Integrated Water Resources Management to Enhance Resilience of Agriculture (ERA) and Food Security

Annual Progress Report November 2023 to 31 December 2024

Surface Dam in Al-Selw District of Taiz | Photo Credit: UNDP

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Abbreviations and acronyms

ABDP	Area-Based Development Programming
AWP	Annual Work Plan
BMZ	Federal Ministry for Economic Cooperation and Development
BoQs	Bill of Quantities
CBD	Country Programme Document
CSOs	Civil Society Organizations
CCEE	Climate Change, Energy and Environment
EPA	Environment Protection Authority
IWRM-ERA	Integrated Water Resources Management to Enhance the Resilience of Agriculture and Food Security
ESMF	Environmental and Social Management Framework
ESMPs	Environmental and Social Management Plans
FCV	Fragility, Conflict and Violence
GIS	Geographic Information System
GARWSP	General Authority for Rural Water Supply Project
IWRM	Integrated Water Resource Management
KfW	Credit Institute for Reconstruction (Kreditanstalt für Wiederaufbau)
KII	Key Informant Interview
LTA	Long Term Agreement
MODFLOW	Modular Finite-Difference Flow Model
MIKE-SHE	Système Hydrologique Européen
M&E	Monitoring and Evaluation
MTR	Mid-term Review
MoAIF	Ministry of Agriculture, Irrigation and Fisheries
MoPIC	Ministry of Planning and International Cooperation
MoSAL	Ministry of Social Affairs and Labour
MoWE	Ministry of Water and Environment
MTR	Mid-Term Review
NGO	Non-Government Organization
NWRA	National Water Resource Authority
NWSSIP	National Water Sector Strategy and Investment Program
RP	Responsible Party
RVO	Rijksdienst voor Ondernemend (Dutch Ministry of Economic Affairs)
SWAT	Soil and Water Assessment Tool
SFD	Social Fund for Development
ToR	Terms of Reference
TPM	Third Party Monitoring
UNDP	United Nations Development Program
USDA	United States Department of Agriculture
VCCs	Village Cooperation Councils
WRM	Water Resources Management
WUAs	Water User Associations
WBC	Water Basin Committees

Project Profile

Project name	Integrated Water Resources Management to Enhance Resilience of Agriculture (ERA) and Food Security
BMZ No.	2023.1805.3
Total contribution	EUR 15,000,000
To date: Amounts disbursed Amounts spent/committed Amounts remaining	 EUR 15,000,000 USD: 1,359,165.93 In EUR: 1,309,723.85 EUR: 13,690,276.15
Implementation Period	3 Years (August 2023 – August 2026)
Project location(s)	Tuba and Al-Mosaymer districts in Lahj and Al-Mawaset and Al-Selw districts in Taiz governorates
Project partners (e.g. other UN agencies, NGOs, private contractors, consultants)	National Ministries of Water and the Environment and of Agriculture, Irrigation and Fisheries, sub-national NWRA and district authorities in both Lahj and Taiz governorates.
Reporting period	01 November 2023-31 December 2024
Report compiled by	Abdulaziz Abduh, M&E and Reporting Specialist
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Chapter 1: Executive Summary

The first year of the project has yielded significant progress across its key outputs. Initial activities focused on structuring the project, recruiting staff, setting up planning frameworks, and engaging stakeholders, including government and local authorities, to secure support. The project officially launched with a kick-off workshop in December 2023, followed by four inception workshops in Taiz and Lahj in February and March 2024. These workshops involved 189 stakeholders from key ministries and community representatives, facilitating the identification of priorities and aligning potential interventions with the project's objectives.

The project successfully engaged key stakeholders throughout, ensuring active participation and validation of interventions. The proposed priority actions were divided into six distinct packages: 1) Flood Control, Soil Erosion Protection, and Wadi Training, 2) Rehabilitation of Existing Water Storage Infrastructures, 3) Rehabilitation of Irrigation Systems, 4) Support for Farmers with Modern Irrigation Tools or Solar Water Pumps, 5) Rehabilitation of Irrigation Gate Manufacturing Workshop and the Gabion Mesh Factory, and 6) Construction of New Water Storage Infrastructure.

Validation efforts involved multiple levels, from central to local, to confirm the relevance and alignment of the proposed interventions with local priorities and project goals. Extensive discussions took place across various governance levels, and the project team, along with field-based engineers, conducted site visits to assess the proposed locations.

As a result, three of the six packages were officially validated and approved during a national workshop held in Aden in October 2024, with key stakeholders in attendance. These approved packages include: 1) Flood Control, Soil Erosion Protection, and Wadi Training, 2) Rehabilitation of Existing Water Storage Infrastructures, and 3) Rehabilitation of Irrigation Systems.

During this reporting period, assessments for two out of the three approved intervention packages were fully completed. The assessment process included site verification, priority ranking, evaluation, and the preparation of technical specifications, Bills of Quantities (BoQs), designs, and tender documents.

In preparation for the water infrastructure implementation, tender of one of the two fully assessed packages has been advertised focusing on "Flood Control, Soil Erosion Protection, and Wadi Training,". Covering 199 interventions across the four target districts and divided into two lots (one per governorate), the evaluation of this tender was concluded in December 2024 and field construction works are expected to start in the first quarter of 2025.

The hydrological study for Tuban catchment was structured into two phases. Phase one focused on collecting available data from primary and secondary sources and identifying alternative sources to complement the data required for hydrological models and water balance assessment. Carried out by Acacia Water through the Netherlands Enterprise Agency (RVO) and concluded in November 2024, the first phase highlighted key insights, such as data analysis, global dataset recommendations, and software suggestions. Challenges included data fragmentation and format discrepancies. Phase two focused on hydrological modelling and water balance assessment to identify potential surface and subsurface water storage areas, groundwater recharge zones, and consider upstream-downstream relationships. The ToR was advertised in October 2024 and bid evaluations are anticipated to be concluded by January 2025.

The socio-economic analyses around agricultural value-added options has been concluded. Carried out by Impact Consulting, this study paved the way for the identification of market opportunities and value-added options, aiming to enhance income generation interventions within the project scope.

Mapping out water-related community structures and reactivation of Water User Associations (WUAs) in Al-Mosaymer, Al-Selw, and Al-Mawaset districts was also finalized, resulting in the establishment of 19 new WUAs. This exercise has included the provision of basic trainings in technical and administrative skills to 195 board members and 79 inspection committee members, with 24% women representation.

The institutional needs assessment of the National Water Resources Authority (NWRA), Agriculture and Irrigation Offices, and Basin Committees was concluded. The assessment report highlighted several key challenges, including the inactive status of Water Basin Committees in Lahj and Taiz, poor institutional performance, financial constraints affecting essential operations, premises being occupied or damaged, and critical capacity gaps in key areas like water quality control and data management.

The formulation of the project's Environmental and Social Management Framework (ESMF) has been finalized based on the standards and requirements of UNDP, the World Bank and KfW, and was discussed and approved by KfW in the project review meeting held in December 2024. Site-specific Environmental and Social Management Plans (ESMPs) for package one have also been finalized.

The project review meeting, along with the project board meeting, both organized in December 2024 with KfW's representation, served as platforms to evaluate achievements, discuss the 2025 annual plan, and address challenges and insights gained throughout the project's implementation.

Chapter 2: Contextual developments

2.1 General Developments

What are important (political/economic/ social) developments on national/regional level that are relevant for the Project (e.g. economic recession, elections etc.)	Yemen continues to grapple with a protracted conflict, political instability, severe economic decline, and collapsing public services, all of which have significantly impacted the population. The ongoing humanitarian crisis, characterized by food insecurity, displacement, and increased water scarcity, poses significant challenges to the lives of Yemenis. Additionally, the country's vulnerability to environmental stressors like water scarcity and the increasing frequency of extreme weather events due to climate change further compound the challenges the project aims to address.
If relevant: What changes with regard to conflict dynamics/tensions have been observed in the country and in particular in the relevant regions/Project location(s). Please ensure that it is in line with information in the Fragility, Conflict and Violence (FCV) matrix in the annex "Update of (FCV) matrix".	The UN-brokered truce agreement has been effective since 2022, with minor breaches reported. But without breaking into full resumption of hostilities. However swift action is still imperative to take clear steps towards peace and to restore hope for a peaceful future. Division between the warring parties, fragmentation of powers over regions are all evident. Furthermore, the country's economy is far from being recovered. Please refer to the FCV matrix attached as annex A.
What are relevant assessments/ evaluations that can be considered for the remaining Project duration (e.g. relevant evaluations conducted within the framework of the CPD)?	A Mid-term review (MTR) is planned for the second quarter of 2025. Its scope is expected to assess, amongst other things, the project's strategy, design, relevance, progress, sustainability and alignment with national priorities.

2.2 Sector Developments

The relative peace resulting from the UN-brokered truce agreement in 2022 has motivated donors and international community to exert efforts to support a gradual transition from a humanitarian to a development context, with a focus on climate change-related sectors, particularly water and agriculture. This transition necessitates close coordination with other donors and UN agencies to avoid duplication of efforts in the project's thematic area. In addition, the Ministry of Water and Environment's (MoWE) initiative to create a national vision for water allocation across sectors may intensify competition for water resources among different sectors, given that, for example, the agricultural sector, which is under another ministry, is the most water-intensive sector in the country.

The United Nations (UN) introduced Area-Based Development Programming (ABDP) in Yemen as part of its efforts to address localized development challenges, particularly in conflict-affected regions. ABDP prioritizes utilizing the local sectoral planning system, overseen by the local offices of the Ministry of Planning and International Cooperation (MoPIC). The operationalization of ABDP involves piloting the implementation in collaboration with the national authority and the international community in several governorates, including Taiz and Hadhramout, encompassing some of the districts targeted by the project. ABDP aims to ensure that project interventions are aligned with the development plans prepared by local authorities at the governorate level.

Other sectors including renewable energy and economy might have several potential effects on the project including:

- The increased adoption of renewable energy technologies, specifically solar water pumps, may lead to the over-exploitation of groundwater, consequently leading to a reduction in the availability of this important reserve. This in course of time might lead to an increase in the demand for surface water as an alternative source for irrigation purposes. This expansion could also exacerbate inequalities, as elite farmers dominate the agricultural sector, significantly increasing the number of marginalized and vulnerable groups across the country, including the project's geographic areas.
- The development of water storage infrastructure in the upstream of Tuban Wadi will certainly affect water availability downstream, particularly in the delta regions of the Wadi.
- Economic situation of vulnerable groups in targeted areas could shift the focus towards cash crops that generate higher income and consume more water, potentially undermining efforts to address water security issues in Wadi Tuban.

Relevant activities of Government and Development Partners	
What are the main synergies with initiatives of the Government and other Development Partners (including other UN agencies) that have been achieved during the reporting period?	The project is in line with and contributes to the National Water Sector Strategy and Investment Program (NWSSIP). The project is aligned with the National Agriculture and Fisheries Strategy and Investment Plan (2024 - 2030), specifically, Pillar 3, which focuses on improving the sustainable and climate-resilient management of natural resources.

Chapter 3: Project progress against Outputs and Activities[1]

3.1 Output 1.1 Increased water availability for agriculture production

3.1.1 Activity 1: Data collection on water resources and existing water infrastructure

This activity served several purposes including introducing the project to stakeholders, priority identification, and gathering initial information relating to all project activities. For this purpose, five workshops have been organized with wide participation from relevant stakeholders. The project was launched with a kick-off workshop in December 2023 in Aden involving 47 participants (including three women) from the Ministry of Agriculture, Irrigation, and Fisheries (MoAIF), MoWE and their affiliated bodies at the national, governorate, and district levels.

Kick-off Workshop-Aden, 2023 | Photo Credit: UNDP

Additionally, four inception workshops were organized, two each in Taiz and Lahj governorates, during February and March 2024 involving 142 participants, including 18 women. These workshops brought together both officials and community representatives. The workshops aimed to introduce the project goals and activities, collect more information about potential interventions aligning with project objectives.

In Taiz, workshops targeted Al-Mawaset and Al-Selw districts, outlining proposed interventions for water infrastructure and agriculture. In Lahj, workshops focused on Tuban and Al-Mosaymer districts, proposing interventions to enhance water availability for agriculture and improve income from better markets.

Inception Workshops in Taiz and Aden | Photo Credit: UNDP

The workshops also highlighted capacity-building activities for water governance and proposed interventions to transform crops into sustainable income sources. The outcomes included a list of potential interventions for each district, which underwent further validation and assessment by the UNDP's technical team and field-based engineers.

This activity also included the engagement of a Geographic Information System (GIS) and Data Management consultant, who was recruited to develop and maintain a comprehensive database for the project interventions, and to develop GIS maps that will support the project interventions.

[1] Progress against project indicators is reflected in the Results Matrix template attached as annex B.

3.1.2 Activity 2: Hydrological water balance assessments for Tuban and 4 sub-catchments

The Terms of Reference (ToR) for the hydrological study was jointly developed with MoWE and MoAIF. The ToR was structured in two phases: the first phase focused on collecting available data from primary and secondary sources and identifying alternative sources to complement the data required for hydrological models and water balance assessment. The second phase involved conducting hydrological modeling and water balance assessment to identify potential areas for surface and subsurface water storage, as well as potential groundwater recharge areas, considering upstream and downstream dependencies.

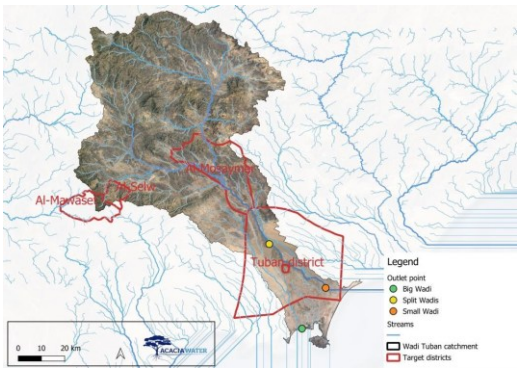
The first phase was advertised through the Netherlands Enterprise Agency (RVO), and Acacia Water was contracted for two months to complete this phase of the study. Key findings of phase 1 included:

- Review and analysis of existing data types and datasets from various sources, including MoWE, MoAIF, and the NWRA.
- Recommendations for global datasets and field measurements to address limitations related to spatial and temporal coverage of the existing data.
- Recommendations of two potential modelling software programs: Soil and Water Assessment Tool (SWAT) model coupled with MODFLOW, and MIKE-SHE Program[2].

Additionally, a database of all reviewed documents and collected data, along with shapefiles and GIS data collected or developed during this phase, was provided.

Challenges encountered during phase 1 included:

- Data fragmentation across different entities.
- Discrepancies between data values from different entities due to varying measuring methodologies and uncertainties in some measurements (e.g. runoff).
- Incompatibility of certain data formats with hydrological modelling and GIS interfaces.



Tuban Catchment delineation | Photo Credit: UNDP

The final study was submitted in mid-October 2024 and was shared with the MoWE, MoAIF and NWRA for their feedback. The final version, incorporating comments from UNDP and government authorities, including recommended models and alternative sources for missing data, was submitted to UNDP on 26 November 2024. The final report of the Phase I of the hydrological study is attached as Annex C.

The ToR for phase two of the study was advertised on 14 October 2024 in line with UNDP's procurement procedures, and the information was shared with potential bidders. The evaluation of bidders is currently underway and is expected to be finalized by the end of January 2025.

The outcomes of Phase two will support the subsequent activity of the development of the Integrated Water Resources Management (IWRM) plan for Wadi Tuban, serving as a strategic document addressing technical and financial aspects, with a potential for future rollout. Furthermore, the results of the hydrological study will be disseminated through a

[2] MODFLOW stands for Modular Finite-Difference Flow Model. MIKE-SHE stands for Système Hydrologique Européen.

"Know Your Catchment" exercise, engaging communities and WUAs in participatory planning activities for the targeted districts, considering the new proposed water storage infrastructure in each district.

3.1.3 Activity 3: Workshops to identify potential water infrastructure works for interventions

Under this activity, five workshops were conducted to identify potential interventions and develop the associated Environmental and Social Management Framework (ESMF). Four consultation workshops were conducted in targeted districts of Taiz and Lahj in September 2024 involving 162 participants (including 40 women). The purpose of the workshops was to introduce participants to the list of packages of interventions, identify specific needs, concerns, and suggestions regarding potential environmental and social risks and impacts of proposed packages of interventions. The workshops resulted in developing the lists of interventions in each district under the first three packages, namely, 1) flood control, soil erosion protection and wadi training, 2) rehabilitation of existing water storage infrastructures, 3) rehabilitation of irrigation systems.

The fifth workshop was held at national level in Aden on 2 October 2024. The purpose of the workshop was to validate the intervention packages and the ESMF with the participation of key stakeholders from MoAIF, MoWE, NWRA, and local authorities at both governorate and district levels. The workshop involved a comprehensive presentation of the intervention packages followed by extensive discussions among participants. As a result of the workshop, the three packages were approved.

National Workshop for Validation of Water Priorities of First Three Packages, Aden, October 2024 | Photo Credit: UNDP

3.1.4 Activity 4: Assessment of water infrastructure and use

This activity involved site verification, assessment, priority ranking and validation of the proposed interventions on water infrastructure across the target districts. It also encompassed the preparation of essential documents, including the specifications, Bills of Quantities (BoQs), and designs to support implementation of these priority water interventions. Following the compilation of potential interventions resulting from the inception workshops, UNDP hired four field-based civil engineers, one per target district, to support these tasks. They were also guided and supported by the project's civil engineer along with a hydrological expert, both based in Aden.

- **Induction workshop for field civil engineers and consultants**

An induction workshop was conducted in Aden on 26 and 27 June 2024 to familiarize field civil engineers and consultants with project activities, roles, tools, and social and environmental safeguards. The site assessment templates and criteria for prioritizing interventions were also discussed and agreed upon.

Following the induction workshop, field-based civil engineers utilized the intervention priority tool to assess and validate proposed intervention sites. This tool offered detailed information on water infrastructure type, status (new or rehabilitation), impact, beneficiary count, GPS coordinates, priority ranking (1-4), estimated costs, and brief descriptions. The Hydrologist and Environmental and Social Safeguards consultants provided support and oversight throughout this process.

Surface dam in– Al-Selw district, Taiz | Photo Credit: UNDP

Intervention priorities were divided into 6 categorical packages[3] to streamline common interventions in target districts, enhance sustainability planning, and facilitate procurement, tendering, and implementation processes. Prioritization related to the construction of new water storage infrastructure has been postponed until the completion of the hydrological water balance assessment for Tuban and its four sub-catchments.

- **Field missions to target districts**

The project team has conducted field missions to targeted districts to validate the potential interventions identified during the inception workshops and to gain a deeper understanding of the existing conditions of the sites. The field mission to Tuban district was carried out during 30 June and 01 July 2024. A meeting was also held with the Agriculture and Irrigation Office director in Tuban, where discussions were held regarding the preliminary list of interventions. The office stressed the need for institutional strengthening, particularly in operation and maintenance of control gates and irrigation canals. The office also recommended rehabilitating existing equipment to enhance the office's capacity for maintenance works post-flash floods.

Unfinished community water pond, Al-Mawaset, Taiz | Photo Credit: UNDP

Similar field missions were carried out to Al-Mosaymer district, Lahj governorate, and Al-Mawaset and Al-Selw districts, Taiz governorate.

- **Verification and validation of packages**

During the third quarter of 2024, UNDP's technical team has successfully managed to verify the priority lists of three packages, namely: 1) Flood Control, Soil Erosion Protection and Wadi Training, 2) Rehabilitation of Existing Water Storage Infrastructure, 3) Rehabilitation of Irrigation Systems. These three packages have also been validated and approved by the main stakeholders as indicated in activity 3 above.

[3] These packages of interventions consist of 1) Flood Control, Soil Erosion Protection and Wadi Training, 2) Rehabilitation of Existing Water storage Infrastructures, 3) Rehabilitation of Irrigation Systems, 4) Supporting Farmers with Modern Irrigations Tools or Solar Water Pumps, 5) Rehabilitation of Irrigation Gate Manufacturing Workshop and the Gabion Mesh Factory, and 6) Construction of New Water Storage Infrastructure.

- **Assessment finalization for two packages:**

Following the validation of the three packages, the project team has subsequently developed the full technical assessment of two out of the three approved packages. Such assessment was developed into four assessment reports, one per target district. These reports provide comprehensive details of the current challenges in the targeted areas, including water scarcity, damaged irrigation systems and soil erosion, and propose intervention packages. They also include the BoQs, technical specifications and designs. The finalized assessment reports cover the first two packages of interventions, namely: a) Flood Control, Soil Erosion Protection and Wadi Training, and b) Rehabilitation of Existing Water Storage Infrastructure and will be shared with KfW mid-March 2025.

- **Field visits to the Irrigation Gates Manufacturing Workshop and the Gabion Mesh Factory**

This activity included efforts to assess other water-related infrastructure to explore where the project can support within its scope and objectives. Towards this aim, a joint field visit was conducted by the Deputy Minister of Irrigation Sector, Eng. Ahmad Naser Hasan Al-Zamiki, and the project team to the Irrigation Gates Manufacturing Workshop and the Gabion Mesh Factory on 17 October 2024. The Irrigation Gates Manufacturing Workshop suffered severe damages from the conflict. The workshop roof has been identified as a priority to preserve the remaining machineries in service. Additionally, there was a need for a generator and maintenance for some crane and machines.

Irrigation Gates Manufacturing Workshop, Aden | Photo Credit: UNDP

The Gabion Mesh Factory, which employs around 150 full-time and part-time workers, is in operation but not at full capacity, due to some machines having been taken out of service and being outdated. There is a need to install new machineries to meet the market needs, such as bigger hexagonal and quadruple gabion mesh machines. The factory manager emphasized that the main purpose of this production is to support the government entities especially during flood crises. The factory is used to produce the gabion mesh that are used to protect the soil from erosion.

Gabion Mesh Factory, Aden | Photo Credit: UNDP

UNDP will conduct detailed assessments of both facilities and will support the civil works rehabilitation as these facilities will support the project's sustainability.

- **Contracting an Engineering Firm to Complete Assessment of Remaining Packages**

For assessing the first two packages of interventions, namely 1) Flood Control, Soil Erosion Protection and Wadi Training and 2) Rehabilitation of Existing Water storage Infrastructures, UNDP used field-based civil engineers to carry out the assessment as the assessment process was quick, and the technical aspects of the interventions were similar to each other and within the capacities of those engineers. However, the assessment of the other packages namely 3) Rehabilitation of Irrigation Systems 4) Supporting Farmers with Modern Irrigations Tools or Solar Water Pumps 5) Rehabilitation of Irrigation Gate Manufacturing Workshop and the Gabion Mesh Factory would involve diverse technical specialties and capacities, including electrical and mechanical engineering, alongside structural and civil engineering. Therefore, the project opted for contracting an engineering firm that will be responsible for carrying out the assessment and designs for the other three packages. One more advantage expected from contracting a single firm is smoother coordination and enhanced consistency in the deliverables.

Potential Project Site: Small gravity dam in Al-Mosaymer district, Lahj | Photo Credit: UNDP

The ToR for the engineering firm was developed by the project team in close collaboration with the UNDP Engineering Unit and was advertised for tendering in December 2024. Bid evaluation is underway, and selection, contracting and initiation of its work is expected to take place in the first quarter of 2025.

3.1.5 Activity 5: Construction, procurement and installation of water works

In close collaboration with UNDP's Engineering Unit, the scope of work, design documents, BoQs and specifications, environmental and social assessment, and tender documents for the package one of "Flood Control, Soil Erosion Protection, and Wadi Training" were developed and advertised for tendering. Covering 199 interventions across the four target districts[4], the tender advertisement of this package lasted one month. To give local bidders the liberty to apply in line with their interest and capacities, the tender of this package was divided into two lots, each lot covering works of two districts in each target governorate.

The bids evaluation for the first package will be finalized in January 2025 where a minimum of one contractor will be selected and contracted. Field construction works are expected to start within the first quarter of 2025.

Potential Project Site: Unmaintained Water Pond in Al-Mawaset district, Taiz | Photo Credit: UNDP

To support monitoring and supervising the construction works of package one, another engineering consultancy firm is to be contracted. The ToR advertisement for this consultancy was closed by the end of December 2024. The selection

[4] 101 in Tuban, 35 in Al-Mosaymer, 54 in Al-Mawaset, and 9 in Al-Selw.

and contracting of the engineering consultancy firm is planned to be finalized by the time field works of package one start.

3.2 Output 1.2: Improved income from better markets and enhanced agricultural value chain

3.2.1 Activity 1: Socio-economic analyses around agricultural value add options

This activity involved conducting a study on the socio-economic analysis, market survey and agricultural value add options. Impact Consulting was contracted to carry out the study. The firm developed the inception report, the methodology, and data collection tools. The inception report and data collection tools were reviewed, and feedback was provided by the project team after which the updated inception report and tools were finalized by Impact Consulting. The data collection, data processing, and analysis were also completed. The initial draft report of the study was shared for UNDP's review and feedback. Substantial comments have been shared from UNDP's team on the initial draft. The project team has found that some additional inputs and data need to be incorporated to enrich the findings and meet the study objectives. For that, the consulting firm carried out some additional data collection activities and had engaged an international consultant to validate the data and findings before finalizing the report. The revised version of the report was submitted to UNDP by the end of January 2025. The report is attached as annex D for Lahj governorate and annex E for Taiz governorate.

3.2.2 Activity 2. Community mobilisation, prioritisation

This activity, along with the following one within this output, will be implemented by responsible parties (RPs) expected to be contracted in March 2025.

3.2.3 Activity 3. Implementation of selected food processing and support to enhancing markets

As indicated in activity 2 above, this activity will also be initiated by the RPs.

3.3 Output 2.1: Improved water governance

3.3.1 Activity 1: Institutional needs assessment and strengthening

This activity involved mapping out water-related community structures, reactivating or establishing WUAs, and assessing the institutional needs of NWRA and Agriculture and Irrigation Offices to enhance water governance in the target districts.

- **Mapping out Water-related Community Structures and Reactivating/Establishing WUAs**

One of the findings of the inception workshops and data collection carried out at the launch of the project was the lack of WUAs in three out of four target districts, namely Al-Mawaset, Al-Selw, and Al-Mosaymer. Consequently, a community development consultant was hired to map out existing water structures, WUAs, and agricultural cooperatives, as well as reactivating or establishing new structures where needed, in Al-Mawaset and Al-Selw districts in Taiz and Al-Mosaymer district in Lahj.

Community mobilization for WUA formation, Taiz | Photo Credit: UNDP

Following approval of the inception report and the field work tools, the consultant initiated the mapping exercise in Al-Mosaymer district, Lahj governorate. The findings showed that some community

structures exist, including charitable associations, drinking water committees, and traditional farmers' structures managing floodwater distribution. However, a lack of female representation was evident, especially in the drinking water committees.

Following consultations with UNDP and NWRA as well as local authorities, a decision was reached to convert traditional floodwater management structures into formal WUAs, emphasizing gender inclusivity, regulatory reinforcement, and capacity building for improved water resource management and conflict resolution. Consultation and coordination with the relevant authorities, including the office of the Ministry of Social Affairs and Labor (MoSAL), led to the establishment of six WUAs in Al-Mosaymer district.

A similar exercise was carried out in Al-Mawaset and Al-Selw districts of Taiz governorate. In Al-Mawaset district, particularly in Qadas and Bani Yusuf sub-districts, the findings showed that there are eight community structures along with several village cooperation councils (VCCs) and a few inactive agricultural cooperatives, but none of them are involved in managing irrigation or farming practices. The mapping exercise in Al-Mawaset district resulted in establishing seven new WUAs. Whereas in Al-Selw district, the findings showed that there are about 59 community structures, comprising associations, institutions, official unions, and drinking water committees. The primary focus of the water community committees is managing drinking water. It was also found that some of these committees are actively organizing and managing irrigation water and farmers relations in their respective areas. The mapping exercise proposed leveraging the expertise of the water project committees which are responsible for coordinating the irrigation processes forming them into six WUAs.

During WUA Elections in Al-Mosaymer district, Lahj | Photo Credit: UNDP

The first draft of the final report was submitted by the consultant in December 2024, and it is currently under review. The following are the main accomplishments under this activity.

- Three comprehensive community structure mapping exercises were conducted in three districts, Al-Mosaymer in Lahj and Al-Selw and Al-Mawaset in Taiz.
- 90 community mobilization campaigns were carried out at the three targeted districts to familiarize community farmers with the importance of establishing WUAs. The total number of farmers engaged by these campaigns exceeded 6,700 individuals, including 30% female participation.
- Establishment of 19 WUAs reaching a total of 3,469 general assembly members in the three districts (967 women and 2,502 men). The Board of Directors in the 19 newly established WUAs are 195 (154 men and 41 women). The Inspection Committee involved 79 additional members (55 men and 24 women).
- Newly established WUAs Board Directors and Inspection Committee Members received initial training on basic technical and administrative skills.

- **Institutional needs assessment of NWRA and Agriculture and Irrigation Offices**

This assessment seeks to strengthen and support NWRA, Agricultural and Irrigation Offices, and basin committees in both Taiz and Lahj to ensure ownership, operation and maintenance of infrastructure and accountability. It aimed to a) identify the needs of the public institutions working in the irrigation sector (NWRA, offices of irrigation and agriculture) in the targeted governorates and districts, b) analyse the needs and developing matrices outlining the required institutional and capacity support, c) recommend appropriate interventions to enhance functionality and capability of those institutions to fulfil their mandated roles.

An experienced institutional development consultant leading a team of consultants was contracted. The inception report outlining the methodology and data collection tools was developed. The data collection methodology was structured around three key phases.

In the initial phase, the consultant and his team reviewed and analyzed existing documents, including the mandates of institutions at central, governorate, and district levels. This involved examining past plans and reports related to the institutional needs assessment aimed at NWRA and agriculture and irrigation offices in Taiz and Lahj governorates. The focus was on water governance, water resources management, current capacity building practices, and identified gaps based on each institution's work plan and mandate.

Institutional Needs Assessment of Government Water Institutions, Aden-November 2024 | Photo Credit: UNDP

In the second phase, the institutional development expert and his team conducted Key Informant Interviews (KIIs) with key stakeholders in NWRA and Agricultural and Irrigation offices in Lahj and Taiz to assess capacities and requirements.

The third phase was a validation workshop involving representatives from MoAIF, MoWE, and NWRA in Taiz and Lahj, along with representative from Agriculture and Irrigation Offices and WUAs from the four targeted districts. Organized in the first week of November 2024 and chaired by Deputy Minister of MoAIF and Chairman of NWRA, this workshop aimed to present and validate the findings from phases 1 and 2 and gather further insights from participants. The primary focus was on enhancing coordination mechanisms among these various structures.

The Institutional Need Assessment consultancy was concluded, and final report was submitted in late December 2024, and it is currently under review.

The following are the main key findings of the assessment:

- Water Basin Committees (WBC) in Taiz and Lahj have suspended their activities since 2013 and 2014 respectively due to ongoing political crises and lack of financial and technical support.
- Most assessed institutions exhibit weak performance in achieving their mandated objectives due to lack of technical and financial support.
- Institutions face serious financial crises, as government budget allocation does not cover the core activities and mandate plans. For example, more than 98% of the annual budget allocated to NWRA covers salaries and the remaining 2% operational costs. This hinders its capability to carry out essential tasks represented by developing strategic plans for managing the country's water resources on a sustainable basis, monitoring use of water resources, evaluation, legislation, licensing and public awareness.
- Institutions' premises are stormed, looted, partially damaged or occupied by other government entities. As an example, NWRA's premises in Aden is occupied by the cabinet.
- Institutions lack basic office furniture, field water monitoring equipment, database, GIS tools, transportation means for field works.
- There are identified capacity gaps within the institutions, including water quality control, maintenance of monitoring stations, data collection, GIS utilization and groundwater modelling.

3.3.2 Activity 2: Training and capacity building

This activity, along with the following one within this output, will be implemented by the RPs expected to be contracted in March 2025.

3.3.3 Activity 3. women custom made trainings

As indicated in activity 2 above, this activity will also be initiated and implemented by the RPs once they are contracted.

3.4 Beneficiaries and stakeholder engagement

Number of people reached[5] (Directly)			
	Total	Female	Male
Output 1.1	1583	588	995
Output 2.1	6700	1881	4819
Total	8283	2469	5814

Stakeholder engagement

The engagement of beneficiary groups is ensured based on an extensive 3-layer consultation mechanism starting with the local councils, local communities at district level, and concerned government structures such as MoAIF, MoWE and NWRA at governorate and ministry levels.

A complete description of stakeholder engagement is attached as annex F.

3.5 Progress on construction or rehabilitation works

In general, the implementation of construction and rehabilitation works has not started yet. Updates related to the progress on the construction works that will be implemented are provided as part of the project progress under activity 5 of output 1 above 'Construction, procurement and installation of water works'.

3.6 Social and environmental safeguards

The ESMF along with its annexes have been developed and shared with KfW in October 2024.

Please describe all relevant environmental and social aspects	
What activities have been undertaken to assess potential environmental and social impacts?	• Project-Level Environment and Social Assessment and Proposed Mitigation Measures: This involved assessing the potential risks and impacts of the project, which led to the development of the Environmental and Social Management Framework (ESMF) attached as annex G. • Sub-Project Screening and Classification Requirements: This included site-specific assessments, the development of site-specific Environmental and Social Management Plans (ESMPs), and other applied management plans. Currently, ESMPs have been developed for Package 1, which focuses on flood protection, soil erosion protection, and Wadi training.

[5] This is the count of people reached by the project through engagement and consultation. They are not yet counted as project beneficiaries. Number of beneficiaries are reflected in the Results Matrix.

Have any negative impacts materialized in the reporting period?	No
Has the nature or likelihood of any of the documented impacts changed since the last report?	No
Are there any new impacts of the Project that have been detected? What are the mitigation measures for those risks?	No
Which measures have been implemented to prevent or mitigate negative impacts by you or your contractor?	During the reporting period, no adverse impacts were encountered, and consequently, no mitigation or prevention measures were implemented. For detailed information on identified potential risks and impacts associated with the project, please refer to Section 6 in the (IWRM-ERA) project ESMF: Project-Level Environmental and Social Assessment and Proposed Mitigation Measures, Table 6.1 Cross-Cutting Project Risks.

Which stakeholder engagement activities have you or your contractor conducted?

The following is a summary for the key milestones in the stakeholder engagement activities:

- October 2023: Introductory meetings were held to familiarize officials from MoWE and MoAIF with the project.
- December 2023: A kick-off workshop was held in Aden, involving participants from MoWE, MoAIF, and their affiliated bodies in the targeted governorates and districts, including the NWRA, offices of irrigation and agriculture, in addition to representatives from the General Authority for Rural Water Supply Projects (GARWSP), and local authorities from the targeted districts.
- February and March 2024: Four inception workshops were conducted in the targeted districts in Taiz and Lahj, targeting local authorities and community structures.
- July 2024: The Project's Environmental and Social (ES) Safeguard Specialist conducted consultative meetings and interviews with officials at the government level, including MoAIF, MoWE, and Environment Protection Authority (EPA).
- July 2024: The ES Safeguard Specialist conducted field visits to the proposed intervention sites in the targeted districts, held meetings and interviews with local authorities, and distributed questionnaires to collect environmental and social baseline data.
- September 2024: Four workshops were conducted in the targeted districts to engage and consult stakeholders on the developed ESMF, including representatives from local authorities, agriculture and irrigation offices, and relevant community structures.
- October 2024: A central workshop was conducted in Aden for the endorsement of the ESMF as well as for the validation of the first three packages of infrastructure interventions, targeting government officials from MoAIF, MoWE, NWRA and EPA and their affiliated bodies in the targeted governorates and districts, in addition to representatives from the local authorities, Agricultural Research and Extension Authority and offices of agriculture and irrigation.
- November 2024: Public consultations in the four targeted districts for the preparation of the site specific ESMPs for Package 1: Flood Protection, Soil Erosion and Wadi Training.

For Detailed Project stakeholder engagement activities, please refer to the Stakeholder Engagement Plan within attached as annex F.

3.7 Visibility and Development Partner recognition

UNDP developed various visibility materials to promote and advocate for the project's actions, results and impact while giving visibility to the partnership between UNDP, BMZ, KfW, and Yemen government key partners (MoWE and MoAIF). The project has a dedicated web landing page (as can be seen using this link HERE) that is used to provide key information and updates, such as a project summary, objectives and achievements. In addition, a two-pager brochure was developed and disseminated to beneficiaries and main stakeholders though project workshops and events. Posting though UNDP social media is another tool used to circulate project updates mainly via Facebook and X. The project is also aiming to enhance visibility using roll-up banners, posters, interactive maps and infographic fact sheets.

3.8 Sustainability & Operation and Maintenance

The commencement of construction and rehabilitation works has not yet begun. However, amongst the proposed measures for consideration during the project include capacity building for WUAs in infrastructure operation and maintenance to facilitate the project's exit strategy and promote the community-based management of constructed water infrastructure on the long run. Capacity building will also include official water-related institutions.

The primary challenge in this measure is weak water governance, which impedes the enforcement of regulations and delegation of authorities between MoWE, NWRA, and WUAs. Additionally, the Water Basin Committee in Taiz and Lahj has been non-functional since 2013-2014, undermining accountability and compromising oversight and decision-making authority necessary for effective water resources management. The project will develop a customized IWRM plan for Wadi Tuban, addressing both technical and financial sustainability at the district and community levels.

Maintenance of assets owned by the Office of Irrigation and Agriculture in Lahj is also another measure the project is considering, ensuring the office's readiness for sustaining irrigation canals and structures post-project completion. This includes equipment for canal desiltation[6] and portable tools for structure maintenance. In addition, the project will intervene in the maintenance of the hydro-meteorological monitoring stations.

Implementation of assets' maintenance and capacity building will be conducted by the RPs for which UNDP is currently soliciting proposals.

Chapter 4: Monitoring and Evaluation

4.1 Engagement of a Third Party Monitoring Agent

In line with UNDP's practice and in compliance with the project document requirements, a ToR for engaging a third-party monitoring (TPM) agent has been drafted and shared with KfW for review and feedback. The ToR has been finalized based on the feedback received and shared with UNDP's procurement for processing. UNDP Yemen has established long-term agreements with several third-party monitoring service providers who offer such services to several projects. The procurement unit has reached out to those agreement holders, who support projects of similar themes as that of IWRM-ERA project, to share their financial proposals based on the TPM ToR. Following the review of proposals, one TPM agent has been selected, and a piggyback agreement will be processed during January 2025 for the provision of similar third-party monitoring services to the IWRM-ERA project. The onboarding process of the selected TPM agent will be finalized by the time field implementation starts.

[6] Desiltation involves removing silt from structures.

4.2 Planning for a Mid-Term Review

A Mid-term review (MTR) for the project is currently being planned to assess progress toward project objectives, identify challenges, and provide forward-looking recommendations. It will cover the project's strategy, implementation, sustainability, and stakeholder engagement. A ToR has been developed and shared with KfW for feedback. The ToR was updated as per the comments and feedback shared by KfW. The revised ToR was shared with UNDP Country Office and Regional Office for final review and support in the recruitment of the consultants. The ToR has been designed to engage two consultants: one international consultant, who will serve as the team lead, and a national consultant, who will provide support in field coordination, data collection and data processing and analysis. The MTR is expected to be initiated in the second quarter of 2025.

Chapter 5: Project Management

The project team is now fully complete with the latest onboarding of the Project Officer and Admin and Finance Associate.

4.3 Project Staffing

Position	Onboarding date	Name
Key Personnel		
Project Manager-Team Leader	11 June 2024	Anmar Sarray
Project National Coordinator	21 May 2024	Nagm Addin Saif
Monitoring, Evaluation and Report Specialist	23 July 2024	Abdulaziz Abduh
Water Resources Management Specialist	30 August 2023	Bouran Mohammed
Project Civil Engineer	01 August 2024	Sadam Almansoori
Project Officer	03 October 2024	Ali Al-Eiani
Admin and Finance Associate	29 October 2024	Reem Ismail
Consultant Team		
Hydrological Expert	11 Jun 2024	Waleed Yagoob
Environmental & Social Safeguards Expert	31 May 2024	Monther Numan
GIS and Data Management Specialist	10 September 2024	Abdulajeed Al- Odahibi

4.4 Project Board Establishment

The ToR for the project board was prepared and the invitation, via letters from UNDP, were shared with the primary stakeholders (MoAIF, MoWE, and MoPIC) to officially nominate their representatives. UNDP received a list of 10 nominees from central and regional level: 3 from MoAIF, 1 MoWE, 3 NWRA, 1 MoPIC, and 2 representing governors of both Lahj and Taiz.

4.4.1 First Project Board Meeting

The first project board meeting was held on 19 December 2024 in Aden. It was attended by representatives from MoAIF, MoWE on central and governorate levels, representatives of Taiz and Lahj governors' offices, KfW Portfolio Manager, CCEE Unit and the project team members.

Following the introductory openings by MoAIF, MoWE, UNDP and KfW, the project manager presented the project board roles, project progress, update and challenges. This was followed by opening discussion for the project board members before concluding the first part of the meeting. The project board members were introduced to 2025 Annual Work Plan (AWP) during the second part of the meeting. The following are some action points agreed upon by the board members:

- Sharing updated draft of the tasks and responsibilities of the project board members.
- Sharing of the updated draft of the 2025 workplan.
- Holding the project board meeting every six months (holding exceptional meetings upon recommendation from the project manager, if necessary).
- Sharing monthly project updates and progress reports with the project board members via email.
- Sharing the project document in Arabic with the board members (it will be shared upon completion of the translation).
- Project board members are accountable to support project implementation and ensure solutions to any emerging challenges.
- Coordination with relevant ministries before implementing institutional capacity building activities by RPs.
- Coordinating with MoAIF and MoWE to develop a database to share and update resources on regular basis.

4.4.2 Project Review Meeting

The project review meeting was organized during the period of 16-17 December 2024 in Amman, Jordan. Planned in consultation with KfW to be one year following the project's initiation, the project review aimed to provide a detailed technical presentation of the project overview, outputs, financial status, and annual workplan for 2025, along with a discussion of the challenges and lessons learned. Additionally, the Environmental and Social Management Framework was discussed and approved during the meeting.

During the meeting, the following points have been agreed on:

- A Mid-term review to be done before or early May and the ToR to be shared with KfW for review and approval. The MTR should be an opportunity to review of the results framework and propose any suggested amendments. Findings and report of the MTR is preferred to be ready by May 2025 to observe KfW's internal reporting timeline to BMZ.
- Allocating $ 50,000 of project activities to hire a communications consultant to help enhance the project's communications and visibility.
- ESMF was reviewed and discussed by the KfW expert and was approved during the meeting.
- Conducting training sessions to RPs on Mine Action and Explosive Hazard Management, Operational, Safety and Health aspects as well as Social and Environmental Safeguards.
- Once TPM starts, a kick-off meeting to be organized and attended by KfW.

Chapter 6: Risks, Challenges and Mitigation Measures

The risks, challenges and mitigation measures have been identified using the Risk Register submitted as part of the project proposal. This risk register has been updated to reflect risks relevant to the context of the project. The updated risk register is attached as annex H.

Chapter 7: Financial report[7] and time schedule

Please find the Cumulative Project Interim Financial Report (CPFR) attached as annex I.

Cost and financing of the Project	
Please provide narrative to the cost and financing annex here. Describe if there were any deviations[8] from the agreed plan, also with regard to infrastructure (unit) costs.	No deviations from the agreed plan
Do you project major deviations (more than 10% at output level and any changes of cross-sectoral costs) in the future? If yes, please describe including possible consequences.[9]	No.
Please provide narrative to the time schedule here. Describe if there were any deviations from the agreed plan.[10]	There have been delays in the implementation of some activities of the project, resulting from challenges in the operational context. Such delays were experienced in the hydrological study of Tuban Catchment (activity 2, output 1.1) due to the fragmentation of data over the authorities in the North and South of Yemen. This has led to carrying the study out in two phases: Phase one was carried out during 2024 and focused on the data collection and identification of data gaps whereas Phase two will be carried out during 2025 and focused on the hydrological modelling and water balance assessment. Similarly, the assessment of water infrastructure and use (activity 4, output 1.1), took more time than planned due to the large needs and diversity of interventions that spread over long geographical locations. Moreover, assessing proposed interventions was challenging due to the lack of original drawings and design studies. The project technical team had to design the relevant drawings and designs from scratch. Furthermore, different levels of coordination and

[7] Please state the exchange rate applied.
[8] Deviations above +/-10% on the output level of the total budget require prior consultation and agreement between KfW and UNDP, please refer to the List of Triggers.
[9] Deviations above +/-10% on the output level of the total budget require prior consultation and agreement between KfW and UNDP, please refer to the List of Triggers.
[10] Deviations might require prior consultation and agreement between KfW and UNDP, please refer to the List of Triggers.

Commented [AA1]: The foot notes indicate to referring to the List of Triggers. What List of Triggers?

Commented [AS2R1]: This footnote is part of the original template. List of triggers refers to those major adjustments in the project that would require prior consultation, such as changes in the project's location or strategy, etc. They are a seperate list, part of the UNDP-KfW Partnership Guidelines, annexed with the original project documents.

	approvals were required to obtain the final endorsement of planned interventions. The project team had to group interventions into seven packages to facilitate the assessment and approval process. The first three packages, which are the bulky ones, have already been concluded in 2024, whereas the remaining packages will be accomplished during 2025. Contracting the RPs who are responsible for the implementation of food processing activities under output 1.2 has also taken more time than planned due to the lack of water-community structures in three target districts which will support this process. The project team had to lead the process of establishing 19 new WUAs in three target districts. Please find attached 2025 work plan as annex J.
Do you expect any deviations from the agreed time schedule and what would be the consequences?[11]	If no major challenges are faced during 2025 and implementation goes smoothly, then no major consequences would result from the delays experienced during 2024.

Chapter 8: Lessons learned & upcoming activities

8.1 Lessons Learned

The following lessons learned have been identified so far:

- Working closely with all stakeholders and verifying all types of interventions before approving them is critical for ensuring smooth implementation.
- Coordination with other UNDP programs/projects and those implemented by other UN agencies and development partners in target districts to avoid duplication and ensure greater coverage and impact.
- Setting up criteria selection for priority interventions and engaging authorities in the selection is key to ensure selecting interventions that are in line with the project objectives and meet budget constraints.

Open issues where prior consultation and agreement between KfW and UNDP is required and/or any other comment	
Open issues for prior consultation and agreement	Some of the project indicators including targets might need revision. UNDP and KfW have agreed during the project review meeting held in Amman to address these issues based on the findings of the mid-term review.

[11] Deviations above +/-10% on the output level of the total budget require prior consultation and agreement between KfW and UNDP, please refer to the List of Triggers.

8.2 Upcoming Activities

8.2.1 Partnering with Responsible Parties (RPs)

Field level activities will be implemented through RPs. The TOR was developed, approved by the program unit, and submitted to the country office. Out of long list of NGOs enlisted in the UNDP NGO roster, two responsible parties will be selected, one for Taiz and another for Lahj. The selection process is expected to be finalized by early March 2025.

8.2.2 Carrying out Phase two of the Hydrological Study

As indicated under activity 2 of output 1.1, the evaluation of bidders for phase two of the hydrological study will be finalized by the end of January 2025, with subsequent contracting of the selected bidder. The focus of this phase will be on hydrological modelling and water balance assessment for the purpose of identifying potential areas for surface and subsurface water storage, as well as potential groundwater recharge areas.

8.2.3 Launching construction works of the approved package

As highlighted under activity 5 of output 1.1, the evaluation and selection of the bidder(s) for the first package of water infrastructure will be finalized in January 2025. Field construction works are expected to start within the first quarter of 2025.

8.2.4 Assessment of remaining water infrastructure packages

The assessment of the remaining four packages of interventions will be carried out with the assistance of an engineering firm. These four packages are: 1) Rehabilitation of Irrigation Systems, 2) Supporting Farmers with Modern Irrigations Tools or Solar Water Pumps, 3) Rehabilitation of Irrigation Gate Manufacturing Workshop and the Gabion Mesh Factory, and 4) Construction of New Water Storage Infrastructure. The tendering process for selecting the engineering firm will be finalized early 2025, with a firm contracted and onboarded by the first quarter of 2025.

8.2.5 Contracting an engineering consultancy firm to supervise construction works

As indicated in activity 5 of output 1.1, UNDP will engage an engineering consultancy firm to support the monitoring and supervision of construction works under package one. The selection and contracting process of the engineering consultancy firm is expected to be finalized prior to the commencement of field activities for package one.

Chapter 9: Annexes

Annex A:	Fragility, Conflict and Violence Matrix
Annex B:	Updated Results Matrix
Annex C:	Tuban Catchment Hydrological Study Phase I
Annex D:	Socio-economic Analysis and Market Survey - Lahj gov.
Annex E:	Socio-economic Analysis and Market Survey - Taiz gov.
Annex F:	Stakeholder Engagements Plan
Annex G:	ESMF, ERA Project
Annex H	Updated ERA Project Risk Register
Annex I	Cumulative Project Interim Financial Report (CPFR) 2024
Annex J	2025 ERA Annual Work Plan