

KAALO, OXFAM Somalia Install First Water Desalination Plant in El-dahir, Somalia

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Abstract:- This article outlines the installation of the first water desalination plant in El-dahir, Somalia, a collaborative effort led by KAALO Aid and Development Organization, OXFAM Somalia, and the El-dahir Water Company. The project aimed to alleviate chronic water scarcity in the region, a pressing issue exacerbated by drought, conflict, and waterborne diseases. Through rigorous site-selection processes and engagement with stakeholders, Eldahir village was chosen as the project's beneficiary, emphasizing community involvement. A Public-Private Partnership (Triple-Ps Agreement) was established to ensure the sustainability of water, hygiene, and sanitation services, reflecting a strategic approach to infrastructure development. Community engagement played a pivotal role, with residents actively participating in discussions on water pricing and quality, underscoring their commitment to positive change. The project's allocated budget of \$132,609, inclusive of infrastructure development and capacity-building efforts, reflects the dedication of all stakeholders involved. Lessons learned highlight the transformative impact of collaboration among humanitarian organizations, the private sector, and governmental agencies in addressing water scarcity effectively. This article aims to provide valuable insights for future projects and inspire similar partnerships for sustainable development, ultimately serving as a beacon of hope for communities worldwide.

Keywords:- KAALO Aid and Development Organization, Oxfam Somalia, El-dahir Water Company, Desalination Plant, Puntland Water Development Agency (PWDA) and Public-Private Partnership (Triple-Ps Agreement).

I. INTRODUCTION

Despite steady advancements in recent years, the lack of access to clean water and proper sanitation remains a formidable public health issue in the twenty-first century. Globally, close to a billion people face challenges in accessing safe water, while over two billion lack adequate sanitation facilities (Adams et al., 2016)

In reference to (Basnyat, 2009) much of the north and center of the country have an arid climate whereas some of the north and south are semi-arid, which makes it a country of geographic extremes. Only small areas in the south have a humid climate.

The latest World Health Organization and UNICEF updates on Safely drinking water estimate availability for 96 countries (representing 35 per cent of the global population), and for four out of eight SDG region (Progress on Drinking Water, Sanitation and Hygiene Update and SDG Baselines 2017 Launch Version July 12 Main Report, n.d.)

Water is an essential natural resource vital for the sustenance and prosperity of all life forms, serving as the cornerstone for social, economic, and environmental development in Somalia. Despite its significance, the country faces mounting challenges due to the escalating demand for water and its dwindling availability. Somalia grapples with water scarcity, evident from its meager renewable fresh water per capita, which stood at around 411 m³ in 2017 (NATIONAL WATER RESOURCE STRATEGY Ministry of Energy and Water Resources Federal Government of Somalia, n.d.)

Furthermore, the prevalence of waterborne diseases like cholera and acute watery diarrhea is widespread in the country, presenting a grave threat to public health. The El-dahir Desalination Project represents a collaborative effort between Oxfam, KAALO aid and development and El-Dahir Water Company (private) to address water scarcity in the El Dahir town in Bari region, Puntland Somalia.

However, this descriptive article explores KAALO, OXFAM installation of desalination plant execution cycle, positive change it has contributed to the local community on the ground, the budget that was invested in, and the demands and contributions made by Eldahir Water Company that made the project possible, feasible.



Fig 1 Installed Desalination Plant in El-dahir Village, Somalia

➤ *The Project's General Objective.*

- To install the desalination plant was to provide immediate access to water, hygiene, and sanitation, aiming to enhance access to safe, quality and sufficient drinking water for the residents.

➤ *The Project's Specific Objectives.*

- To decrease the community's reliance on costly water trucking
- To reduce the incidence of waterborne diseases and
- Increase access of potable water and mitigate the effects of drought.

II. DESALINATION PLANT SITE-SELECTION CIRCLE

In April 2023, KAALO and OXFAM held a coordination meeting where they deliberated on the areas that would be appropriate for the implementation and installation of a desalination plant in specific Puntland areas. They focused on factors such as financial willingness, community ownership, and high salinity of the source water, adequate yield of the water source, population size, and accessibility.

Besides that, both aid agencies agreed to engage with Puntland Water Development Agency (PWDA) that contributed KAALO WASH team and PWDA to conduct water quality tests in various locations in Yombays, Hajikhayr, Jilib IDP, Waciye and Eldahir villages. However, following the data analysis from water quality tests and site-selection criteria of the suitability of desalination plant, both

KAALO and PWDA selected Eldahir village to receive the desalination plant service, based on the above field assessment conducted by the parties. And through interviews with local communities residing in those localities.

➤ *About Eldahir Village, Somalia*

Eldahir, a village situated in the Bari region of Puntland, Somalia. It was one of the project's targeted areas. The village has an approximate population of 6,300 residents, and it is surrounded by about 24,000 people agro-pastoral communities residing in rural areas. Besides that, the local community in Eldahir encounters significant challenges concerning water accessibility and its quality. The available water is not only brackish but also difficult to drink, and to be used other necessities.

Regrettably, the community lacks alternatives or means to improve the water sourced from the borehole. Residents have shared that they draw water from locations quite distant from the Yalho and Afurur villages, spanning 45km and 30km, respectively.

➤ *Village's Water Transportation Cost(s)*

In Eldahir village, the cost of transporting water to the village using trucks is estimated at amounts from 60 to 80 USD, adding to the economic burden on the community. Recognizing the urgency of the situation, the community leaders of the village and KAALO/Oxfam proactively sought viable solutions. While engaging with the local community and initiating preliminary talks garnered interest from a desalination company willing to co-fund initiatives focused on enhancing water access and quality, contributing to the overall well-being of the community.

Meanwhile, both KAALO and OXFAM uttered their readiness to allocate additional funds, to support this project, while private entities within the community were prepared to invest in water distribution through a public-private partnership. At last, a consensus was reached to choose Eldahir Water Company, marking a significant step forward in addressing the water crisis in the region and as well as being part of the project execution task.

➤ *Invested Budget from Oxfam/KAALO and private company.*

The total budget for the El-dahir invested was \$132,609. This includes costs associated with the installation of desalination units, infrastructure development such as 28m³ of two water tanks, 60KVA generators, Construction of the hall building, Generator room, Pipeline extension and Capacity building budget breakdown is as follows:

➤ *Cost Description:*

- Desalination units: A unit with a capacity of 10 m³/hour each - \$41,000.00 USD. From Oxfam/KAALO.
- Infrastructure of desalination: Generator, Poster pump and Construction of two water tanks – 29,909.00 USD. From Oxfam/KAALO.
- Infrastructure of the Desalination: Construction of the hall building, Generator room and pipeline extension – \$58,850.00 – From the El-dahir water company.
- Capacity-building: Exposure visit for staff El-dahir desalination plant, Facilitator, Vehicle rent and DSA of Staff - \$2,850.00 – from Oxfam/KAALO.

➤ *Agreement between PWDA, Eldahir Water Company (Triple-Ps Agreement)*

The Puntland Water Development Agency (PWDA) understood the value of providing its communities and the citizenry with sustainable and effective water services. In pursuant to that ultimate goal, The Water Agency and the community-owned Eldahir Water Company agreed, to form a Public Private-partnership (Triple-Ps Agreement) with the aim of optimizing the development, management, and operation of water-related infrastructure and services in the selected area.

The Triple-Ps agreement's primary goals were to: ensure a sustainable and dependable supply of water and sanitation services; improve infrastructure construction and upkeep; increase operational effectiveness and cost-effectiveness; and encourage innovation and technology in the field of water management. The PPP Agreement wasgo into force on November 30, 2023, and it will stay effective for five years.

In addition to that, the parties may mutually agree to extend the term under specific conditions in the future.

In accordance with Puntland Water Law, the Government shall not levy any payment for the first three years of the agreement. During this initial period, the Company will seek assistance and support from

international NGOs such as Oxfam and UN agencies to strengthen, construct, and develop its capacity. After the initial three years, the Government became a participant in the benefits and resumed responsibility for the borehole and desalination plant and the financial aspects.

➤ *KAALO, OXFAM Somalia; El-dahir Community Engagement for Water Kind and Water Price*

During the project planning phase, Somalia's KAALO Aid Organization, OXFAM Somalia Both KAALO and Oxfam Somalia field team embarked on a mission to El-dahir, where they engaged with the local community members and supervised the desalination unit in the area.

Based on the local community engagements and discussions, and interviews, so to enhancing the desalination unit's performance, to make sure it complied with the community's water quality standards was the common objective. The conversation turned to the community's needs and expectations, and they expressed their need for more reasonably priced water and better water quality. In line to the above, the community was clearly very committed in the project's success, as evidenced by their obvious eagerness for collaboration. From close engagements, and discussions, the local community collectively decided that a fair price for one cubic meter of water would be \$3.00 USD. Also, this dialogue was considerations of the existing water trucking costs, which amounted to \$70-80 USD for distances of 45km and 30km.

Remarkably, this meant that the cost of water from the desalination plant, at \$3.00 USD for five barrels, proved to be significantly more economically affordable, stable compared to traditional water trucking.

➤ *Lessons, Experiences Learnt*

Summary of Lessons, Experiences Learnt from Implementation of Desalination Plant in Eldahir Somalia include.

- Oxfam I has continued to have a major presence in Somalia/Somaliland, where it works on a variety of humanitarian projects including WASH (water, sanitation, and hygiene) programs. With regard to desalination plants, Oxfam has established five of them, gaining significant experience in Somaliland. Thus, these Installations have successfully transformed brackish water into freshwater, demonstrating its value as a vital resource in drought-prone regions.
- KAALO and Oxfam have been working together on several projects in Somalia, and KAALO has always benefited from assistance, direction, and support from Oxfam. This has helped with key elements in this project's implementation, and programming such as site selection, desalination plant technical concerns, and the start of a public-private collaboration. On that regard, by working together, that will eventually increase the project's worthiness and guarantee its long-term viability on the ground.

- Also KAALO acknowledges that the collaborative efforts of Oxfam, KAALO, and El-dahir Water Company would not be possible without the unwavering collaboration and support extended by Puntland Water Development Agency (PWDA) for the project's implementation. Therefore, all stakeholders engaged in the desalination plant installation must work closely together for the project to be successful and sustainable.

III. CONCLUSION

The installation of the first water desalination plant in El-dahir, Somalia, stands as a remarkable achievement resulting from the collaborative efforts of KAALO Aid and Development Organization, OXFAM Somalia, and the El-dahir Water Company. This project, aimed at addressing chronic water scarcity in a region plagued by drought, conflict, and disease outbreaks, has significantly improved the lives of the local community.

Through meticulous site-selection processes and engagement with the Puntland Water Development Agency, Eldahir village was identified as the beneficiary, underscoring the importance of community involvement in such initiatives. The implementation of a Public-Private Partnership (Triple-Ps Agreement) further enhanced the project's sustainability, ensuring a dependable supply of safe drinking water, hygiene, and sanitation services.

Community engagement played a pivotal role, with Eldahir residents actively participating in discussions regarding water pricing and expressing the need for improved water quality. Their commitment to the project's success was evident, fostering a collaborative environment conducive to positive change.

The allocated budget of \$132,609, including costs associated with infrastructure development and capacity-building, reflects the dedication of all stakeholders involved in realizing this vital initiative. The agreement between PWDA and Eldahir Water Company exemplifies a strategic approach to optimizing water-related infrastructure and services, setting a precedent for future partnerships.

The lessons learned from this project underscore the transformative impact of collaboration among humanitarian organizations, the private sector, and governmental agencies in addressing water scarcity effectively. By leveraging collective expertise and resources, tangible solutions can be implemented to alleviate water-related challenges in vulnerable regions.

The aim of preparing this paper is to contribute valuable insights to future projects and inspire similar partnerships for sustainable development. In conclusion, the El-dahir Desalination Project serves as a beacon of hope, demonstrating the power of partnerships in creating sustainable solutions to complex humanitarian issues. As we reflect on the success of this endeavor, let it inspire similar collaborations for the betterment of communities worldwide.

➤ About the Author

Mohamoud Farah Mohamed (Beereed) has more than 7 years experience in designing, planning, coordinating, implementation, budget management, Monitoring, and reporting activities through the whole project cycles. currently serves as WASH Manager, at KAALO Aid & Development Organization in Somalia. Farah holds a Master of Construction Management (MSc.) from Lincoln University in Malaysia and a Bachelor of Science (BSc) in Civil Engineering from East Africa University (EAU) in Bossaso, Somalia. He previously served as the National Construction Manager (NCM) for MAG International Puntland Somalia Program.

REFERENCES

- [1]. Adams, E. A., Boateng, G. O., & Amoyaw, J. A. (2016). Socioeconomic and Demographic Predictors of Potable Water and Sanitation Access in Ghana. *Social Indicators Research*, 126(2), 673–687. <https://doi.org/10.1007/s11205-015-0912-y>
- [2]. Basnyat, D. (2009). Hydraulic Analysis of Rivers Juba and Shabelle in Somalia Basic Analysis for Irrigation and Flood Management Purposes. <https://doi.org/10.13140/RG.2.2.12795.36643>
- [3]. NATIONAL WATER RESOURCE STRATEGY Ministry of Energy and Water Resources Federal Government of Somalia. (n.d.).
- [4]. Progress on Drinking Water, Sanitation and Hygiene Update and SDG Baselines 2017 Launch version July 12 Main report. (n.d.). <http://apps.who.int/bookorders>.