A schematic dragram showing the water balance of small reservoirs is given in the figure below (Fowe et al., 2015):

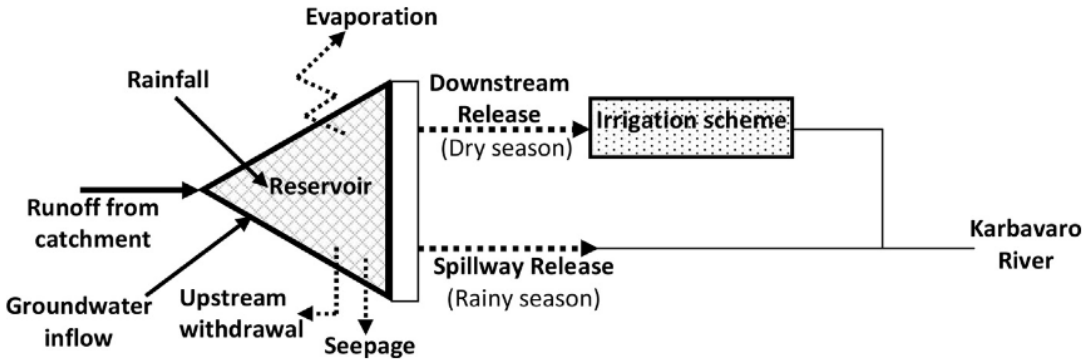

Fig. 2. Schematic diagram of Boura reservoir with different water balance components.

'Evaporative losses from the Boura reservoir ranged from 3.6 to 9.9 mm day−1 in the dry seasons and between 1 and 7 mm day−1 in the rainy seasons.' (Fowe et al., 2015)

"Rainfall onto the water surface was small compared to surface runoff inflow, and was about 30–60% of the evaporation from the reservoir. Evaporation losses make shallow reservoirs less efficient than large reservoirs. Evaporation was identified as a major factor in reducing water storage especially in **arid and semi-arid regions** (Liebe, 2002). In these areas, **annual evapotranspiration is generally greater than rainfall, determining drought conditions that make irrigation necessary for agriculture.** This translates into a necessity for water storage reservoirs to ensure availability of water for various uses in the dry season." (Fowe et al., 2015).

Though vital for local livelihoods, SR's only constitute to a small percentage of the total retained water storage (4% in the Nakambe region, Cecchi et al., 2009). The bulk of Burkina Faso's small reservoirs were initially built to overcome the extreme droughts in the 1970 and 1980s (Venot & Krishnan, 2011). Given the projected increase in droughts, these reservoirs are becoming evermore important. While evaporation losses comprise approximately 60 percent of the total losses of SR's (Fowe et al., 2015), these do not represent a significant effect on the national water balance and should only be evaluated locally. Here, significant differences exist between irrigation methods, with trench irrigation being much more water use efficient than basin & bucket (Faulkner et al., 2009).

Small reservoirs are mostly local scale multiple-use systems (Venot & Krishnan, 2011). In the south of the country (1100 mm yr-1), irrigation of agricultural produce is the main use, whereas in the dry north (500 mm yr-1), watering cattle is the main use (Boelee et al., 2009). Other important uses include household water, fishing, and brick-making, though the benefits of these uses remain to be quantified (Faulkner, 2009). The increased importance of SR's for rainfed agriculture, on which the vast majority of the rural population depends, becomes more apparent when considering the decreased length of the rainy season (Owusu et al., 2022)

These uses highlight the importance of access to SR's, especially given the projected population rise and increased droughts and shorter rainy season.

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