BRIEFING NOTE: WATER ACCOUNTING + FOR WATER RESOURCE ASSESSMENTS

BACKGROUND:

With many countries facing increasing levels of water scarcity, there is an increasingly critical need to describe water resources in a standard context, using clear terminology and a framework that is internationally recognized and accepted, which can be applied in any basin of the world using consistent data inputs. But in many parts of the world, operational water resource assessments and reporting systems are in their infancy. Water accounting approaches quantify how much water is in a system, where, when and in what quality it is available, how much is demanded and consumed in time and place, and how well it is currently managed with respect to meeting those demands. Various water accounting frameworks exist, but typically require numerous national level statistics and datasets that, when available, are fragmented and inconsistent. These approaches focus on flows in rivers, canals and utilities, and ignore the key biophysical processes in the natural part of watersheds that generate renewable water resources. Incomplete and partially accessible water flow data is a fundamental problem in understanding hydrological processes and managed water flows, and is one of the underpinning reasons for the absence of operational national level water accounting systems. Addressing this gap, Water Accounting + is not reliant on national level statistics or flow data and characterizes the basin water balance and overall water resources situation for locations where hydrological monitoring networks are scarce.

Based on data collected by Earth Observation satellites, the approach offers a coherent and consistent methodology that quantifies hydrological and water management processes in a spatially distributed context. Operating at spatial units of 250 m x 250 m, the approach reports on basin and sub-basin water balances. In addition, crop water productivity, water uses and users across a basin, and water security indicators are part of the reporting system.

The information provided through the approach facilitates sound planning of water resource projects by assessing, on a seasonal or annual basis, both the size of the resource and the main users (across all sectors including the environment). As it is based on open access global spatial datasets, a water balance can be calculated for any river basin, and the potential impact of development on resource use and availability can be assessed and reported through a series of indicators, tabular data and maps.

WATER ACCOUNTING + INFORMS INVESTMENTS AND DONOR STRATEGIES:

The demand for more transparent information for water resources management decision making in water basins is increasing. Donor agencies are requiring more baseline information prior to investment in order to assess the impact of loans; the information is used during project preparation and implementation to ensure that investments at a particular location do not exacerbate or lead to further problems downstream.

The World Bank's Environmental and Safeguards Framework requires a detailed water balance to be developed, maintained, monitored, and reported periodically for projects with a high water demand that can have potentially significant adverse impacts on communities, other users, or the environment. Water Accounting + has been identified as one approach to provide this information, and is being applied by IWMI to support Asian Development Bank and World Bank investment projects, by enabling member countries to improve understanding of water issues and solutions, and to enable a country to close its water demand and supply gap and thereafter sustain the water balance. To achieve this IWMI is implementing Water Accounting + to support lending and non-lending assistance in the water sector by providing comprehensive information on available water resources in major river basins and their current uses, as well as to inform the design and sustainability of irrigation projects.

USAID's Global Water Strategy envisions a water-secure world, where people and nations have the water they need to be healthy, prosperous, and resilient. IWMI through the Feed the Future Innovation Lab for Small Scale Irrigation is using WA+ to assess to what extent scaling of farmer led irrigation using solar energy is feasible to support community resilience whilst safeguarding freshwater resources.

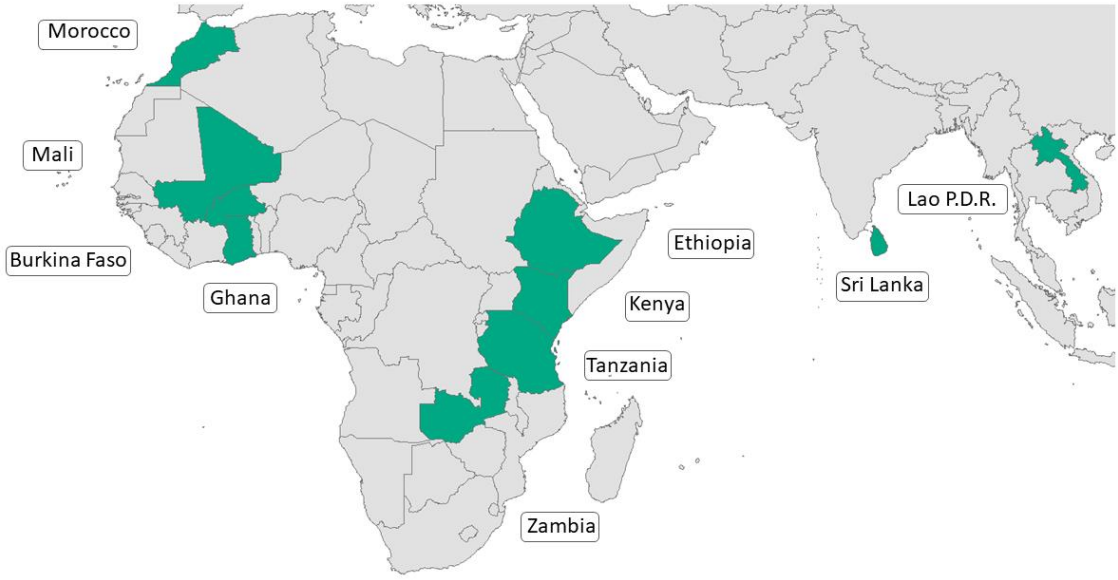
IWMI
International Water Management Institute

127 Sunil Mawatha, Pelawatte, Battaramulla, Sri Lanka
P.O. Box 2075, Colombo, Sri Lanka
T: +94 11 2880000 | F: +94 11 2786854
E: iwmi@cgiar.org | W: www.iwmi.org

Innovative water solutions for sustainable development

CASE STUDY EXAMPLES:

IWMI is currently implementing, or has completed implementation, of the Water Accounting + framework in various countries in Africa and Asia. The locations are shown on the map below, and further details provided in the table below the map.



Donor	Country	Purpose of water accounting implementation
USAID	Mali	WA+ is being used to undertake a water balance assessment to determine resource use and availability, in order to better understand sustainable limits to farmer-led irrigation development.
Asian Development Bank	Lao P.D.R, Sri Lanka	Productive Rural Infrastructure (PRI) have, in the past, been developed without knowing the status of water resources within a watershed including how much is available, and how much is allocated to various uses. A water accounting assessment was undertaken to quantify the water balance and status of water resources. The results are being used to improve dry season water use and to inform the future implementation of PRIs to increase their resilience to water availability and climate change.
World Bank	Kenya, Tanzania	WA+ is being used to study the water balance and determine the impacts of investment projects on water resources in the Mara Sub-basin; and to introduce NELSAP and its stakeholders to the tool and how it can be used to understand the water balance and inform decision making around water resource management.
Helmsley Foundation	Ghana, Burkina Faso, Ethiopia, Zambia	Water management is vital to Africa's future, but limited water data makes it challenging. The Digital Earth Africa partnership organizes decades of satellite data – updated daily – into an analysis-ready 'Open Data Cube'; IWMI is working with them to develop tools to translate this data into decision-ready information for water resource management.