The State of Eritrea

Ministry of Agriculture Newsletter

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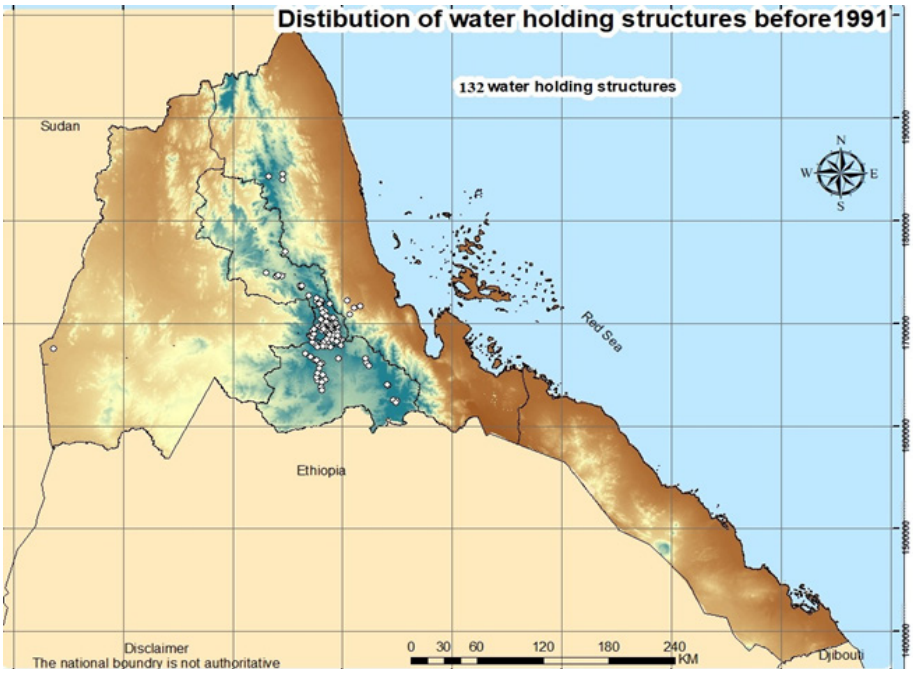
Micro-dams promoting development and transforming communities

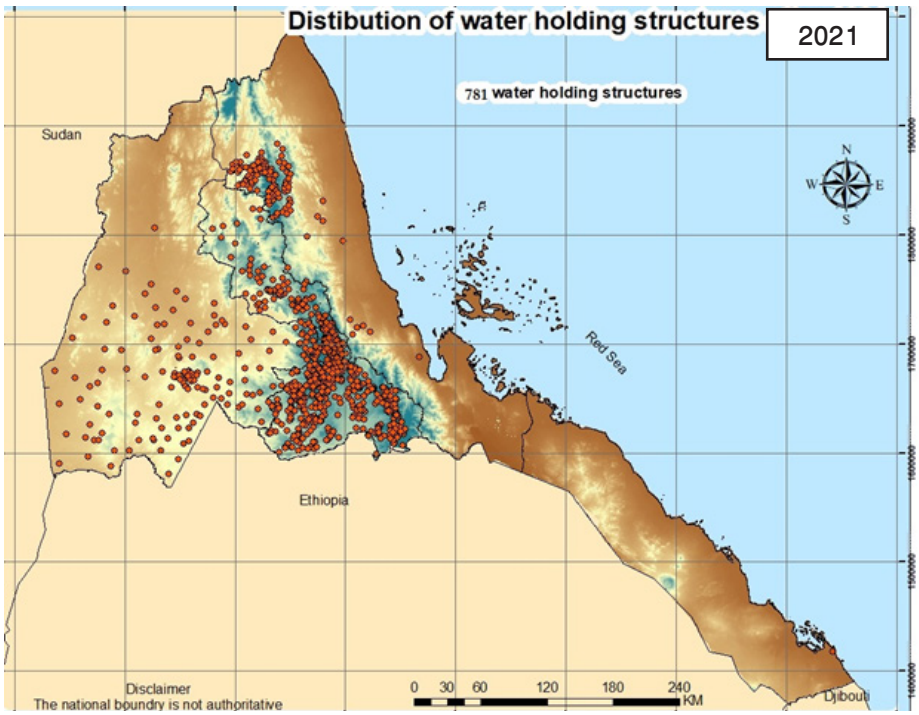
The Government of Eritrea has invested a considerable amount of time, effort, and resources in the construction and development of water harvesting structures throughout the country. This has led to many achievements and significant progress. At the onset of independence, in 1991, there were only 132 dams and other water holding structures of different sizes. However, that figure has now increased to a total of 781, according to Mr. Yonas Negusse, an engineer and the head of the Dams and Diversion Development Unit at the Ministry of Agriculture. Notably, not only has there been an increase in number of structures, there has also been important developments in their distribution. (See maps for reference)

According to engineer Yonas, the construction of water holding structures is generally carried out in collaboration with local communities. Several factors are explored before the development of structures, including considerations regarding hydrological and physical suitability, acute water scarcity, the community's readiness in catchment treatment works, and availability of potential irrigable area, among others. Over the past 30 years, these points have been leading considerations in the development and construction of dams.

Since 2017, the Ministry of Agriculture, in collaboration with the African Development Bank, has been constructing numerous micro-dams across the country. Engineer Yonas explained that the Ministry's plan is to

Engineer Yonas Negusse





construct a total of 92 micro-dams in all regions of the country (Anseba-25, Debub-20; Gash-Barka-17, Maekel-7, Northern Red Sea-14, and Southern Red Sea-9 dams.). Out of these, 38 dams are completed and 17 are still under construction.

According to Engineer Yonas, the total holding capacity of these dams ranges from 30,000 m^3 to 300,000 m^3. This range indicates that the stored water is enough to meet the primary needs for drinking water both for humans and livestock, as well as for small-scale irrigation schemes downstream.

Another significant contribution of these dams is that they recharge water points and wells. Engineer Yonas stated that a good yield of water is observed in wells which are 3 kilometres away from the dams. Thus, the downstream embankments along the sides of the dams are better irrigated and cultivated. Overall, the dams have the capacity to serve anywhere from 350-750 households, while neighbouring villages also benefit considerably. The Ministry's strategy is that even the smallest micro-dam should serve at least 40 Minimum Integrated Household Agricultural Package (MIHAP) beneficiaries downstream.

Farmers' views on dams and their impacts

Central Region

Mr. Bekit Idris is the administrator of Hayelo-Guritat administrative area in the Sub-region of Serejeka. This small administrative area has about 300 farming households. Generally, the area is known for its best practices in tree planting, as well as its commendable soil and

Mr. Bekit Idris

water conservation activities. Some inhabitants of the area have also grown accustomed to small-scale irrigation. However, thanks to a micro-dam that was completed in 2020, almost every household is now adopting small-scale irrigated agriculture. According to Mr. Bekit, the micro-dam, with a capacity of around 30,000 m^3, has helped to move farmers away from a dependence on rain-fed agriculture. Many families have also begun farming fruits and vegetables, both for household consumption and to sell in neighbouring markets.

Mr. Kidane Kinfu

Discussing the micro-dam, Mr. Bekit explained that the catchment area has important features, including terracing, check-dams, and a closure establishment. Consequently, the micro-dam will support and serve local agriculture activities and livestock for an extended period of time with little threat of siltation.

Mr. Kidane Kinfu is a farmer from the village of Guritat. Previously, farmers in the village used to wait for many days for their turn to access water for their farms. "However, this season, thanks to the dam and more access to water, we have planted many kinds of vegetables and crops, and are expecting good harvest," he explained. Mr. Kidane recommended raising the height of the dam and expanding the irrigated area. "Even though our area is very small, we can increase our production and productivity through an intensive three-cycle production per year," he pointed out.

Guritat dam and its treated catchment

Debub Region

Priest Rusom Wahd is a horticulture farmer in Degra-merieto, Segeneyti Sub-region. He has been growing vegetables for the last 20 years. He had nothing but positive things to say about the importance of a dam which

Priest Rusom Wahd in his farm - Degra-merieto, Segeneyti Sub-region

Mr. Michael Berhe

was constructed in 2019 and boasts a capacity of 126,000 m^3. He explained that, "[Prior to the construction of the dam], even though we were cultivating with the help of the wells around us, we had a serious shortage of water. This was mainly in the months after April. We were forced to dig very deep to get water for our crops. Consequently, most of our income was consumed for fuel to drill wells. Sometimes we even lost produce due to water shortages. However, following the construction of the dam, our wells are regularly full - even during this dry season. Also, there are no losses due to water shortages. Most importantly, we are now able to harvest three times a year by rotating different crops and vegetables"

Mai-edaga micro-dam, Dekemhare Sub-region

Another farmer in Mai-edaga administrative area, Dekemhare Sub-region, Mr. Michael Berhe, echoes his comments. Mr. Michael explained that prior to the micro-dam in their area farmers were cultivating vegetables alongside the streams that pass through their village during the rainy season. In 2018, a micro-dam was constructed in Mai-edaga with a total capacity of 30,000 m^3, to irrigate about 8 hectares of land.

"Even though we were trying to cultivate crops and vegetables, we were suffering from shortage of water and loss of produce. Currently, our production has improved and we are cultivating a wider range of crops, including tomatoes, wheat, barley, maize, chickpea and fenugreek. Prior to the construction of Mai-edaga micro-dam, we were forced to water our land in shift in order to manage the available water resources" Mr. Michael stated. He further noted that the new micro-dam has allowed farmers to access water throughout the year and has consequently improved irrigation.

Aderde micro-dam, Keren Sub-region

Anseba Region

Mr. Hamad Meskel Jawd is a vegetable farmer in Aderde, Keren Sub-region. For him, the dam has been a big plus. "For years, we were cultivating some vegetables and fruits at a very small scale due to water shortages. Through time, the wells in our area even dried up and we stopped irrigating at all. Water was a significant challenge."

However, in 2018, the Ministry of Agriculture constructed a micro-dam in the area with a capacity of 110,000 m^3. Quickly, small-scale irrigation began to revive. Currently, all the wells in the surrounding area are full of water and farmers have begun to benefit greatly. Productivity has increased and many farmers have expanded the types of fruits and vegetables that they cultivate.

Mr. Hamad Meskel noted, "We are harvesting twice a year now, and have even started to plant fruit trees, such as orange and mango."

Mr. Hamad Meskel

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