



Productivity of Stored Water in Some Selected Multiple Use Small Reservoirs in the Upper East Region of Ghana

F. O. Annor (1), D. Yamoah-Antwi (1), S. N. Odai (1), K. A. Adjei (1), and N. C. van de Giesen (2)

(1) Civil Engineering Department, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, (2) Water Resources Section, Delft University of Technology, Stevinweg 1, 2628 CN Delft, The Netherlands

The Upper East Region (UER) of Ghana is a water stressed area with agriculture as the main occupation of the inhabitants. The importance of small reservoirs for the sustenance of the livelihood of the people in this part of the country during the dry season cannot be over emphasized. Most of these small reservoirs were constructed, in the 1960s, mainly with the aim of providing water for domestic use and livestock watering during the dry periods of the year. Over the years, however, these small reservoirs have been put to a variety of uses, some of which accelerate the depletion of the stored water. The reservoirs are therefore most times, unable to serve the purposes for which they were constructed.

To address this situation, a study was conducted to determine the productivity of stored water in small reservoirs to better inform policy makers and water managers in the allocation of water especially in the dry season. Water productivity can be thought of as the output (product) that can be obtained per unit volume of water used or applied for either crop or livestock production. Data on crops and livestock were obtained through questionnaire administration, interviews, focus group discussions, physical measurements as well as field observations from nine reservoirs in the UER.

The research findings show that donkeys have the highest productivity of about US\$90 followed by cattle with US\$70. These high productivity values are as a result of the variety of products and services rendered by donkeys and cattle. For crop, tomatoes have the highest productivity value compared with pepper and leafy vegetables.

Despite the fact that donkeys had the highest productivity and hence priority over all uses, it is prudent to note that, inhabitants of the study area aside the sale of livestock for money (income) keep livestock for prestige. Therefore in the allocation of stored water in small multiple use reservoirs, the allocation criteria should consider the views, values and beliefs of the inhabitants.