

Micro-dams Transform Communities' Livelihoods



Mr. Eyob Gebremeskel

Highlights on the Current Status and Impact of Medium, Small, and Micro Water Reservoirs in Eritrea

The Government of the State of Eritrea (GoSA), from the outset, took resolute initiatives to put in place various water conservation schemes all over the country. This newsletter is, therefore, dedicated to shed light on this ongoing national endeavor based on an interview with Mr. Eyob Gebremeskel, Head of Dams and Diversion Structures Development Unit at the Ministry of Agriculture (MoA), and with representatives of some beneficiaries focusing on the status and impact of small and medium-sized water reservoirs in Eritrea over the last 33 years of independence.

Question (Q): Could you explain the different types of water harvesting and diversion structures so far constructed, and their standards?

Answer (A): Water reservoirs can be constructed in different sizes and structures, and we categorize them according to their water-holding capacity and their contribution to the overall water availability. They are primarily categorized as Diversion Structures, Sub-Surface Dams, Ponds, and Dams.

Q: Could you explain a bit more about their basic differences?

A: Diversion structures are the types that divert top-soil-rich flood waters to adjacent farmlands. They can be constructed just with soil (earthen), gabion, or concrete. The Sheeb Spate Irrigation scheme is a typical example of the existing diversions.



Sub-surface dams: These kinds of dams of different capacities are normally constructed under river beds in hot areas to avoid or minimize evaporation.

Ponds are small earthen shallowly dug water-holding structures
Conventional dams – In Eritrea, we have built hundreds of dams over the last three decades. In our case, their sizes can be categorized as follows:

- Micro dams – with a water holding capacity between 50,000 – 500,000 cubic meters
- Small dams – with a water holding capacity between 500,000 – 1,000,000 cubic meters
- Medium dams – with a water holding capacity between 1,000,000 – 3,000,000 cubic meters
- Big dams – with a water holding capacity between 3,000,000 – 10,000,000 cubic meters
- Strategic dams – with a water holding capacity above 10,000,000 cubic meters

Q: Please give us a picture of the number, water-holding capacity, and impact of water reservoirs at the time of independence?

A: There were almost no diversion structures and sub-surface dams at the time of independence, and the total number of water reservoirs stood at 138. Their average water-holding capacity was limited to 25,000 cubic meters (for ponds),

and 300,000 cubic meters (for micro-dams). Their contribution to the agricultural sector was also quite limited.

Q: Could you give us a briefing on the current nature of the country's water reservoirs?

A: The water-holding structures so far constructed in the country are as follows:

- The current number of strategic dams = 9
- The current number of big dams = 3 (Gergera and Adi-Halo Dams are not included)
- The current number of medium dams = 25
- The Current number of small dams = 83
- The current number of micro dams = 262

In the Central, Southern, and Anseba administrative regions alone, the number of ponds stands at 361. The number of ponds in the other administrative regions fluctuates considerably

- Current number of sub-surface dams = 3
- Major diversion structures = 3 (2 in Anseba Region, and 1 in the Northern Red Sea Region).

Q: How can the current geographic distribution of water reservoirs be explained concerning the national goal of ensuring social justice?

A: In the beginning, dams used to be constructed on a demand basis coming from the administrative regions. However, with the advent of better knowledge of GIS, the strategy was revised to address equity and social justice, thus ensuring reasonable distribution throughout the country. Of course, issues like agriculture potential, population density, amount of rainfall, catchment area, and above all, needs assessment must take center stage.

Q: What are the underlying strategies that gave rise to such a leap in national water conservation programs?

A: Over the past 14 years, with the revision of the strategy of building several medium and small dams throughout the country, this undertaking was effectively implemented. The rationale was that villages and/or clusters of villages can practice dependable and sustainable agriculture if a source of water is secured. They, then, can transform into small and medium commercial farmers producing crop and livestock products for the market.

Q: To what extent has the Eritrean agriculture sector benefited from the construction of such water reservoirs?

A: Thanks to the number of dams of different sizes constructed (currently to the tune of 810), the production of cereals has increased by 2 folds; and that of vegetables by 6 folds; while fruit production has skyrocketed to 71 times. However, we need to keep up the momentum until every village or cluster of villages throughout the country gets a dependable water source for small, intensive, and integrated farming, through which we look forward to finally achieving safe and nutritious food for everyone; everywhere.

Q: How do you rate the current level of public awareness regarding the requisites of water conservation and its judicious utilization?

A: At this point, I can confidently say that public awareness about soil and water conservation in general, and the construction of water reservoirs in particular, has risen significantly. This is precisely the reason why communities all over are passionately participating in the programs annually.

Q: Given the achievements made thus far in water conservation, what are the major initiatives taken to bring irrigation development to the next level, i.e. both in terms of sustainability and geographical outreach?

A: while continuing construction of water-holding structures, the strategy that has just started is to embark on photo-voltaic powered pressurized (drip or sprinkler) irrigation.

Thanks Mr. Eyob Gebremeskel

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