PEACE, PROSPERITY AND
REGIONAL INTEGRATION

Horn of Africa Groundwater for Resilience: 3rd Regional Learning and Training Workshop Summary Report

Enhanced Groundwater Management and Collaboration in the HoA

May 27th – 29th 2024, Nairobi, Kenya
IGAD WATER UNIT

Abbreviations and Acronyms

EC	Evaluation Committee
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
GBV	Gender Based Violence
GRM	Grievance Redress Mechanisms
GWIS	Groundwater Information System
GW4R	Groundwater for Resilience
HoA	Horn of Africa
HoA-GWIS	Horn of Africa Groundwater Information System
IGAD	Intergovernmental Authority on Development
IWU	IGAD Water Unit
IGRAC	International Groundwater Resources Assessment Centre
IGWC	IGAD Groundwater Centre
JRS	Joint Regional Studies
MAR	Managed Aquifer Recharge
MIS	Management Information System
MOU	Memorandum of Understanding
MSs	Member States
NFG	National Focal Group
NGWC	National Groundwater Centre
NPCU	National Project Coordination Unit
PIU	Project Implementation Unit
RWSS	Rural Water Supply Schemes
RFA	Rapid Field Assessment
RFP	Request for Proposals
SADC	Southern African Development Community
TB	Transboundary
TDA	Transboundary Diagnostic Analysis
TPM	Third Party Monitoring
UN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children Fund
WB	World Bank

Table of Contents

Executive Summary 5

1.0 Day 1: Enhancing Regional GW4R Collaboration 7

1.1 Inaugural session 7

1.1.1 Launch of Management Information System (MIS) 8

1.2 Session1: Enhancing Regional GW4R Collaboration 9

1.2.1 IGAD Implementation Progress Updates 9

1.2.2 Member States Implementation Progress Updates: Kenya 10

1.2.3 Member States Implementation Progress Updates: Ethiopia 10

1.2.4 Member States Implementation Progress Updates: Somalia 11

1.3 Session 2: Strengthening Regional Partnerships for Groundwater Resilience 12

1.3.1 IGAD's Role in Trust Building, Peace, and Security through Groundwater Management 12

1.3.2 Accelerating project implementation through partnership, data and information, capacity strengthening. 14

1.4 Session 3: Strengthening Regional Collaboration: Progress & opportunities for IGAD Groundwater Databases 16

1.4.1 Presentation of IGAD Groundwater Information System (GWIS), Nicholas Lombardi 16

1.4.2 IGAD Regional Database: Open-source Data Presentation, Gaps and Needs of Data for Enriched Database; Ougas Houssein, IGAD 16

1.4.3 Options in Databases and Portals, the Examples of IGRAC and SADC, Arnaud Sterckx, IGRAC 17

1.4.4 Pros and Cons of various Data Systems. Eleftherios Kaltsas, UNESCO 17

1.4.5 Recap on the Status and Opportunities of IGAD GWIS, Marcus Wijnen, WB 18

1.4.6 Reflection on the Next Steps Regarding Data Sharing Procedure: A MOU or Formal Data Sharing Agreement Beyond the Life of the Project? 19

1.5 Session 4: Strengthening Regional Collaboration: Collaborative research 20

1.5.1 Update on the Progress of Dawa Feasibility Study: Ibrahim Ahmed, IGAD 20

1.5.2 Joint Regional Study (JRS) "Appraisal of Climate Risks on Groundwater Resources in the HoA": Action Plan; Marcus Wijnen (WB)Igbal Salah (IGAD). 20

1.5.3 Remote sensing and Recharge estimation methods in arid climate condition, Alan MacDonald, British Geological Survey & Bridget Scanlon, University of Texas 21

1.5.4 Day 1 Working Groups 22

2.0 Day 2 Environmental and Social Considerations 22

2.1 Session 1: Key Environmental Considerations in ground water development 23

2.1.1 General environmental considerations in siting of boreholes, Abdiraham Abass, FCDC 23

2.1.2 Technical environmental considerations in water scheme siting, Seifu Kebede, WB and Sam Godfrey, UNDP 24

2.1.3 Technical Environmental Considerations in Scheme Design and Operation: Cliff Nyaga, WB and Sam Godfrey, UNDP. 24
2.1.4 General Environmental Considerations in Scheme Design and Operation: Guyo Malicha, CGIAR 27
2.2 Session 2: Strengthening Environmental Considerations in Country Implementation: Action Planning 27
2.2.1 Group Discussions: Country Teams' Group Discussion on How Consideration of Environmental Impacts can be Enhanced in Project. 27
2.2.2 Progress on Active Engagement of Women in Waterpoint Management: Charles Gilman, WB 29
2.3 Session 3. Key Environmental & Technical Considerations on Water Point Management. ... 30
2.3.1 Government Capacity Building 30
3.0 Day 3: Water Quality Training, Innovation Café, and Action Plans 31
3.1 Session 1. Groundwater Salinity Guideline and Analysis. 31
3.1.1 Groundwater salinity guideline and analysis, Seifu Kebede, WB 31
3.2 Session 2. Innovations Café & Meet the Extended Team 31
3.2.1 Third-Party Monitoring Agent (TPMA), Chandler Klien and Team, BDO 32
3.3 Meet the Extended Team- Part 2 32
3.4 Country Presentations of priority action/commitment on each theme before next meeting: Environmental Considerations, Water Management Strengthening, Gender, Capacity Building..... 32
3.5 Water Management Models Strengthening 32
3.6 Priorities and plans for next 6 months: Victor Vazquez, World Bank. 33
..... 34
4.0 Conclusions and Takeaways 35
Annexes 36
Annex 1: Agenda for the 3rd IGAD Regional Learning Event 36
Annex 2: List of Participants 36
Annex 3: Country Action Plans 36

Executive Summary

"Strengthening Project Impact: Regional Collaboration, Contract Management, and Environmental Considerations" was the theme of the 3rd regional learning event held from May 27th -29th in Nairobi, Kenya. The focus was on continuous capacity strengthening of participating countries of the Horn of Africa's Groundwater for Resilience (HoA-GW4R) program in sustainable groundwater management in the HoA borderlands. The regional event had two main objectives 1. Enhanced collaboration commitment: Gain a clear understanding of ongoing and future collaborative initiatives for transboundary groundwater management in the IGAD region and of the role of GW4R countries, towards a strengthened commitment to cooperation. 2. Strategic Planning: Through a panel discussion and working sessions on joint regional activities to provide a platform for strategic planning, with participating country representatives and identifying concrete next steps for the implementation of transboundary GW4R activities.

The workshop gathered more than 100 delegates from implementing agency and government official representatives from Ethiopia, Kenya, and Somalia, development partners, and international experts to address the pressing challenges and seize opportunities in groundwater management for climate resilience. This was the third regional learning event organized by IGAD as part of the HoA GW4R program's regional implementation. Of the more than 100 delegates who attended the regional event of which 32% were women, there were representations from GW4R Project Coordination Units (PCU) and Project Implementation Units (PIU) from Kenya, Ethiopia, and Somalia. Others were development partners from UN agencies including UNDP, UNESCO and UNICEF besides high-level representation by World Bank Task Teams. The Third-Party Monitoring Agency (TPMA) led by BDO, international experts and IGAD were also represented. Country representatives included participants from the national and the regional (sub-PIU) levels, and as per the thematic focus of the event, it included groundwater engineers, procurement experts, environmental and social specialists from the Member States (MSs).

The workshop provided a regional platform for knowledge exchange, capacity building, and strategic planning, highlighting the pivotal role of cross-country collaboration. Participants engaged in practice-oriented sessions and interactive discussions covering three main topics: (a) deepening regional collaboration in the context of the GW4R program; (b) strengthening capacity on groundwater contract management; and (c) enhancing knowledge on environmental factors to consider as part of groundwater projects' implementation. The sessions were aimed at strengthening and informing the implementation of GW4R project activities, and at enhancing the regional activities that are being implemented by IGAD in collaboration with participating countries.

The inaugural session set the tone for the three-day event, emphasizing the importance of enhanced collaboration and addressing procurement challenges to accelerate disbursements. The session highlighted the progress of the IGAD's component of the GW4R project and the need for increased

engagement in joint regional studies to ensure the regionality of project activities. The following are highlights of day 1 sessions:

Session 1 provided an overview of the main progress and achievements of the IGAD GW4R project, including the objectives, components, and the status of the Third-Party Monitoring (TPM). It also addressed implementation challenges, such as slow pace of project implementation and constraints faced by member states in engaging in Joint Regional Studies. The need for prioritization and consistency of joint/regional project activities was identified as a key factor in accelerating project implementation. The session also delved into environmental, social, and gender considerations, highlighting the development of consolidated E&S annual work plans, environmental and social safeguard documents, and community engagement sessions. The importance of addressing environmental and social aspects in country implementation was underscored, emphasizing the need for comprehensive action plans and capacity building in these areas. Session 2 focused on strengthening regional partnerships for groundwater resilience, with a panel discussion highlighting existing good examples of transboundary collaboration on groundwater/water supply schemes and the limitations arising from water scarcity. The session emphasized the need to strengthen efforts to accelerate the implementation of the regional groundwater project, including expanding task forces, improving communication, and enhancing data protection and quality assurance.

The presentations by the UN agencies in Session 2 outlined support for the GW4R program through three main pillars: enhancing the HoA groundwater datahub, applied research to bolster program implementation, and capacity building. Benefits of the regional approach were emphasized, highlighting the significance of collaborative efforts to maximize impact of the GW4R project and enhance regional collaboration. Session 3 focused on progress and opportunities for IGAD groundwater databases, with presentations on the Horn of Africa Groundwater Information System (HoA-GWIS) and the IGAD regional database. The session emphasized the importance of establishing the HoA-GWIS to enable countries to generate and share data on transboundary aquifers, facilitating decision-making and joint planning. The need for comprehensive metadata, metadata standards, and regular database building was highlighted, along with the reflection on next steps regarding data sharing procedures.

Session 4 provided an update on the progress of the Dawa feasibility study, emphasizing the comprehensive assessment of the Dawa Transboundary Aquifer system for sustainable development. The session highlighted the objectives of the assessment, including the development of an Aquifer Management Plan (AMP) and Decision Support System (DSS) for the Dawa aquifer, and the assessment of associated environmental and social risks and mitigation measures. The main outcome of the Learning Event was country-specific action plans outlining the way in which GW4R countries will integrate the lessons emerging from the event into the GW4R project activities, with a focus on concrete actions to accelerate the program's implementation and enhance regional collaboration.

1.0 Day 1: Enhancing Regional GW4R Collaboration

The overall theme for day 1 sessions was "Enhancing Regional Groundwater for Resilience (GW4R) collaboration". The outcome of the days' sessions was expected to be a clearer understanding of ongoing and future collaborative initiatives for transboundary groundwater management in the IGAD region and the role of GW4R countries towards a strengthened commitment to cooperation. A second outcome of day 1 sessions was provision of a platform for strategic planning through panel discussions, with participating representatives of Member States (MSs) identifying concrete next steps for the implementation of transboundary groundwater activities.

1.1 Inaugural session

Opening remarks were made by Dr. Ibrahim Ahmed, Program Manager and Team leader of Groundwater Resilience Project on behalf of IGAD's Agriculture and Environment Director (AED), Daher Elmi. Remarks by the host country were made by Ms Margaret Irungu of Ministry of Water, Sanitation and Irrigation, Kenya on behalf of Mr Gichangi Wotuku, GW4R Project Coordinator for Kenya. Other opening remarks were made by Ms Ragini Praful Dalal, World Bank Program Leader for Sustainable Development in Kenya, Rwanda, Somalia, and Uganda.

Dr. Ibrahim's remarks focused on a review of IGAD's GW4R Project aim which is "To increase the sustainable use and management of groundwater in the Horn of Africa through the strengthening of regional information, capacity and collaboration". He informed the delegates that the main outcome for the IGAD part of the program is to achieve "Increased capacity for groundwater management at the national and regional levels by establishing the HOA Groundwater Information System (GWIS) and the Regional Platform for Groundwater Collaboration (PGWC)". He completed his remarks by providing an overview of the progress for each subcomponent.

On her part, Ms Ragini Praful Dalal expressed excitement that that HOA GW4R program brings together three different countries (Kenya, Ethiopia, and Somalia), plus IGAD, a regional entity to enhance transboundary cooperation and knowledge development. She underscored the fact that President of Kenya, William Ruto, recently hosted an African leadership event in Nairobi which emphasized the importance of regional collaboration. She reported that the GW4R program is one of the first Multiphase Programmatic Approach (MPA) strategy in the region funded by the WB and brings together a very consolidated structure around 2 components in the three countries of intervention (C1) for water supply delivery in rural borderlands of the HOA, and (C2) elevating the knowledge on groundwater management. These two components are critical for the sustainability of investments, which is the key to the project. Given the nature of the investments around the borderlands, it is important countries cooperate to identify new projects where cross border collaboration can come into play. She reported that the World Bank is excited to see the Dhobley-Loboi pilot progressing and is looking forward to seeing more of these subprojects being financed by the program. She concluded by saying that the regionality of this program presents a strategic and collaborative approach to harnessing the potential of groundwater resources to

enhance resilience and ensure water security for present and future generations. This will strengthen the resilience of HOA communities to drought, water shortages, and other climate-related risks.

Other matters raised during the inaugural session include emphasize on the need for enhanced collaboration and the importance of addressing procurement challenges and drastically accelerating disbursement was underscored.

1.1.1 Launch of Management Information System (MIS)

As a tool to be used across the project by MSs, at the regional level and by the Third-Party Monitoring Agent (TPMA), a uniform understanding of the HOA-GW4R Project's Management Information System (MIS) by all stakeholders is crucial. It is on that basis that Irene Rehberger Bescos and Laura Lahoz Gonzalez made presentations, discussions and demonstrations of the MIS as part of the inaugural session of the learning event.

Irene provided updates on the extent to which the MIS tool had been deployed for pilot project site assessments and TPM. She reported that every site is registered in MIS, which enables the WB to track implementation progress and also able to track beneficiaries. She explained that the GW4R MIS is a project customized platform to provide project progress, supervise, monitor, and manage real time project risks, and constitutes the one-stop shop for the sub-project cycle.

The MIS main objectives are as follows:

i. Systematically enhance the supervision, accuracy, and accountability of the program M&E through a shared and transparent platform, that:
   - ✓ Guides the sub-project cycle from site identification and eligibility to preparation and implementation;
   - ✓ Monitors the sites real time by collecting in-situ feedback from clients, TPMA, World Bank and UN partners through each of their visits.

ii. Provides an evidence base for the development of knowledge products and facilitate learning of the GW4R program.

iii. Serve as a tool to benchmark progress by different actors and foster good performance.

The MIS is made up of two components: a set of eight forms on Kobo Toolbox used for **data collection** for both tracking the sub-project cycle and real time monitoring and a **dashboard** hosted on a PowerBI platform.

The importance of tracking everything site by site was emphasized since measuring groups of sites may camouflage many important differences between individual sites in the groups. She reported that for example *"We are learning that a lot of sites have salinity issues*" (see the later meeting session by Seifu Kebede). We are also learning that some borehole yields may not be enough to meet the demand for a particular community in a site. Other matters that are site specific include confusion about incidences of conflicts as data collection are not reflecting the conflicts that may

be known to exist and there are inconsistencies on grazing lands. Therefore, it will be a priority to iteratively improve the methodology of data collection that feeds into the MIS.

The continued donor commitment and the positive impact of learning events on project implementation were highlighted, along with the recognition of the project being on the right track.



Figure 1: Inaugural session

1.2 Session1: Enhancing Regional GW4R Collaboration

The session provided an overview of the main achievements and challenges over the past six months by each of the three project MSs and IGAD component. The presentations were made by Project coordinators Ibrahim Ahmed for IGAD, Dr Zebene Lakew for Ethiopia, Wesley Chelule on behalf of Gichangi Wotuku for Kenya and Mohammed Mukhtar for Somalia.

1.2.1 IGAD Implementation Progress Updates

The presentation by Dr Ibrahim Ahmed included project objectives at the regional level and the various components. His presentation also included the GW4R Program's Third-Party Monitoring (TPM) Agent, status and next steps. Participating GW4R countries confirmed their respective TPM focal persons, who will be supporting the TPM implementation through various tasks, including coordination of TPM field visits and review quarterly reports, among others.

IGAD shared some implementation challenges including the slow pace towards execution of the data sharing protocol among the MSs and inconsistencies in attendance of the bi-weekly NGF meetings by some MSs. These challenges were discussed further during the three-day forum.

Some Member States expressed their constraints to effectively engage in Joint Regional Studies (JRS) due to staffing and time constraints. Their roles in such activities were clarified by IGAD, and the need for increased engagement was highlighted, in order to ensure the regionality of project activities.

Discussions during the session also addressed the slow pace of project implementation caused by different factors, many of them procurement related. Participants identified the need for prioritization and consistency of joint/regional project activities.

Updates from the GW4R Project Coordinators from Kenya, Ethiopia, and Somalia highlighted the progress of the GW4R project in the different countries. Country highlights in areas such as capacity building, site selection and preparation of investments were reflected in the presentations provided during the session.

1.2.2 Member States Implementation Progress Updates: Kenya

In Kenya, a total of Euro 4.5 million had been disbursed to the project, which was approximately 0.03% of the overall project budget.

Achievements:

- Capacity Building of PCU, PIUs and Sub-PIUs
- Procurement of goods (ICT equipment, motor vehicles)
- Procurement of Consultancies – In progress (a few contracts signed)
- Development of Security management plans in each of the five counties (Sub-PIUs)
- Mobilization, establishment, of WRUAs within the seven aquifers
- 30 Borehole sites selected for eligibility verification in the five counties
- Site eligibility exercise in progress (2 out of 5 counties have concluded the exercise)

Major Challenges:

- There is an urgent need to replace the ESS specialist who left the project
- Disbursement and procurement have been slow.

1.2.3 Member States Implementation Progress Updates: Ethiopia

About 4.5% of Ethiopia's $210m total project budget had been disbursed by the time of the learning event.

Achievements

- Managed Aquifer Recharge (MAR): Evaluation of Request for Proposal (RFP) completed and submitted to Evaluation Committee (EC)

- Environmental Social Impact Assessment (ESIA) for MAR: Evaluation of RFP completed and submitted EC
- RFP issued to the shortlisted consultants
- Evaluation of RFP completed and approved by EC
- Contract signed for 13 WS sub projects
- Evaluation completed, 2 bids opened on April 17 and under evaluation
- S&D for 42 sub projects: Generic ToR approved by WB is being under customization for all sites
- Bundling of two sites (Moyale and Miyo): Waiting advice from WB standard procurement
- Construction supervision: Under negotiation for 10 sites, Invitation issued for 6 projects and Expression of Interest (EoI) is under process for 6 projects
- Hiring of WT support team: Issuance of RFP: PP uploaded onto STEP
- Hiring of WT support team: Issuance of RFP: PP uploaded onto STEP
- GW-MIS Integration: Interested consultants submitted their EoI
- Procurement of IT: Bid document prepared for re-bid
- Server procured by IGAD: Inspection and taking over of IT equipment
- National GW MS Assessment: EoI Evaluation completed and submitted to EC
- 27 sites registered and eligibility confirmed for 22 sites and registered in GEMS

Environmental, Social and Gender*:* E&S screening and stakeholder consultation carried out for:

- MAR, 22 WS and 7 Irrigation sub projects
- ESMP conducted for 22 sub projects
- E&S training provided for 132 (16 female) participants
- WASHCOMs: 22 sub projects, 56% female member, 54% leadership position
- Kebele GRC: 22 sub projects, 46% female members.

Major Challenges

- Price escalation
- Construction of MAR
- Test well drilling for 14 GWPA
- Construction of 24 RPS
- Construction of Phase II Irrigation Sub project
- Delay in project implementation

1.2.4 Member States Implementation Progress Updates: Somalia

By the time of hosting the regional learning event, 12% of Somalia's $30m budget for the project had been disbursed.

Achievements:

- Significant progress has been made on the establishment of the National Project Coordination Unit NPCU and Project Implementation Unit at the Federal Member States.
- The National Project Coordination Unit and PIUs are fully onboard and functioning.
- Project's disbursement conditions have been met in early August 2023.
- Borehole rehabilitation sites has been identified in all project locations.
- Rapid Field Assessments have been completed in all four federal member states, reports have been submitted to the NPCU,
- Major procurement of the contractors has been finalized.

Environmental, Social and Gender

- Developed of consolidated E&S annual work plan incorporating action plans from the E&S instruments, LMP, GRM, GBV/SEAH and Environmental
- All project documents including Environmental and Social Safeguard documents have been published on the Ministry of Energy and Water Resources website as presented below:
  - ✓ https://moewr.gov.so/en/projects/doc/Somalia%20GW4R%20P174867_LMP_15th%20Dec%202022_cleared.pdf
  - ✓ https://moewr.gov.so/en/projects/doc/Somalia%20GW4R_SEAH%20prevention%20and%20response%20plan_15th%20Dec%202022
- Environmental and Social Framework Instrument Training for Project Workers has been conducted across all FGS & FMS project staff in Mogadishu.
- The translation of summaries of Environmental and Social Framework (ESF) documents in Somali language has been completed.
- E&S team prepared the rapid assessment field visit tools for Hirshabelle, Juballand, Southwest and Galmudug including ESMP, MOU draft letter, Land agreement letter, social summary form, ES Screening Checklist, Gender and GBV Checklist to assess the site selection criteria during the Rapid Field Visit.
- During the rapid field assessment (RFA) in the FMS, the E&S team facilitated community engagement sessions after receiving approval from the local authority in the target districts.
- Accomplished 18 community engagement sessions through all target sites
- Dedicated sessions for women's representatives have been conducted at each site separately.

1.3 Session 2: Strengthening Regional Partnerships for Groundwater Resilience

1.3.1 IGAD's Role in Trust Building, Peace, and Security through Groundwater Management

A panel discussion session on IGAD's strategic approach to using groundwater resources as a tool for trust building and promoting peace and security and enhance cooperation among member states in the region followed after Dr Ibrahim Ahmed of IWU's presentation.

Prior to the panel discussions, Victor Vasquez of WB emphasized the importance of NFG from each country to be fully involved in the project (including attending bi-weekly meeting) to move ahead the delayed agenda of the project. He reported that the project is extremely slow in all the MSs. He underscored the fact that the NFG should be used as a forum for rich discussions to

support the regional component which is linked to national achievements. He concluded by reminding delegates that implementation acceleration relies on fast-tracking the implementation of MoUs, data sharing protocols and capacity building with tailored training programs and sharing experience.

Panel Discussants:

Wesley Chelule (Kenya); Dr Zebene Lakew (Ethiopia) and Mohammed Mukhtar (Somalia)

Moderator: Dr Ibrahim Ahmed (IGAD)

Questions to the Panel

1. What are existing good examples showcasing transboundary collaboration on groundwater/water supply schemes, i.e., examples that highlight the benefits of the regional approach?
2. What are some examples of limitations that arise from water scarcity in realizing the context presented by Dr. Ibrahim.

Panel Discussion Highlights

Country	Existing Good Examples	Limitations/Challenges	Areas that need Strengthening
Ethiopia	Water supply to Djibouti from Ethiopia is a good example of collaboration of the two countries even if the collaborations was not intended to be based on shared resource.	• **Increased competition**: Water scarcity can lead to increased competition between countries for limited water resources, making collaboration more difficult. • **Poor trust and cooperation**: Water scarcity can erode trust and cooperation between countries, making it challenging to reach agreements on water management. Limitations include potential conflicts, conflicts leading to loss of life, displacement of	Sharing data for the project purpose and having a regional platform for knowledge sharing and capacity building will enhance doing projects jointly and automatically building trust for better coordination, something that can benefit from the regional approach to project implementation. To accelerate implementation Ethiopia needs to support the consultants for providing data and give timely feedback for sharing outputs.
Kenya	Kenya has several examples. One is the case of Moyale border between Kenya and Ethiopia where communities across the borders collaborate. Communities, share the same language across the border, they inter-marry and have existing effective community governance structures for boreholes used across the borders. Some of these boreholes have been identified for		Expand the Task Force to widen the stakeholders. Ways to improve implementation include identifying knowledge gaps and continuous capacity building. There is need to more timely and effective communication of all activities. There is a need for greater data protection, data quality assurance, identification of knowledge gaps

	rehabilitation under the GW4R project	communities, interruption of livelihoods, climate change effects on the limited resources. • **Political instability**: Water scarcity can exacerbate political instability, making it difficult to implement transboundary water management projects. • **Limited resources:** Water scarcity can limit the resources available for transboundary water management projects, making it difficult to achieve their objectives. • **Environmental degradation**: Water scarcity can contribute to environmental degradation, further exacerbating water stress and making it more difficult to manage water resources sustainably.	and long term and short-term training.
Somalia	The Merti Aquifer between Kenya and Somalia (Dhobley and Libio) is a good example. The drilling of three boreholes and construction of two dams have been planned for the aquifer. Sites have already been identified, feasibility study has been completed, data sharing protocol has been signed by the FGS, and the MOU is it's in the final state only waiting signatures for both counties. Dawa Aquifer between Kenya, Ethiopia and Somalia is also an example, a task force committee has been established, consultants have been hired to conduct the feasibility study and the inception report has been submitted to the NPCU.		Benefits of a regional approach including collective Infrastructure and Resource Management, transboundary collaboration enhances the resilience of climate change, it creates an alignment of policies and institutional cooperation by establishing joint institutions or committees in transboundary aquifers for decision-making and creates combined monitoring and data sharing. It is expected that the regional approach will lead to improved access to safe water for both Ethiopian and Somali communities, reducing waterborne diseases and improving health outcomes, create jobs and stimulated economic activity in the region, particularly in agriculture and livestock production, and building trust and cooperation between Ethiopia and Somalia, reducing the risk of conflict over water resources.

1.3.2 Accelerating project implementation through partnership, data and information, capacity strengthening.

Inception Report and Pillars Workplans

The WB introduced the UN family agencies, UNDP, UNESCO and UNICEF representatives who will be collaborating in the implementation of the HoA-GW4R project. The UN presentation by Sam Godfrey of UNDP outlined their support for the GW4R program through three main pillars: Pillar 1 focuses on enhancing the Horn of Africa (HoA) Groundwater Data Hub, Pillar 2 on applied

research to bolster GW4R Program Implementation, and Pillar 3 on capacity building and applying lessons learned in project preparation and implementation.

Highlights of the UN agency presentations were as follows:

- Dr. Kebede emphasized the need to understand the level of transboundary collaboration, noting the gap in knowledge about transboundary (TB) aquifers compared to TB rivers.
- UNICEF's Kitka highlighted the significance of borehole efficiency tests, the choice of drilling, and pumping tests to ensure long-term borehole functionality, pointing out the high stakes involved.
- UNESCO's Alex recognized the challenges of data scarcity for transboundary collaboration and thereby suggesting the need for in-depth training or discussion on topics such as aquifer diplomacy at the next regional event. Alex further acknowledged data scarcity challenges countries are facing for transboundary collaboration.

The partnership of the UN family to the implementation of HoA-GW4R project was reported to be beneficial to project Member States through the regional approach. The extended UN team supports the project as one family to maximize the impact of the GW4R project, strengthen project monitoring, and enhance regional collaboration. UN collaborators help to reach farther and deeper in each country to understand the real challenges and explore practical solutions to obtain sustainable access to groundwater.



1.4 Session 3: Strengthening Regional Collaboration: Progress & opportunities for IGAD Groundwater Databases

1.4.1 Presentation of IGAD Groundwater Information System (GWIS), Nicholas Lombardi

IGAD's part of GW4R aims to increase the sustainable use and management of groundwater in the Horn of Africa through the strengthening of regional information, capacity and collaboration. One key indicator is to enable regional groundwater institutions to have increased access to information critical for sustainable GW management. To help achieve this goal a Horn of Africa Groundwater Information System (HoA-GWIS) needs to be established. The HoA-GWIS will be essential for sustainable GW management as it will allow countries to generate and share data on transboundary aquifers, to facilitate decision-making and joint planning.

Mr. Lombardi's presentation:
https://www.dropbox.com/scl/fo/bjdfbyyeuhk8252qqhxvz/AADPAKecRt6EFK47lkBgyG0/PPTs?preview=IGAD+GWIS+(1).pptx&rlkey=jnef00yb69ob8a53029hgc9f0&subfolder_nav_tracking=1&st=rfst918p&dl=0

A consultant, Dr Nicholas Lombardi responsible for the development of GWIS database made a presentation and practical demonstration to the delegates. Some of the highlights from the presentation were as follows:

- Only individual MSs will be able to modify their data, while other users can only view the data. The system will include metadata on construction, hydrogeology, and water quality data among others.
- The consultant suggested two approaches for linking with other existing databases (i.e., interoperability).
- The development of GWIS database was at about 60% by the time the regional learning event was hosted. Plans are underway to undertake one-week training sessions per country once the system is fully developed, training planned for July and August 2024.

1.4.2 IGAD Regional Database: Open-source Data Presentation, Gaps and Needs of Data for Enriched Database; Ougas Houssein, IGAD

Mr. Ougas's presentation highlighted the significance of accurate and comprehensive groundwater data for informed decision-making and sustainable water resource management. It provides an overview of the Groundwater Information Portal, detailing its structure, functionalities, and interactive features such as data visualization tools. The process of data collection, compilation, and validation is explained, emphasizing collaboration with the NFG group and contributions from participating countries. The benefits of regional cooperation through joint studies and collaborative data sharing to address common groundwater challenges are showcased. Finally, it invites the NFG group to provide valuable input, suggestions, and feedback to further enrich the portal's content and ensure its relevance to member states.

Ougas Houssein, Database Management Expert, IGAD presentation link: https://www.dropbox.com/scl/fi/no8dmlql42g2x2hmb3bvn/IGAD-Regional-Database.pptx?rlkey=3p2xu98tpqfw666h404mz74ju&st=iei0v4us&dl=0

1.4.3 Options in Databases and Portals, the Examples of IGRAC and SADC, Arnaud Sterckx, IGRAC

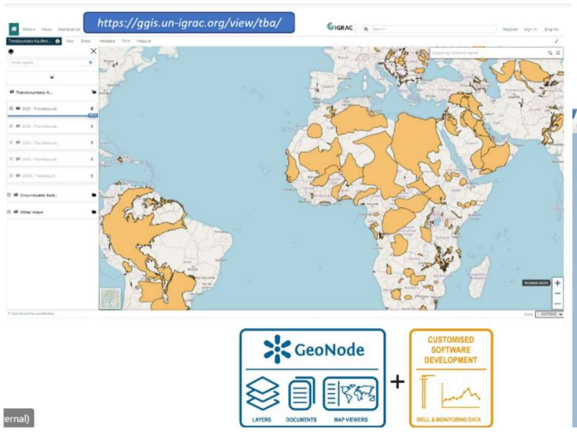
Arnaud Sterckx IGRAC virtually & Alexandros Makarigakis, UNESCO presented on the options in databases and portals with examples of IGRAC and SADC.

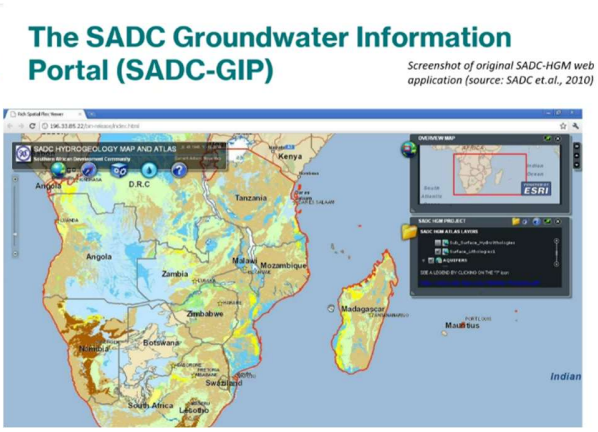
Since 2022, monitoring data in the GGMN is used to calculate groundwater level indicators in the State of Global Water Resources report: https://wmo.int/publication-series/state-of-global-water-resources. IGRAC promotes sharing of groundwater data and information through the Global Groundwater Information System (GGIS) and the Global Groundwater Monitoring Network (GGMN) platform.

Arnaud Sterckx IGRAC & Alexandros Makarigakis's presentation: https://www.dropbox.com/scl/fo/bjdfbyyeuhk8252qqhxvz/AADPAKecRt6EFK47lkBgyG0/PPTs?preview=Presentation+IGRAC.pptx&rlkey=jnef00yb69ob8a53029hgc9f0&subfolder_nav_tracking=1&st=fmhhe2su&dl=0

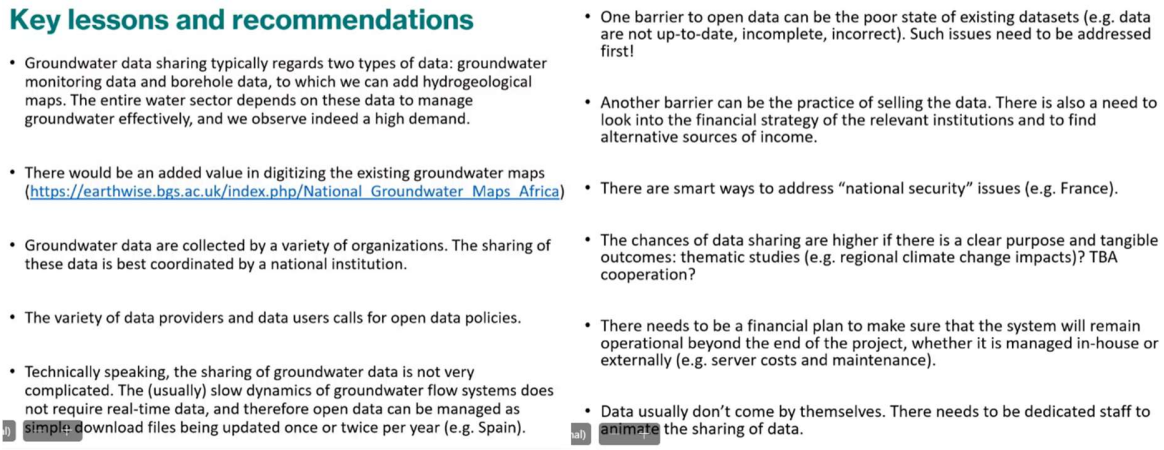
1.4.4 Pros and Cons of various Data Systems. Eleftherios Kaltsas, UNESCO

Mr Eleftherios made a presentation on an overview of the GaFa project.





Data sharing for groundwater has challenges since variables typically change slowly. Groundwater does not need real time data but data that can be updated annually. The HoA-GW4R project should understand the challenges of open data and identify a financial strategy for an open license system. O&M for the GWIS system is necessary for sustainability of the system itself and the data.



1.4.5 Recap on the Status and Opportunities of IGAD GWIS, Marcus Wijnen, WB

This session was intended to facilitate discussion on several key questions around how MSs may support more efficiently the regional database; experiences and suggestions by countries on the GWIS and a reflection on the next steps in the data sharing procedure. The following are highlights addressed by MSs through group work:

How Countries may Support the Regional Database more Efficiently:

Kenya:

- A data sharing agreement needs to be in place. Currently awaiting approval by the Ministry of Interior.
- Data should be verified and cleaned before sharing.
- A common format for data submission should be established.
- MSs teams should undergo capacity building in data collection, cleaning, and sharing to ensure reliability.
- Local databases should be improved before sharing to the regional platform.

Ethiopia:

- Establishing and strengthening RGWC and NGWCs
- Identify works at the Regional and national levels in building corresponding databases
- Regular updates when information is available and authorized at higher levels for sharing

Expectations & needs of the countries regarding the next steps on the GWIS:

Kenya

- We need a nneeds assessment for the stakeholders and the system to operationalize the developed GWIS.
- The GWIS should be a system that can support decision making in siting boreholes (quality and quantity).

- We need to plan for sustainable access of the data from the database system (clouds and back-ups)
- Need data security.

Ethiopia:

- Harmonized data collection needs consistent methodologies and clear roles of the RGWC.
- Need to ensure that data collection methods are consistent across regions to facilitate accurate comparisons and integration.
- Details of data that is shared should be harmonized.
- Regularly calibrate instruments and validate data collection processes to maintain consistency and reliability.
- Comprehensive Metadata: - Document detailed metadata for each dataset, including information on data sources, collection methods, periods, and spatial references.
- Develop or adapt metadata standards: Adopt metadata standards such as ISO 19115 for geographic information and services to ensure uniformity.
- Regular database building to the details of works as agreed upon.

1.4.6 Reflection on the Next Steps Regarding Data Sharing Procedure: A MOU or Formal Data Sharing Agreement Beyond the Life of the Project?

Kenya:

- Data shared must be within the legal framework.
- The sharing protocol needs to be legalized through a protocol or agreement through developed guidelines.

Ethiopia:

- The regional collaboration should plan for sustaining data sharing beyond the project life.
- Data sharing will be limited to the borderlands where project activities are implemented.

Somalia:

- Data in Somalia currently now is quite sporadic and scattered all over due to a prolonged absence of a stable national government.
- The best available data from SWALIM has already been shared with IGAD.
- Somalia is in the process of setting up the National Groundwater System, with this institution, they hope to collect the data from FMS and other sources (e.g., private sectors, universities, NGO) to have a comprehensive collection of all available data in Somalia.
- They expect to benefit from the IGAD GWIS so the regional data may contribute to the national database.
- Currently training staff for NGWC, and 18 colleagues from different GMS have been trained so far, more are expected.
- For the next steps, Somalia expects to create an inventory of available groundwater data resource, strengthen the institutions (e.g., scale up the training, starting to establish monitoring

facilities for the field), and start to discuss the possibility of automation of collection of data, and financial strategy for data providers (e.g., license), based on the experience of IGRAC and SADC.

1.5 Session 4: Strengthening Regional Collaboration: Collaborative research

1.5.1 Update on the Progress of Dawa Feasibility Study: Ibrahim Ahmed, IGAD

SGI was the consultancy firm that won the Dawa feasibility study contract to comprehensively assess the viability of the Dawa Transboundary Aquifer System for sustainable development. The objectives of the study are to: i) Compile and complement the knowledge of the aquifer, and assess key data gaps, ii) Assess the availability and variability of surface water and groundwater resources and their vulnerability to climate change, and evaluate the uncertainties related to these assessments, iii) Provide preliminary plans for developing water-related infrastructure for socio-economic development and, iv) Develop an Aquifer Management Plan (AMP) and Decision Support System (DSS) for the Dawa aquifer.

This feasibility study will establish key recommendations and guidelines for future groundwater exploration, management, and protection and assess associated environmental and social risks and mitigation measures. Water infrastructure developments in shared aquifers provide a huge potential to promote cooperation among the shared water resource users.

It was discussed that data collection is crucial but can be the most challenging part of the assessment because there are many data owners and there may be problems via data gaps or quality at any place.

In Task 1 the firm will conduct the desk study and attempt to delineate the aquifers boundaries. This will produce a GIS database and conceptual model. In Task 2 an assessment of the groundwater resource assessment will be completed that defines aquifer features and perform E&S screening for eligibility. Task 3 and 4 will complete the feasibility study and develop the decision support system.

1.5.2 Joint Regional Study (JRS) “Appraisal of Climate Risks on Groundwater Resources in the HoA”: Action Plan; Marcus Wijnen (WB)Igbal Salah (IGAD).

The Objective of the JRS is to develop a joint methodology to map annual groundwater recharge, suitable for the hydrogeological and climatic conditions in HoA and building on the experience and aligned with data availability in three member states. The process begins with a stepwise phased approach that involves classifying groundwater units, compiling data, and determining the relationships between rainfall and recharge. A conceptual methodology is then developed and validated using a pilot aquifer, which is selected based on specific criteria such as feasibility and data availability. The approach includes a thorough consideration of various water recharge calculation methods to assess their suitability, followed by a comparison of different groundwater recharge estimations using real data.

However, data collection presents challenges, particularly in obtaining information from governments. Essential additional data sources for the Joint Regional Study (JRS) include WaPOR

for water productivity, long-term rainfall time series, land use data like soil maps, vegetation data, and evapotranspiration (ET) data. Given that water demand can impact the water cycle, it is recommended to conduct a full water accounting at the local scale. Remote sensing is highlighted as a crucial data source, not just for planning water supply but also for enhancing the water recharge assessment. Alan and his team have previously conducted a water recharge assessment at the continental scale in Africa. The JRS project now aims to gather more detailed local data for the Horn of Africa (HoA) region, focusing on country-level information and on-the-ground insights.

Dr. Sintayehu Legesse (Ethiopian National JRS Consultant) and Mr. Gicheruh Chrysanthus (Kenyan National JRS Consultant) presentation link: https://www.dropbox.com/scl/fi/vvo86gsq2e4vm8nmshhks/Kenya_-_Ethiopia_JRS-Inception-Presentation20.05.24.pptx?rlkey=lb2d8kcdahf94e40cwm9sq7bz&st=u11c9265&dl=0

1.5.3 Remote sensing and Recharge estimation methods in arid climate condition, Alan MacDonald, British Geological Survey & Bridget Scanlon, University of Texas

In arid climates, groundwater recharge estimation is complex and hinges on two primary mechanisms. The first is **diffuse recharge**, where excess rainfall infiltrates the ground, potentially leading to runoff or recharge. This mechanism is more common in semi-arid regions but is difficult to quantify due to the close values of rainfall and evapotranspiration (ET). The second mechanism is **focused recharge**, often from rivers or ephemeral streams, which is crucial in arid areas. This type of recharge is highly episodic and unpredictable, making it challenging to measure. In extremely arid regions, current recharge may be minimal, and the water present is often paleo water from past climatic conditions.

The impact of vegetation and land use changes, especially the shift towards agriculture, can significantly alter groundwater recharge rates. Environmental tracers can help determine the age of groundwater but do not directly measure the volume of recharge unless used in conjunction with modeling. Recharge in arid areas may not occur annually, necessitating a comprehensive understanding of various models to estimate recharge accurately.

Other methods include the use of GRACE (Gravity Recovery and Climate Experiment) satellite data, which provides an independent measure of changes in total water storage, though not specifically recharge. Groundwater capture is less likely in arid areas compared to more humid regions. Emphasizing the conjunctive management of surface and groundwater resources can be beneficial, as it allows for the possibility of recharging depleted aquifers with excess water from surface sources, such as irrigation runoff.

Dr. Alan Macdonald and Ms. Bridget Scalon's presentation link: https://www.dropbox.com/scl/fi/xzrudd4c5vw9g6iwzwwhh/MacDonald-Scanlon-GW_Recharge_IGAD-May-27-24.pptx?rlkey=ppekik37jiw6kk7kjqtti9bk1&st=fbum96hk&dl=0

1.5.4 Day 1 Working Groups

The day ended with breakout in two working groups: i) Methodology and Aquifer selection discussion, and ii) Action plan in each of the countries based on challenges discussed (Q: How to enhance implementation efficiency?

The following are highlights of the working groups' discussions:

Data Collection Group:

1. **Challenges in JRS implementation and possible remediation measures;**

- IGAD should facilitate formulation of a data sharing a protocol or convention by Member States, for some countries like Kenya, data cannot be shared through MOUs
- Some member states do not have policies on data sharing
- Clear purpose of data sharing to both technical and political leaders of the countries should be in place. These should clearly state how the countries would be benefiting from such data.
- A major challenge is that currently it is not known which Transboundary (TB) aquifers are shared due to lack of detailed studies for verification,

2. **Additional data sources and necessary actions to finalize data collection;**

- There should be assurance on the safety of data shared by the member states
- IGAD should give introductory letters clearly stating purpose of assignments while IGAD consultants should be accompanied by MSs the study focal persons or taskforce member from the member states
- There is urgent need to generate more groundwater potential assessment data.
- Time constraints: Consultants engaged by IGAD in the project should be given adequate time to collect field data; both primary and secondary data where applicable.
    - Member state focal persons should support facilitating and guidance of gathering data.

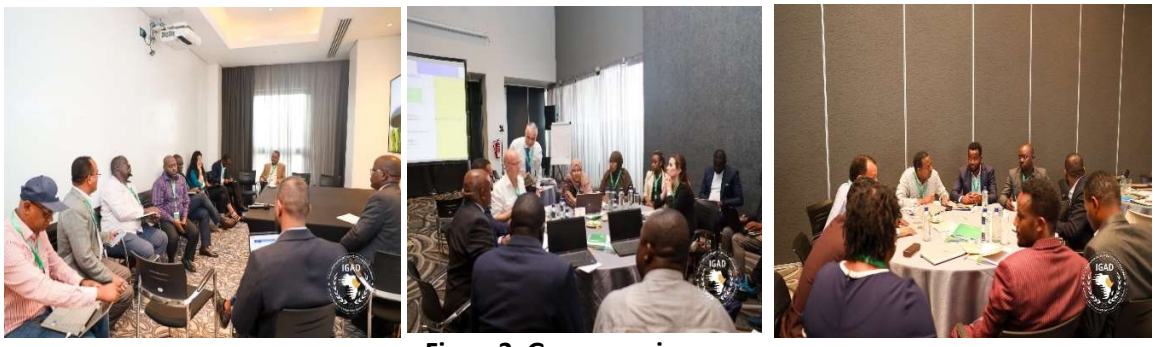


Figure3: Group sessions

2.0 Day 2 Environmental and Social Considerations

Day 2 and 3 of the workshops was focused on strengthening project impact through sharing of technical, environmental and gender considerations. Specifically, day 2 of the learning event focused on equipping participants with knowledge and understanding of key elements of

Strengthening Project Impact. Day 2 included a session aimed at Social and Gender Specialists from the three member states and IGAD. The session focused on community engagement progress and methodology of expected gender results. Discussions identified challenges and shared experiences to strengthen community and gender engagement and social considerations of the GW4R project. Ibrahim provided an overview of key lessons from Day 1.

2.1 Session 1: Key Environmental Considerations in ground water development

2.1.1 General environmental considerations in siting of boreholes, Abdiraham Abass, FCDC

Important factors to consider include: grazing areas, mobility and migration routes, promoting multiple water points for different uses, land use and water planning.

General considerations in siting boreholes include avoiding a glut in the number of boreholes that may spring up as a result of an original borehole. For example, the Garse Qoftu borehole in northern Kenya triggered a chain reaction resulting in construction of nine neighboring boreholes. Some of the other general considerations include clan (family), livestock, wildlife corridors, distance from the nearest borehole etc. A safe distance of 30 km is recommended between boreholes. An ex-post evaluation of boreholes is recommended at least 10 years after commissioning. Priority should be given to rehabilitation of existing boreholes rather than establishment of new ones while border borehole drilling should be restricted. People are encouraged to settle within existing areas instead of creating new settlements.

Abdirahman Abass, FCDC presentation link:
https://www.dropbox.com/scl/fi/1qnqt020nhgg4x4nzbkuy/Day-2_1st-presentation_Environmental-Considerations-in-sitting-of-boreholes-by-Abass.pptx?rlkey=x3l8rmg2rgruz0hlx5d0cujtl&st=79358zyy&dl=0

Matters Arising

- 30 kms between boreholes, from service level perspectives, is this feasible or a standard?
  - ✓ 30km is based on the fact that livestock can travel on average 15km per day, so any more than that will increase bunching of livestock and degradation.
- How are we going to reach 1.5 million people with our project in Turkana if we don't encourage them to settle?
  - ✓ The project should not be settling people just to reach them, when their livestock depends on mobility. There are very few alternative livelihoods for unskilled pastoral drop outs, other than charcoal burning and aid dependency, by settling them you destroy their livelihood. Beware of political reasons for settling people to increase political constituencies.
- What other considerations should be made for water points besides siting?
- Do you have any tools to help with deciding what is appropriate where? Localised assessment with the community of their range and water demand and the likely impact of a permanent borehole is essential. In Somalia initial assessment should be done at RFA stage then a more in-depth social mapping.

2.1.2 Technical environmental considerations in water scheme siting, Seifu Kebede, WB and Sam Godfrey, UNDP

A. Aquifer and salinity assessments, pock marks/balis

This presentation highlighted the local groundwater security significance of previously unrecognized landscape features here named as pockmark depressions. These are natural round shaped solitary depressions dotting large expanse of area in Eastern Ethiopia, Northern Somalia and North Eastern Kenya. Some of the depressions hold shallow groundwater tables (<15m) in a region otherwise characterized by very deep-water table (>200m). A technical study using isotopes revealed that these depressions (locally called Bali in Somali language) are sites around which drainage is organized (i.e. water flows towards the center from all directions) allowing recharge of the underlying sediments/rocks. Some of these depressions are being damaged by human influence through pollution, invasive tree species, tramping by animals, compaction etc.. The need for a better understanding of the role of the depressions and safeguarding the most vital ones has been highlighted.

Matters Arising:

How do we deal with climate resilient water supply?

- Most focused recharge happen along ephemeral systems/ streams
- Gullys provide water during dry seasons; do they also recharge ground water systems?
- Protection of recharge from pollution, which activities goes on in the recharge zone?
- Irrigation, settlement, road constructions etc
- Technical and environmental considerations in scheme design and operations: Cliff/ Sam.

Presentation Highlights:

- Reasons for borehole failure include pump failure, others, vandalism and low water tables among others
- Replacing broken borehole parts may not necessarily resolve a borehole challenge if some design and operations factors were considered
- Lack of borehole data is another challenge since one would not able to quantify the “dry-wet” seasons’ demand.

A good borehole design should take into considerations multiple use points for different purposes such as household versus livestock use. Technology for service delivery should be considered too. Other common gaps include lack of asset inventories and management information system.

2.1.3 Technical Environmental Considerations in Scheme Design and Operation: Cliff Nyaga, WB and Sam Godfrey, UNDP.

The session was jointly facilitated by Cliff Nyaga of WB and UNDP’s Sam Godfrey and covered key considerations for climate resilient borehole designs followed by a further highlight of observed design gaps or issues documented from investment sites already prepared by a client.

The UNDP part was informed by an analysis completed by GW4R Program in 2023 to understand the drivers of non-functionalities in rural water supply schemes (RWSS). The analysis was built on a dataset of 1,700 RWSS, primarily borehole sources, from the Horn of Africa region collected over time and that included a rural water inventory completed in the five Counties of Kenya in 2022. Causes of breakdown for the 22% broken RWSS from the database were mapped out across 15 distinct pre-defined categories to identify the underlying cause of the breakdowns. **Mechanical failure of pumps and gensets, vandalism, and unreliable borehole sources** are some of the key issues contributing to RWSS downtime in the Horn of Africa, and worth further investigation by the GW4R Project. The session also discussed several actions required for the GW4R program to achieve climate resilient investments in the HoA.



Figure 4

Cliff Nyaga (WB) presentation link:
https://www.dropbox.com/scl/fo/bjdfbyyeuhk8252qqhxvz/AADPAKecRt6EFK47lkBgyG0/PPTs?preview=UPDATED+Day+2+Env.+Session+1C_Technical+considerations+in+scheme+design+and+operation_Cliff+Nyaga+WB.odp&rlkey=jnef00yb69ob8a53029hgc9f0&subfolder_nav_tracking=1&st=4ai7sjgw&dl=0

Sam Geoffrey (UNDP) presentation link:
https://www.dropbox.com/scl/fo/bjdfbyyeuhk8252qqhxvz/AADPAKecRt6EFK47lkBgyG0/PPTs?preview=UNDP+slides+for+Climate+Resilient+Designs.pptx&rlkey=jnef00yb69ob8a53029hgc9f0&subfolder_nav_tracking=1&st=7w7uavsc&dl=0

Selected recommendations in order to achieve climate resilient designs in the HoA

Primary Cause of Breakdown	Required action for Climate Resilient Designs
PUMP FAILURE	System Design • Raise the dynamic head higher than the usual 10% gradient by elevating the plinth and base of the wellhead and overhead tanks and protecting from flooding • High design volume in service reservoirs for storage during droughts • Regulated facility for water trucking from borehole source, • Electrical mechanical safeguards for pumps,

LOWERING WATER TABLE	• Realistic demand calculation for human and livestock. • Demand vs Yield (m3/hr)
GENERATOR FAILURE	• Grid power • Solar PV in case of surges
CIVIL WORKS	Water Hardness (pH) and concrete works such as storage tanks, cattle troughs, valve boxes or kiosks/tapstands to reduce hydration and reduced air content and ultimately the curing and durability of the concrete.
MATERIAL DAMAGE / CORROSION	• Water hardness (pH) in uPVC causes lime scale/biofilm corrosion which drastically reduces the sustainability of the pipes and tanks. • This is aggravated by temperature. Steel tanks are recommended along with DI or steel piping

Observed issues from the already completed Rapid Field Assessments (RFA) and Construction Investment Reports, as part of the early design process of the client, included the following further presenting an opportunity to improve the resilience of GW4R investments if addressed:

- A plain focus on replacement of broken parts/components, mainly pumps and electrical parts, and restore services as were originally (before the breakdown occurred). The approach fails to ensure resilient investments, and a comprehensive re-design of schemes is recommended especially considering that many RWSS are under-designed/sized and therefore operate below their optimal capacity.
- Similarly, supply and demand projections require thorough analysis to provide a firm basis for the proposed rehabilitations. To determine these with some degree of certainty, it's been observed that many selected boreholes for rehabilitations require re-development/flushing, pump testing and water quality analysis to understand capacity and risks.
- Service levels: Most planned rehabilitations are with the aim of restoring a 'limited' service as opposed to moving rural users up the (JMP)service ladder for increased 'basic' access to services. Achieving this would require extension of water supply networks expansion to reach nearby settlements for reduced water collection time and potentially yard (on-site) connections. Best practices in water supply operation must be integrated to guarantee operational sustainability and these include metering, billing, application of tariffs, consideration of professional management models, and multiple taps and troughs for different rural uses while ensuring good sanitary conditions at the waterpoints for safety.
- The scheme operation regime and financial model should consider the seasonality effect, often characterized by a major drop in water usage with the onset of the wet season, and that could undermine cost recovery in a RWSS. Where feasible, opportunities to integrate surface water use (conjunctive use) within the water supply design e.g., sand-dams, for both supply augmentation (quantity and quality) and groundwater recharge could potentially enhance resilience of designs.

- Technology plays a key role in improving monitoring, planning, and operational efficiency, and may therefore lower operating costs. Caution is however required in technological adoptions to ensure simple and appropriate technologies for rural contexts. The session noted that the lack of supply chains for parts and technical capacity could itself undermine application and maintenance of some technologies and eventually dampen their impact.

A key reflection from this session included the lack of a good understanding on user preference for alternative and potentially unsafe surface water sources during the wet season, driven by factors beyond tariffs and the need to understand these as part of future study topics of the GW4R Program.

2.1.4 General Environmental Considerations in Scheme Design and Operation: Guyo Malicha, CGIAR

The presentation focus was on "Prevention of degradation and settlement around water points: capping of water points during wet seasons/by laws/rotas/differential tariffs/ land use planning etc".

Presentation Highlights:

- Water points with and those without management
- Rangelands considerations while undertaking borehole designs

Q&A

1. What are checklists aspects one should look for in each potential borehole site?
   - ✓ There has to be a right match between pasture and type of groundwater investment including MAR investments
   - ✓ The current checklist is not exhaustive; however, the main questions are in the areas of understanding: land use dynamics by whom and when, water solutions and management
2. Why should prices of water decrease as the amount of rainfall decreases and not the vice versa?
   - ✓ This was a water kiosk a study conducted to find out if the cost of water would determine the choice of household water collection points by rural communities during different seasons. There was no change meaning that there were other factors other than the cost that influenced water sourcing

2.2 Session 2: Strengthening Environmental Considerations in Country Implementation: Action Planning

2.2.1 Group Discussions: Country Teams' Group Discussion on How Consideration of Environmental Impacts can be Enhanced in Project.

Ethiopia:

- Gaps include: high number of settlements with high populations of livestock putting high pressure on the grazing areas
- Loss of aquifers
- Due to high poverty levels timber and charcoal sales as a means of livelihoods exacerbate environmental degradation among several community members in the project areas.
- Ethiopia is starting newsletter

- Uses WASCHCOM model in community water management, these are volunteers who work for 2 years

Kenya:

- Undertake community consultations to understand formal and informal grazing areas
- There is no national policy on protection of grazing areas ad lack of community awareness on the importance of strategic grazing areas calls for clear mapping of strategic grazing areas
- Undertake mapping of migratory routes
- Environmentally sensitive areas are identified through community consultations and use of other tools.

There are gaps in lack of policies in guiding restricted areas, regulations not fully implemented, silting and contamination of boreholes affected by floods, and boreholes located in protected areas. ESF should be implemented fully and there are no clear settlement patterns despite climate change.

Somalia

- Siting to avoid strategic grazing areas based on traditional selections
- Modern ways of siting through mapping

Recommendations:

- More awareness creation on grazing land management
- Develop a strategy guideline for siting and drilling

Member State's Presentations Highlights:

- In Kenya, the 5 different counties (Sub-PIUs) use different approaches to key issues including water management models
- There are linkages to customary institutions and bylaws e.g Bela in Marsabit
- Mandera uses a Rapid Response Team (RRT) to respond to breakdowns and other water related matters
- Currently moving to water supply providers to manage

Comments by Discussants:

- Community engagement is a common theme but what is the quality? how deep is the engagement? Are WASHCOMS functioning? need to be evaluated to know areas for improvement.
- For Somalia, do we have space for private sector and how do we engage them?
- In Kenya, there is a good rural water supply system provider, in terms of community engagement, there is need to agree on which system works for them best.
- Accountability systems: who holds the government accountable? How do you deal with government allocations for water
- Both demand and supply sides should be fixed
- Water management model not very clear in some MSs.
- In Somalia, there is need to professionalize services- Community still has a big role to play, how do you professionalize that?

2.2.2 Progress on Active Engagement of Women in Waterpoint Management: Charles Gilman, WB

The presentation reviewed the major gender gaps that the program promised to address:

- Women and girls in rural areas play a leading role in providing water for the household and spend a disproportionate amount of time collecting water.
- While women and girls always collect water for households, they usually play a secondary role in groundwater-linked decision-making.
- Women are under-represented in technical and managerial roles in agencies governing groundwater management.

Project gender related indicators and the linked activities were highlighted. Participants were then asked to have group discussions and present on two areas from the progress updates provided.

Reporting Template

Issue	CURRENT ACTIONS	GAPS/CHALLENGES	STRENGTHENING MEASURES (to fill during workshop)
Community engagement/ ownership and capacity building			
Women's active involvement in water management			
Awareness raising/changing gender norms on women's role in water management			
Women's only consultations in siting and design			

The readouts and returned templates indicate three conclusions: 1. While problems and gender gaps are similar for each country, each unit has different actions and approaches. One approach to addressing gender gaps does not fit all communities. 2. Each country has excellent examples of how they are delivering gendered interventions that impinge on the expected results for improved access to water collection and increase the influence of women in community and institutions WRM. 3. While some issues are being addressed well by some units, the same unit may be not making progress in other issues. The conclusion is that we can pause to appreciate the current progress but will need to identify which units need support with which issues and find solutions.

It would be useful to units if there was some regional coordination of the gender actions so that countries can learn from each other.

The session also asked participants to complete a survey using Polling Evaluation (PollEv) with the following results:

1. My unit has a plan and budget explicitly for gender aspects of the project
   - ✓ 20 of 28 respondents reported yes. This means more than 25% of respondents do not even include gender budgeted activities. This will lead to major shortcomings in the project if not addressed.
2. I regularly check if there are gender related complaints in the GRM.
   - ✓ 17/21 or 80% of the respondents answered that in affirmative.
3. My unit has planned activities for increasing the number of women in user committees.
   - ✓ 16/19 or 80% of the respondents answered that in affirmative
4. Name one agency governing groundwater management that you will work with to increase the number of women hired, promoted, and retained in leadership positions.
   - ✓ Most respondents provided an example but it was incredibly diverse and it is not clear how some of them could occur. This will be important to follow up on.
5. An additional key point was seen through other PolEV surveys that suggested that majority of the delegates were from the host country, Kenya and that women from other countries did not participate in the surveys.

2.3 Session 3. Key Environmental & Technical Considerations on Water Point Management.

2.3.1 Government Capacity Building

World Bank consultant, Klas Sandstrom made a virtual presentation on capacity building, having been preceded by an introduction by Dahir Mohammed Noor in person who gave a background presentation on the capacity building plan from Somalia – lessons learned for regional scale-up (Content/Approach; Mentoring and Cap Net) -

Highlights of Dahir Noor's presentations were as follows:

- Training module developed and translated in Somalia but will be usable by other project Member States by adapting to their situations.
- It will be a web-based module that is flexible and should take 2-4 days per month, assignment reported per group.
- Ref: https://cap-net.org

Matters Arising:

- Ethiopia: The country has fairly good number of senior professional water technical personnel including hydrologists, geologists, engineers etc, however, this course would still be useful to junior technical personnel who may need sessions like introductions to hydrology etc.
- Capacity building is important, can the training be made shorter, for a maximum of 2 months?

- There is need for identification of capacity gaps in groundwater management in other MSs like Ethiopia for proper alignment of the training courses.
- Kenya: The training approach is ok, may be impactful in areas of environmental safeguards.
- There are other dynamics and training approaches that could be used including seminar based or field work approaches
- The main gap noted is that this Somalia approach is yet to be evaluated so that we know it's effectiveness and areas for improvement.
- The training is good and self-paced.

Klas presentation's link: https://www.dropbox.com/scl/fi/2z3plqnmrm1hqrwcu3r33/Presentation-of-GW4R-PIU-Capacity-Development-Program-240515.pptx.pptx?rlkey=qne3r5lqqnydamt7jb90bhojr&st=v9yrpvgj&dl=0

3.0 Day 3: Water Quality Training, Innovation Café, and Action Plans

3.1 Session 1. Groundwater Salinity Guideline and Analysis.

3.1.1 Groundwater salinity guideline and analysis, Seifu Kebede, WB

This session highlighted the scale of groundwater salinity problem in the HoA and to disseminate a recently prepared guideline on taking decisions on various options to deal with the challenge. The six-page long guideline (see the 2024 Component 1 Interim Assessment) has been provided to the participants. Dr Kebede presented the key features of the guideline, including a) water quality data quality control (QC) and quality assurance (QA), b) safe sourcing, and c) management requirements if a desalination plant is needed. The presentation was followed by interactive training on QA and QC mechanisms. Training covered WQ impact on borehole and scheme longevity and the effect of i) high temperature, iron, and carbonate encrustation. Group discussions followed in which country representatives prepared action plans on ways to integrate the water quality (WQ) guideline in water scheme planning, from sitting to site construction. Discussions included WQ factors considered for site selection and how common salinity problems are. The attached poll shows profile of the participants, questionnaire used for the interactive training and feedback on the training. The survey results link: GW salinity survey

10/38 (26%) participants in the workshop during this session were women. 8 of those 10 identified Post working in a technical (engineering and science) position, however, most of the women were from the host country, Kenya.

Surveys results indicate that the discussions on the comparison of real examples were highly regarded, while it was agreed that insufficient time was allocated. Overall responses regarding usefulness and difficulty were normally distributed over respondents, however it would be good to make additional materials for those that considered the material "hard."

3.2 Session 2. Innovations Café & Meet the Extended Team

Participants visit different booths around the room for 10 mins each, roles and workplans, find the following link for the posters presented. Link:

https://www.dropbox.com/scl/fo/5ria4ru0l7vljbb02ryfv/AIRVIkbpeLO_AoQLxTISWNw?rlkey=vm6kchydxpnzqlt6aalxbe3an&st=tc7ma2ay&dl=0

3.2.1 Third-Party Monitoring Agent (TPMA), Chandler Klien and Team, BDO

BDO staff gave an overview of the TPM approach and expectations and addressed many interested questions. TPMA has an "Issues log", a tool that will be used to document and address any arising issues. Participants suggested that Somaliland would need to have a TPMA focal point in addition to those representing Somalia to ensure ease of communication and implementation support. There were numerous preconceived concerns that the paths of communication are effective for member states and PIUs. Participants requested that IGAD should give introductory letters to TPMA whenever they undertake field visits. The letters should include names of TPMA representatives, purpose of the visits, type of information/ data needed. Like in the case of Ethiopia, this will enable the country focal persons to liaise with sector ministry and relevant departments to coordinate field visits.

3.3 Meet the Extended Team- Part 2

Participants visit different booths around the room for 10 mins each, roles and workplans

- UNDP: Sam Godfrey, Judith Musilu, Ethiopia
- UNESCO: Florence Tanui, Kenya 1
- UNICEF: Kitka Goyal, Kenya 2
- TPM: Noosha Tayebi, WB and from BDO, Somalia 1
- Chandler Klein, Contract Manager
- Raymond Muteti, Finance Specialist
- Sena Kinati, Physical Monitoring Coordinator
- MIS**:** Laura Lahoz Gonzalez and Tino Raphael Nabib Toupane, WB, Somalia 2

3.4 Country Presentations of priority action/commitment on each theme before next meeting: Environmental Considerations, Water Management Strengthening, Gender, Capacity Building

The country working groups then discussed and finalised their country action plans (provided in Annex 1).

3.5 Water Management Models Strengthening

Each country provided a highlight of the advances made in the selection and implementation of a model for rural RWSS operation and maintenance to enhance sustainability, as follows:

- Ethiopia – Has selected the WASHCOs model for the rural Piped Schemes under development and in parallel, is working to develop local supply chains for spare parts by supporting local entrepreneurs with seed capital to establish local shops and with training, respond to technical repair needs. The work is based on findings from applied research that a private sector model would be most effective to reduce the extensive distance and cost incurred by WASHCOs

- Kenya – While model options vary between Counties, the establishment of County Water Service Providers for rural areas is the preferred trajectory but still some Counties are considering adopting the supported-community or private sector models at a small pilot scale.
- In Somalia, the O&M space is largely unregulated, and the predominant models have been either the community-based management or the private sector-led management in selected towns. The future direction remains unclear.

The session discussed key gaps and strengthening actions needs to further develop the Country models and ideas on O&M, with the following lessons/conclusions:

- Government budgets – irrespective of the model, subsidies will almost always be required to cover the full cost of service delivery to keep tariffs affordable. Yet, government funding is often centralized, inadequate, and unreliable, to guarantee a sustainable service. Each country is therefore required to consider the funding environment for rural water service delivery.
- The WASHCOs model has been successful in Ethiopia for rural RPS management. It's therefore timely under the project to assess its performance especially with a focus on service quality and accountability aspects that are a common bottleneck under other community-based models. Support for spares supply chains emerged as a critical intervention in the rural water sector however, the effort requires counterpart interventions for accountability on professional O&M practices by the WASHCOs, for instance timely repairs maintenance of gensets and other aspects, to ensure demand for local entrepreneurs and systemic supply chains.
- A better understanding of the private sector model in Somalia, the enablers, barriers, successes, and challenges will be instrumental to scale and the design of community-oriented water services considering issues such as costly water tariffs.
- For Kenya, the session was a call to action to see the service delivery models implemented under the project, beyond policy aspirations, statements and documents, for immediate results at the community level.

As the countries work over the next six months to refine their O&M model design, through the UN Partnership, UNICEF will be completing related applied research across Somalia, Kenya and Ethiopia to inform implementation. The study aims to identify key formal and informal contextual factors, their effect on the efficacy and sustainability of the chosen water supply management models, understand options to achieve sustainability and eventual viability of rural water supply water management models in ASALs with a map of the pathways to implementation.

3.6 Priorities and plans for next 6 months: Victor Vazquez, World Bank.

Overall, the program needs to implement faster. The disbursement rate needs to double or more each year. The main metrics used by the WB are disbursements with a focus on procurement. IGAD needs to receive input and requested feedback from member states. Improving systematic ccommunity engagement and ensuring clear communication of project activities is also a high priority. The program needs to address issues that enhance community engagement, like gender-sensitive consultations, in decision-making processes and avoiding elite capture. Another issue to

focus on will be to balance water use priorities and to mitigate conflicts. Selecting appropriate Water Management and O&M models are key challenges. Feedback from participants acknowledged that disbursement has been insufficient but explained that there are similar project components implemented by different agencies, there needs to be constant debriefs for synergies and to avoid duplication.



Figure 4: Innovation Café Booths session

4.0 Conclusions and Takeaways

Strengthening the Project Impact: Regional collaboration, contract management, and environmental considerations were the main focus during the regional learning event held in Nairobi, Kenya. The event also focused on addressing pressing challenges and seizing opportunities in groundwater management for climate resilience. The workshop gathered implementing agency representatives from Ethiopia, Kenya, and Somalia, development partners, and international experts to highlight the pivotal role of cross-country collaboration in sustainable groundwater management in the HOA borderlands.

Enhancing Regional Collaboration: The regional learning event initiated and continued to strengthen collaboration among IGAD Member States, facilitated discussions on transboundary groundwater management and strengthening the foundation for effective data sharing and cooperation in the IGAD region. Existing best practices showcasing transboundary collaboration on groundwater/water supply schemes were shared. These included the water supply to Djibouti from Ethiopia and the collaboration at the border town of Moyale between Kenya and Ethiopia. These examples highlighted the benefits of the regional approach, including peace and effective community governance structures. However, limitations and challenges were also noted, including potential conflicts, climate change effects, inadequate data, and limited resources for investments. To accelerate implementation, efforts need to be strengthened. These may include expansion of task forces, improving communication, and enhancing capacity building.

Progress and Opportunities: The presentation of the IGAD Groundwater Information System (GWIS) aimed to increase the sustainable use and management of groundwater in the Horn of Africa through the strengthening of regional information, capacity, and collaboration was a case of good progress and opportunities. The system will enable countries to generate and share data on transboundary aquifers, facilitating decision-making and joint planning. The session also discussed the benefits of the regional approach, including maximizing the impact of the GW4R project, strengthening project monitoring, and enhancing regional collaboration. However, challenges such as data scarcity and the need for sustainable O&M for the GWIS system were highlighted, emphasizing the importance of comprehensive metadata and regular database building.

Collaborative Research and Feasibility Studies: The progress of the Dawa feasibility study was presented, aiming to comprehensively assess the viability of the Dawa Transboundary Aquifer System for sustainable development. The study will establish key recommendations and guidelines for future groundwater exploration, management, and protection, addressing associated environmental and social risks and mitigation measures. Additionally, discussions on O&M models and ideas highlighted the need for government funding, accountability, and a better understanding of private sector models to achieve sustainable water management.

Priorities and Plans for Next 6 Months: The program implementation needs to be scaled-up, with a focus on improving disbursement rates, community engagement, and clear communication

of project activities. Balancing water use priorities, mitigating conflicts, and selecting appropriate water management and O&M models are key challenges that need to be addressed to enhance transboundary water management. Details of prioritized activities for the next 6 months by MSs are presented in Annex 3.

Annexes

Annex 1: Agenda for the 3rd IGAD Regional Learning Event

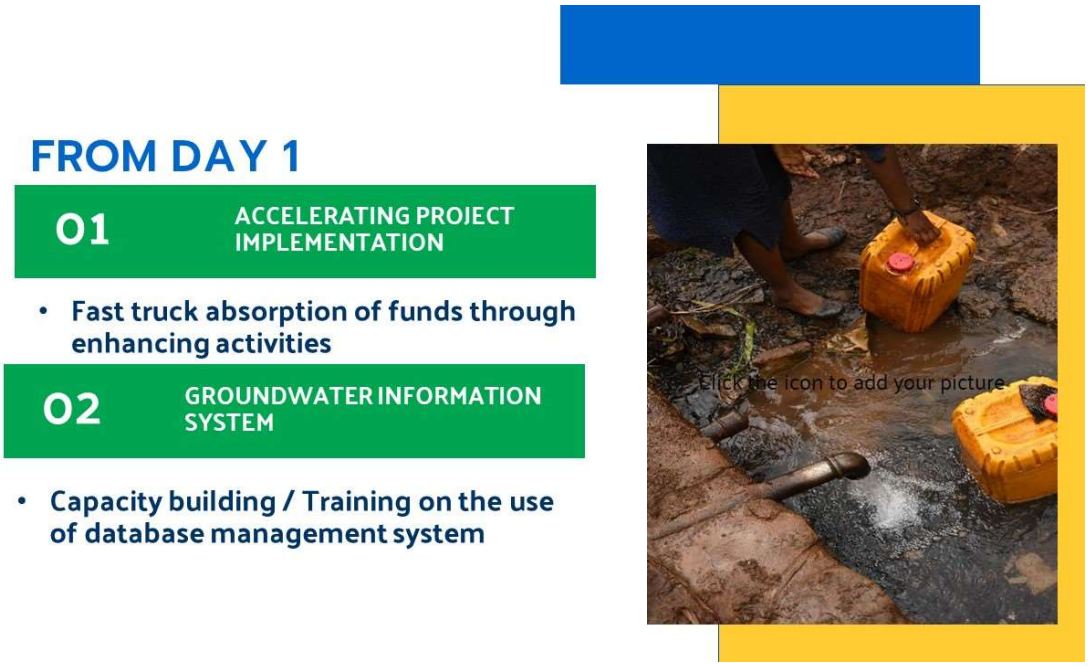
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Annex 2: List of Participants

Third Regional Event_List of Particip

Annex 3: Country Action Plans

1. Kenya



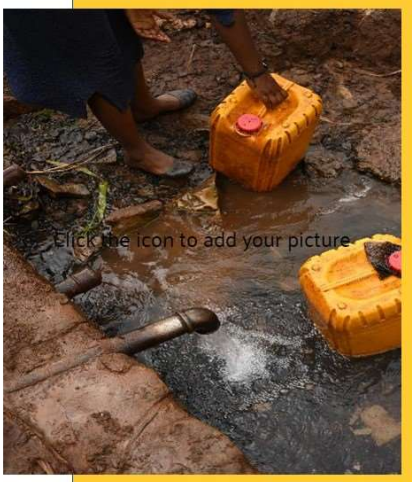
FROM DAY 1 (CONT')

03 TRANSBOUNDARY FEASIBILITY STUDIES

- Signing of the data sharing Agreement
- Finalization of the draft Merti aquifer MOU

04 JOINT REGIONAL STUDY ON CLIMATE CHANGE

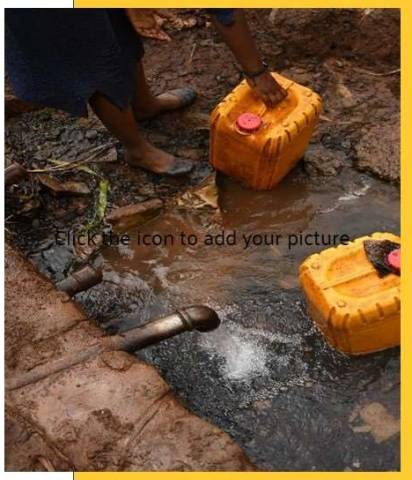
- Sharing of secondary data to the consultant
- Data collection



PRIORITY ACTIONS BEFORE NEXT GATHERING – FROM DAY 2

05 ENVIRONMENTAL & TECHNICAL CONSIDERATIONS

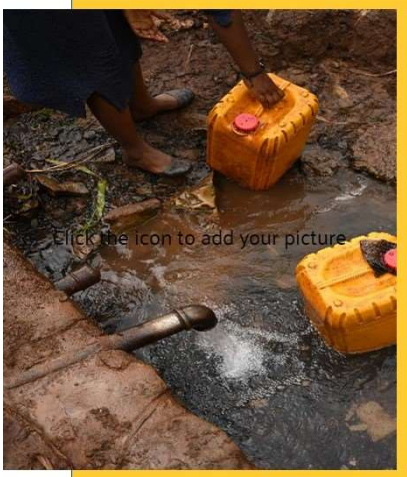
- Map all the grazing areas
- Capacity building of the rangeland committees (governance and management –best practices, fodder re-seeding)
- Engaging elders on the influence of other communities, assessing the impact of the
- Peace and conflict management – public participation
- Facilitation of formalized grazing agreement
- Training of the communities on Participatory Rangeland management
- Cross boarder collaboration and agreement (National & Inter National)
- Exploring and identifying borehole in non- saline aquifers
- Designing a model of supply and management of a series of desalination plants/water treatment for economic sustainability



PRIORITY ACTIONS BEFORE NEXT GATHERING – FROM DAY 2

06 GENDER CONSIDERATIONS

- Creating Awareness on women leadership, empowerment and capacity building at the community and water institutions
- Trainings for women (leadership skills, how to express themselves, technical)
- Awareness creation on the 2/3 gender rule and engage Media in behavior change communication, demystifying cultural practices and beliefs
- Have separate meetings for women-women only consultations
- In the ToR of a consultant, ensure women are consulted in the designs



PRIORITY ACTIONS BEFORE NEXT GATHERING – FROM DAY 2

07 WATER MANAGEMENT MODELS

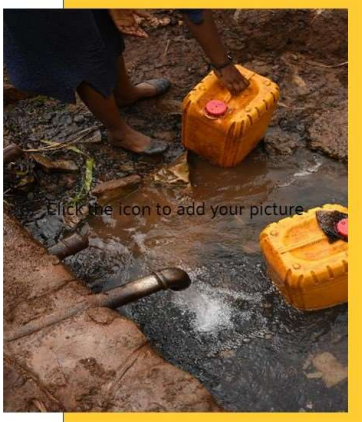
- Integration of traditional water systems management with modern models.
- Financial and technical support to facilitate the development and amendment of policy and act of 2018.
- -Sensitization of the community and Political class on water management models
- -Policy to be inclusive of rural water supply regulation and management including dealing with saline boreholes sources



FROM DAY 3

08 INNOVATIONS

09 EXTENDED TEAM ACTIONS



2. Ethiopia

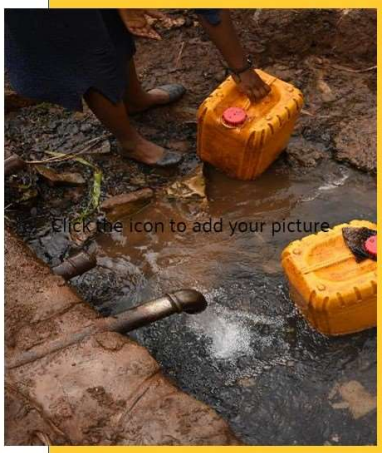
– FROM DAY 1

01 ACCELERATING PROJECT IMPLEMENTATION

- Strictly followup and monitor the AWP implimentation
- Expediting procurement process

02 GROUNDWATER INFORMATION SYSTEM

- Finalize the procurement process for GWIS
- Provide capacity building for project staffs so that they can effiently handle the GW information management system



– FROM DAY 1 (CONT')

03 TRANSBOUNDARY FEASIBILITY STUDIES

- Timely review study outputs and validate by conveneing stakeholder meeting
- Support the consultants by liasoning with sector ministries to obtain data

04 JOINT REGIONAL STUDY ON CLIMATE CHANGE

- Identify areas vulnerable to climate changes
- Devise mechanisms for climate adaptation through innovative approaches



– FROM DAY 2

05 ENVIRONMENTAL & TECHNICAL CONSIDERATIONS

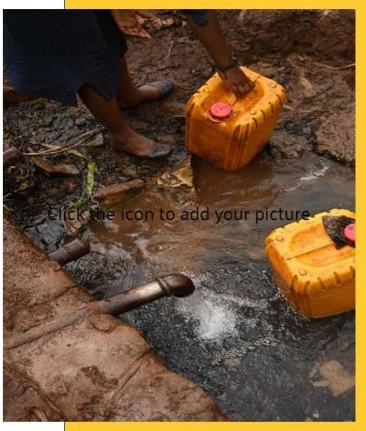
- Map pastoralists movement, understand their life styles and identify existing challenges
- Plan strategies to address challenges through participatory approach including usage of indigenous knowledge

06 GENDER CONSIDERATIONS

- Increase participation and leadership of women in community mamnaged WS scheme

07 WATER MANAGEMENT MODELS

- Capacitate WASHCOMs and Woreda water offices to prepare their respective bylaws for effective WS scheme management



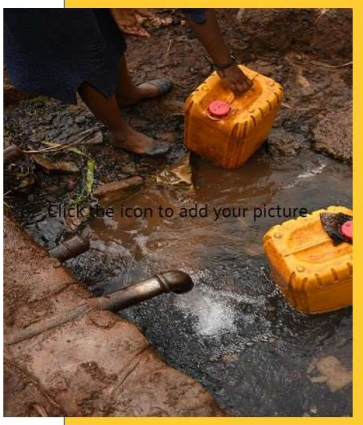
– FROM DAY 3

08 INNOVATIONS

- Adopt technologies that could improve water quality issues specifically salinity
- Explore and adopt climate change adaptive technologies to mitigate impacts

09 EXTENDED TEAM ACTIONS

- Share exprience with other teams to explore best practices for sustainable and climate resilient water supply management system



3. Somalia

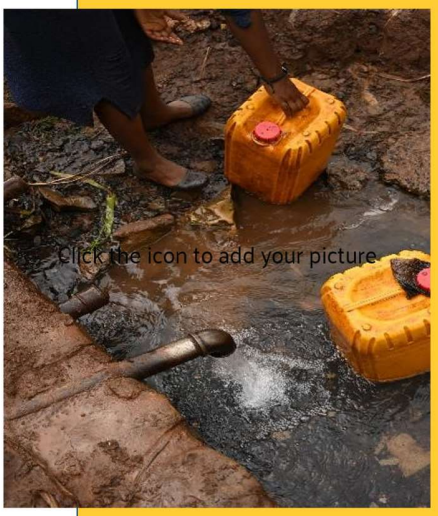
PRIORITY ACTIONS BEFORE NEXT GATHERING- FRO

01 ACCELERATING PROJECT IMPLEMENTATION

- **Upgrade and Rehabilitate Boreholes:** Initiate and expedite the upgrading and rehabilitation of assessed boreholes.
- **Finalize Resilient Borehole Guidelines:** Complete and finalize the harmonized guidelines for resilient borehole development.
- **Map Groundwater Potential Zones** Conduct comprehensive mapping of groundwater potential zones.
- **Establish Community-Based Management Frameworks:** Develop and implement community-based water management frameworks.

02 GROUNDWATER INFORMATION SYSTEM

- **Operationalize Groundwater Information Center:** Install necessary equipment, tools, and infrastructure to make the groundwater information center fully functional.
- **Unify Groundwater National Data:** Gather and consolidate fragmented groundwater data from various stakeholders into a unified data set.
- **Conduct consultations** to strengthen data sharing coordination between FGS and FMS states.
- **Collect Primary Data for National Database:** Implement the collection of primary data inventory for strategic transboundary water resource points to support the national groundwater database.
- **Support Regional Data-Sharing Agreement:** Accelerate and support the implementation of the regional data-sharing agreement.



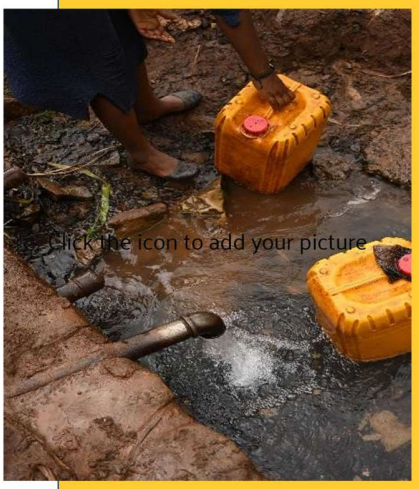
PRIORITY ACTIONS BEFORE NEXT GATHERING FROM DAY

03 TRANSBOUNDARY FEASIBILITY STUDIES

- **Monitor Feasibility Studies:** Follow and monitor the ongoing transboundary feasibility studies on the Dawa and Shebelle aquifers.
- **Review Inception Report:** Review and verify the inception report of the feasibility studies.
- **Finalize Feasibility Studies Report:** Support the completion of the interim and final feasibility studies report and the development of the aquifer management plan.
- **Initiate Pilot Drilling Projects:** Begin pilot drilling projects in the Merti aquifer.

04 JOINT REGIONAL STUDY ON CLIMATE CHANGE

- **Develop National Data Sharing Protocols:** Establish data sharing protocols at the national level.
- **Facilitate National Focal Person:** Facilitate and guide the national focal person in contributing to regional studies.
- **Compile Hydrogeology and Geology Data:** Gather and compile hydrogeology and geology data to harmonize methodologies for groundwater recharge.
- **Support Joint Regional Study:** Support and share existing national data for the implementation of the joint regional study.
- **Complete Final Report:** Ensure the completion of the final report for the Joint Regional Study.



PRIORITY ACTIONS BEFORE NEXT GATHERING FROM DAY 2

05 ENVIRONMENTAL & TECHNICAL CONSIDERATIONS

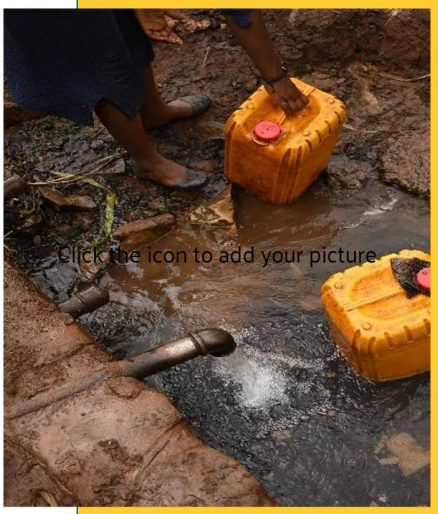
- Implement Environmental Impact Assessments
- Educate communities on water conservation practices and encourage the use of water-efficient

06 GENDER CONSIDERATIONS

- Ensure Women's Equal Participation
- Promote and develop SoPs for Women's leadership and involvement.
- Capacity building for the women in the Groundwater management and development

07 WATER MANAGEMENT MODELS

- Develop Adaptable Water Management Models
- Promote Community Ownership



PRIORITY ACTIONS BEFORE NEXT GATHERING FROM DAY 3

08 INNOVATIONS

Explore Innovative Technologies: Investigate and pilot innovative technologies for groundwater exploration, extraction, treatment, and distribution

- Demonstrate the three pillars of the UN partnership.
- Pillar one: Enhancement the understanding of the drilling market
- Pillar two: Applied Research to Strengthen the GW4R Implementation
- Pillar Three: Capacity and application of lessons learned in the project implementation
- Installation and functionalizing of the GWIC
- Apply the salinity probability map and salinity guideline in the TOR for the contracts.

09 EXTENDED TEAM ACTIONS

- Build a Multidisciplinary Team
- Regular Monitoring and Evaluation

