (by balancing supply and demand more effectively using advanced data analytics), energy efficient optimized operation of pumps and other equipment, and improved decision making based on more comprehensive data provided by digital transformation.

After the initial delays caused by the MMRA several month-long inertia caused by the internal divisions of political connotation, the project succeeded in reaffirming the commitment for implementation of this activity in the MMRA Hasauna – Sahel Jefara system in the west. Implementation lasted from December 2023 throughout 1 June 2025, when the Roadmap report was handed over and approved by the MMRA.

A training curricula having been developed by the consultancy, a series of training exercises in duration of 23 working days were delivered to the 25 MMRA technical personnel (30% of whom were women) on GIS and remote sensing, data management and analysis, hydrographic and hydrologic modelling in ArcGIS, creating dashboards with ArcGIS, utility network management and pipeline referencing in ArcGIS, developing a Geospatial Data Policy Framework and other topics. The training was rated as highly satisfactory by 80% of the participants.

#	Main Category	Item	Week 1							Week 2					Week 3					Week 4					
			D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	D21	D22	D23
1	GIS and Remote Sensing Core Courses	GIS Fundamentals																							
2		ArcGIS Pro Essentials																							
3		Using ArcGIS Online for Collaborative GIS																							
4		Field Data Collection and Management																							
5		Managing Geospatial Data																							
6		Remote sensing and Imagery Analysis																							
7		Utility Network Management in ArcGIS																							
8	Data Policy Courses	Introduction to Open Geospatial Data Standards																							
9	Data Management and Analytics Courses	Data Management and Quality Control in GIS																							
10	Advanced Applications	Building Decision Support Systems																							
11	ERP and Asset Management Courses	Introduction to Odoo Enterprise																							
12	ERP and Business Process Courses	Maintenance and Inventory																							
13	Financial and HR Management	Odoo Human Resources Management																							
14	Reporting and Business Intelligence	Odoo Dashboards for Decision Support																							

Figure 4 – The MMRA staff digitalization training timetable





Photo 2 - On-site trainings of the MMRA staff © UNDP

OUTPUT 3: Strengthened climate resilience of water stressed local communities

The Output 3 of the Water Security project in Libya, Strengthened climate resilience of water stressed local communities, aims at strengthening community resilience to climate change induced pressures on freshwater systems by developing local Integrated Water Resources Management (IWRM) strategies and water infrastructure master plans and improving sustainability of the local water supply systems, tailored to geographical and resource variations. It also aims to empower women and youth at the local level so that they can acquire knowledge and skills to participate meaningfully in water management issues, including involving them in influential roles at all levels of water management, particularly at the local water supply utilities, thus ensuring that women and youth voices and perspectives shape the local water security initiatives and policies. This complements the other two Water Security project outputs focusing on: strengthening national water governance and institutional frameworks by fostering collaboration among stakeholders, enhancing institutional capacity, and integrating the Water-Energy-Food-Ecosystems (WEFE) nexus into planning and decision-making processes to promote sustainability (Output 1), and improving national water infrastructure and building capacities of key institutions in water sector (Output 2).

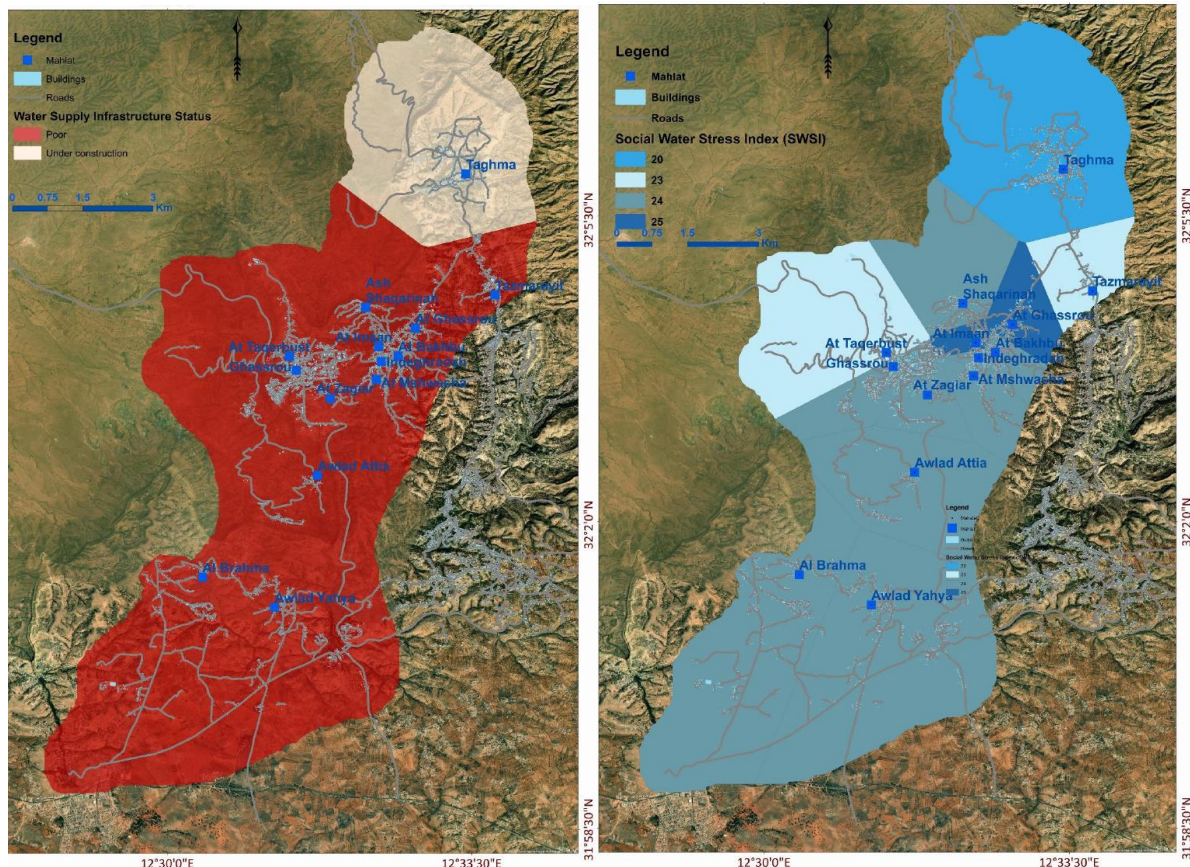
The communities in the Jabal Nafusa are among those most impacted by climate change, particularly desert encroachment and water scarcity. Located on a mountain range, these communities are loosely connected to the MMRA network, but the project ended before it was completed. As a result, the communities rely on their own wells and, as those wells diminish in capacity, increasingly on trucked water.

The initial achievement under the Output 3 in the local communities in the Municipality of Yefren, co-funded between the Government of Italy and the Government of Denmark through the UNDP Funding Window, are now being replicated and scale-up to other municipalities of Jabal Nafusa, Al Qualaa, Dhaher Al Jabal and Nalut, thanks to the new funding by the Government of Italy, the main contributor to the Water Security project.

3.1 Assess community dynamics over water access and develop local-level Integrated Water Resource Management (IWRM)

3.1.1 Assess community dynamics over water access and develop local-level Integrated Water Resource Management (IWRM) in Yefen - completed

In order to identify the areas of intervention under this activity, the Project established an effective collaboration with the Ministry of Local Governance (MoLG), and its General Administration of Environmental Sanitation, responsible for the water quality monitoring at national, regional and local level in coordination with the General Water and Wastewater Company (GWWC) local branch offices. Due to limited availability of the municipal level water sector data and to develop an evidence-based work plan, the project undertook an in-house baseline assessment on status of the Integrated Water Resources Management at the local community level (mahalat) of in the target municipalities, during July – August 2024.



Figures 5 and 6 – Supply Infrastructure Status (Categorical Map) and Social Water Stress Index (SWSI)

The national consultancy company, Scale Consulting, was commissioned to develop a detailed community dynamics assessment on water access with geospatial analysis, municipal water infrastructure master plan and IWRM plan, and conduct public awareness campaign on conservation and use of water.

The assessment confirmed the state of advanced structural decline of the piped water supply across all local communities, with no area receiving continuous (24/7) supply. The pump-based distribution combined with power cuts and steep topography leads to long interruptions in water delivery. Only one mahalat has (a partially complete) wastewater network. Water quality is consistently rated as poor in all communities. High salinity from the wellfields, ageing and corroded pipelines dating back from 1970s and prolonged storage in groundwater tanks result in water generally considered unfit for drinking. Thus, household rely on trucked water for drinking and cooking. As can be seen from the above Social Water Stress Index (SWSI), Yefren water crisis is systemic, not localized. SWSI values lie between 18 and 25, showing

extreme social vulnerability driven by complete dependence on private water trucking, limited storage, high water costs, marked women and youth inequalities and low trust in institutions.

The Integrated Water Infrastructure Assessment confirmed usability of the system physical infrastructure base, which however has not yet operated as a fully controlled, resilient, or balanced water supply system. Performance remained highly dependent on a small number of critical upstream assets, particularly Al Rumia Pump Station, Awlad Yahaya Pump Station, and the principal transmission corridors. As a result, failures at key locations affect service across a wide area. The assessment showed that Yefren requires a coordinated rehabilitation and modernization program rather than isolated repair works.



Figure 7 – Main Transmission System Framework and Engineering Summary

The consultancy designed and implemented a public awareness campaign and trainings on water usage and conservation, monitoring and analyses of water quality and environmental safety and MS Office package and GPS use in project development and monitoring, targeting 130 participants, 65% of whom were women and youth.



Figure 8 – Samples of brochures used for the public awareness campaign

The final deliverable under this activity was a comprehensive Yefren IWRM Plan, built around seven integrated response directions: infrastructure rehabilitation, water quality and public health, wastewater and environmental-risk reduction, tanker regulation and consumer protection, institutional strengthening and digitalization, community participation and awareness, and climate resilience and water conservation. The Plan vision is to establish a more reliable, equitable, and governable municipal water system in Yefren through phased rehabilitation, improved institutional coordination, stronger management instruments, safer sanitation conditions, and more inclusive community participation. The plan was developed with full participation of citizens from all local communities (mahalats) through the community engagement workshops, presented to and adopted by the Municipal Council.

The plan's central operational message is clear: first stabilize and control, then rehabilitate and strengthen, then consolidate and adapt. In practical terms, this means that Yefren should not begin with broad system expansion but with restoring governability in the highest-priority areas and critical nodes, especially where improvements in valve control, pressure management, storage functionality, monitoring, and coordination can quickly reduce service instability.

Overall, the Yefren IWRM Plan concludes that the municipality does not need another broad diagnosis. It needs a disciplined, phased implementation pathway grounded in spatial prioritization, practical coordination, minimum regulation, and evidence-based monitoring. If implemented in that form, the plan provides a realistic route for moving Yefren from fragmented and reactive crisis management toward stronger service governability and long-term municipal resilience.

3.1.2 Assess community dynamics over water access and develop local-level Integrated Water Resource Management (IWRM) in Al Qalaa, Dhafer Al Jabal and Nalut Municipalities - ongoing

The Yefren Municipality IWRM Plan and Integrated Water Infrastructure Assessment were the first such documents developed at the municipal level in Liyba.

Due to its high success, the activity is now being scaled up and replicated in the Municipalities of Al Qalaa, Dhaher Al Jabal and Nalut using the Italian Funds. The consultancy contract was signed in April 2026.

3.2 Improve sustainability of local community water supply systems

Based on the priorities identified through the Integrated Water Infrastructure Assessment, such as modernization of critical pumping stations, stabilization of the transmission water main and rehabilitations of storage assets, the project designed and implemented quick infrastructural interventions outlined below (Act. 3.2), which improved the system operational status and water access sustainability for some 50,000⁵ residents of Yefren and Al Qalaa municipalities.

This was achieved in coordination with the General Water and Wastewater Company (GWWC) branch office and the Municipal Department of Planning personnel. Detailed design and ToRs were jointly developed for the following infrastructure interventions were successfully completed from July 2025 to March 2026:

- Detailed design for upgrade of the Supervisory Control and Data Automated Acquisition (SCADA) system for the Tarhuna – Abu Zayan Man Made River Project (MMR) subsystem, critical watermain for Jabal Nafusa region currently operating under limited regime. The Design aims at modernization of the system's monitoring and control capabilities, enhancing operational efficiency, and provision of a foundation for the integration of future upgrades across the MMR Western System (Jefara – Al Jabal Al Gharbi).
- Design, supply and installation of two high pressure, multistage horizontal pumps (Caprari, Italy), control equipment and renovation of the Awlad Yahya Pump Station in Yefren Municipality, which improved hydraulic capacity of the station serving the local population of 20,000.
- Design, supply and installation of one high pressure, multistage horizontal pump (Caprari, Italy) for the Taguri Pump Station, improving water supply for 10,000 residents
- Design, procurement and installation in coordination with the municipal services of the essential water supply system components (30 gate valves of 80, 100 and 150 mm diameter, 10 double air valves of 100mm, 1,000 meters of High Density Poly Ethylene (HDPE) pipes 90 mm diameter, 1,000 meters of HDPE pipes of 110 mm diameter, compliant with applicable DIN and ISO standards, improving the supply of 30,000 residents.
- Design, procurement and installation of the two water treatment systems in Yefren and Al Qalah municipalities, with capacity of 24,000 liters per day, design to serve 2,000 citizens with clean, potable water.
- Water quality testing equipment for the National Laboratory of the MoLG General Administration for Environmental Sanitation.

⁵Beneficiary numbers listed in individual interventions may overlap



Photos 3 and 6 – Priority interventions in design and rehabilitation of critical water infrastructure © UNDP



Photos 4 and 7 – Commissioning of the Awlad Yahya Pump Station during the joint verification mission to Yefren by Italian Ambassador H.E. Mr. Gianluca Alberini and UNDP Resident Representative H.E. Ms. Sophie Kemkhadze, 19 November 2025 © UNDP

3.3 Increase women's participation in the IWRM affairs

A status of women and youth engagement in the IWRM affairs at the community level in Yefren municipality was assessed during the development of the previously mentioned Baseline assessment. Some of its key findings, such as notable lack of awareness of IWRM concepts, 77% of women lacking access to the public piped water network and instead relying on costly trucked water supply, were used for tailoring out a ToR for strengthening the role of women and youth in the IWRM.

To implement activities on women's and youth empowerment in the IWRM at local level, the Water Security Project engaged an experienced national NGO Organization of Development Pioneers (ODP) as a Responsible Party. A Gender analysis targeting 216 respondents (min 50% of women) from all 13 local communities (mahalats) in Yefren municipality informed the design of community engagement workshops targeting women and youth. Project developed 13 training modules and 11 manuals in Arabic language on IWRM, gender equality and women's leadership, digital literacy and AI, negotiation strategies, strategic planning and leadership, entrepreneurship, digital marketing, career development, visual storytelling, ICDL digital foundations, environmental sustainability, hydroponic water solutions, and public speaking, and delivered 13 full-scale capacity building trainings through community workshops (one training in each community), with 283 participants (229 or 79% of women and youth). With average knowledge gain across the modules of 87%, 92% of respondents reported improved knowledge and confidence to engage in water governance. Early evidence shows a 25% increase in women's representation in local water management bodies, a transformative shift from the baseline of zero.

A pilot online water portal/dashboard featuring self-paced interactive modular courses from all aspects of IWRM was developed to serve all 13 communities from Yefren, and to be scaled-up to Al Qalaa, Dhafer Al Jabal, Nalut and other communities in Jabal Nafusa region.



Photos 8-11 – IWRM courses tailored for women and youth © UNDP

Finally, the results of this activity were showcased during the final ceremony held on 10 November 2025 in Tripoli, in presence of around 100 national and municipal officials, Italian Embassy, UNDP and other international organizations officials, CSO and NGO sector, citizens of the concerned communities and others.

Yefren Mayor Mr. Hussein Kafo praised UNDP water security and climate resilience projects for restoring water systems and benefiting some 50,000 residents. He noted that appraisal of critical water infrastructure and restoration of prioritized network components, such as installing new pumps, delivers water directly to the city center, which drastically lowers costs and decreases the community's reliance on expensive water tankers.

Engineer Ibrahim Bin Dakhil, Director of the MoLG General Administration of Environmental Sanitation Affairs during his address stated that *"Access to safe, clean drinking water is not just a basic necessity; it is the foundation of public health and climate resilience for the people of Libya. Thanks to the invaluable support and procurement assistance of the UNDP Water Security project, this institution is finally bridging the critical gap in our technical capacity. By equipping our national and local monitoring laboratories with advanced water testing technology, the project is empowering our sanitation inspectors to conduct real-time, evidence-based water quality assessments."*



Photos 12 and 13 – Deputy Italian Ambassador Mr. Riccardo Villa and Mayor of Yefren Mr. Houssein Kafu address the final event on Women and Youth empowering in the IWRM © UNDP

III. CHALLENGES AND MITIGATION MEASURES

Implementation has progressed within a complex and evolving institutional and political environment. While substantial progress has been achieved across all outputs, several contextual and operational challenges have influenced timelines and coordination dynamics.

The replacement of the MMRA Administrative Committee members in December 2023 signalled internal division of political nature and indicated possible negative impact on the jointly defined project objectives. Several ongoing project activities with the MMRA were put on hold because of the limited responsiveness of the new MMRA chairmanship, particularly related to the guarantees of security and visa clearances for the consultants' field trips to Libya. In coordination with the UNDP Benghazi office, the project conducted two missions to the MMRA HQ in Benghazi in May and June 2024 and several meetings in the Office in Tripoli and succeeded in reaffirming their commitment on previously agreed development objectives, which were then successfully implemented by mid-2025.

Finally, broader political and economic uncertainties at the national level remain external risk factors that may influence implementation of the adopted policy documents, including NWSS.

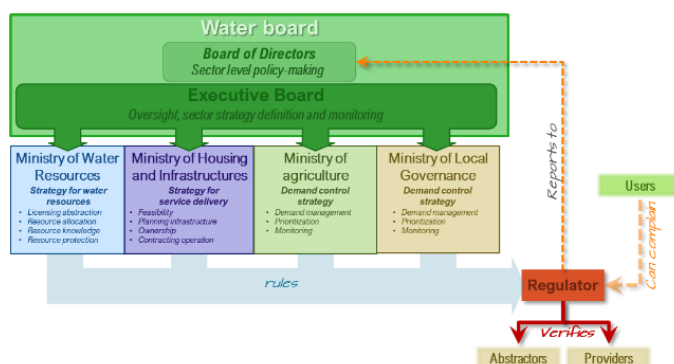
Mitigation and Continuity Strategies

To mitigate these challenges, UNDP maintained continuous technical engagement with counterparts at both operational and decision-making levels. Flexible planning approaches were adopted to preserve technical momentum while awaiting formal endorsements, ensuring that project workstreams remained active despite the high-level turnovers.

UNDP Country Office in Libya is gradually transitioning to the portfolio development approach with in parallel development of the policies implementation proposals towards traditional bilateral donors, but also increasingly multi-lateral vertical funds, such as the Global Environment Facility (GEF), Green Climate Fund (GCF) and Adaptation Fund (AF).

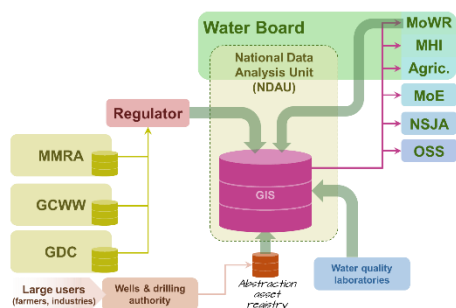
IV. LESSONS LEARNED

Throughout the implementation of the Water Security project, several insights were obtained into the dynamics of water sector governance in a post-conflict environment.



Weak water governance and regulatory framework having been identified as a key lesson learned during development of a National Water Security Strategy, the creation of a water board to coordinate the different line ministries and regulate the sector is proposed therein.

Another lesson concerns is the importance of data collection, management and availability. Scattered, outdated and incomplete data from the water sector must be centralized, extended and updated for reliable decision-making. This lesson has been incorporated in the NWSS as one of the major recommendation for its successful implementation, as depicted in left.



Equally important is sharing the data about local water resources management among the community residents. To address this, the project piloted a Yefren municipal water dashboard with practical courses on local IWRM, water conservation, etc. but also with info on daily water supply issues. The dashboard will be scaled up to include another municipalities the project is working with now.

Important knowledge was gathered on unsustainability of the existing low or no-tariff system and the need for change of paradigm from “managing water supply” to “managing sustainable demand”. Curbing down the demand, reducing losses and wastage, are a key ingredient for long-term equilibrium with available resources. A reasonable tariff serves both ways: limiting wastage and reinforcing financial sustainability for service delivery.

Finally, the project has also reaffirmed the catalytic and symbolic value of community-oriented interventions, such as development of local participatory IWRM plans, assessment of water infrastructure and small infrastructure interventions to showcase sustainable improvements of water supply as confidence-building measures. Projects that address the water security contribute to rebuilding trust between citizens and public institutions, particularly in areas that have experienced displacement and conflict.

V. COORDINATION

And effective coordination has been central to the implementation of this project, given the multi-stakeholder nature of the Libyan water sector. Throughout the entire project implementation period, UNDP maintained close collaboration with the range of national and local level stakeholders to ensure ownership, institutional support and development, and implementation of jointly prioritized activities. Regular coordination meetings were conducted at technical and management levels to monitor progress, review priorities, and address operational challenges in a timely manner. As mentioned below, once developed, the full-fledge project document was endorsed by the Ministry of Planning (the primary stakeholder and focal institution) Technical Committee.

At the national level, engagement with the Ministry of Planning, Ministry of Water Resources, Ministry of Local Government, Libyan National Meteorological Centre, Man-Made River Authority (MMRA) and National Water Committee Technical Support Group has been critical in anchoring institutional reforms and ensuring policy coherence. This brought a success of quick adoption of the National Water Security Strategy by the Government of Libya.

At the community level, continuous engagement with Benghazi, Derna, Shahat, Al Bayda, Yefren, Al Qalaa, Dhaher Al Jabal and Nalut municipalities has supported contextual understanding, in-situ coordination, and facilitation of water resources planning and water and wastewater infrastructure assessment and upgrade interventions. This proximity has enhanced responsiveness to local priorities and strengthened community ownership of reconstruction initiatives.

Through the United Nations Sustainable Development Framework Results Group 4 (UNSCDF RG 4), as well as bilaterally, the project has coordinated its activities under the UNSCDF Libya’s Strategic Priority 4 - Climate Change, Environment and Water, with other UN partnering agencies, such as UNICEF, UNESCO and FAO and development actors, such as African Development Bank, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the Italian Agency for Development Cooperation (AICS) and others.

The project has actively participated in the UNDP Regional Bureau for Arab States (RBAS) North Africa Water Task team, working on development of the North Africa Water Strategy.

During the development of the NWSS, the project discussed prospects for cooperation with representatives of Joint Authority for the Study and Development of the Nubian Sandstone Aquifer System (NSAS), shared by four countries in the North East Africa (Chad, Egypt, Libya and Sudan), the world's largest "fossil" groundwater aquifer, covering some two million square kilometers.

For development of the GCF project proposal the project actively collaborated with the Sahara and Sahel Observatory - Observatoire du Sahara et du Sahel (OSS), the inter-governmental organization established between the riparian states to support its members in the sustainable management of their natural resources in a particularly disadvantageous climate change context, including monitoring and managing aquifer levels and exploitation rates.

VI. PROJECT GOVERNANCE, MONITORING AND EVALUATION

Project governance, monitoring and evaluation mechanisms are integrated across all project outputs to ensure transparency, accountability, and results-based implementation. The project follows UNDP corporate standards for financial oversight, procurement compliance, and quality assurance, while applying context-specific monitoring tools appropriate for post-conflict reconstruction.

Full-fledge Project Document, encompassing project implementation period from 1 January 2023 to 31 December 2026, was developed by the Project Manager and approved by UNDP Local Project Appraisal Committee (LPAC) in June 2024, and subsequently endorsed by the Ministry of Planning Technical Committee in September 2024.

The first session of the Project Board was held on 3 December 2024 in presence of the Director of International Cooperation of the MoP Mr. Mohamed Abudena, Deputy Ambassador of the Italian Republic to Libya Mr. Riccardo Villa, First Secretary Mr Matteo Ievolella, and Ms. Randa Gritli, Mr. Ali Elmuntaser, Mr. Francesco Fedi and Mr. Bojan Kovacevic from UNDP. The Project Board unanimously approved the Progress Report and the 2025 Work Plan.

VII. NEXT STEPS AND WAY FORWARD

Building on the progress achieved during the reporting period, the project will focus on completion of the ongoing activities 2.1.2 and 3.1.2 under Outputs 2 and 3. Particular emphasis will be placed on finalizing current project proposals and fund-raising to scale up and replicate the successes achieved.

Focus will also be maintained on activities leading to implementation of already adopted national-level policy documents from the water sector.

VIII. ANNEXES

[Annex 01. Financial Report](#)

[Annex 02. Communications Inventory Report](#)