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Water Footprint: Key to Sustainable Development in Sub-Saharan Africa

Blog by Ruth Mathews, Executive Director, Water Footprint Network

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Our team was recently commissioned by the Netherlands Ministry of Foreign Affairs to produce Water Footprint Profiles for seven Sub-Saharan African countries: Benin, Ethiopia, Ghana, Kenya, Mali, Mozambique and Rwanda.

I was particularly keen to apply water footprint methodology to these countries for several reasons, not least because it's the first series of assessments of this kind in the region. My enthusiasm stemmed from my confidence that it would provide a fresh perspective and some useful insights for a region that is already aware of its many challenges and is wanting to formulate answers and direction. I also anticipated that it would be a golden opportunity to demonstrate how understanding the water footprint can provide clarity along the winding – and at times murky – pathways towards achieving the ambitious targets of the UN Sustainable Development Goals (SDGs).

I was not disappointed. Examining how water is used for staple food and export crops and how this can be improved to the benefit of citizens, nature and the economy in a region where agriculture is the largest consumer of water was a fruitful journey. It is also an important journey, given that most of the rapidly growing population in the region relies on the agriculture sector for work and is facing a growing food deficit.

The Water Footprint Profiles lay out key concerns and open up avenues of significant opportunity for development in each country. They reveal that staple food and export crops in all of the seven countries are often produced inefficiently, consuming more water resources while achieving lower yields than the global benchmark for these crops.

This points to the benefits that would be gained by using water in agriculture more productively, in particular rain water. In a region where agriculture is a significant portion of the gross domestic product (GDP) and employs many people, supporting farmers by improving access to better seeds, improving soil nutrition and moisture retention and reducing non-productive evaporation are some of the

many tangible and realistic solutions that can maximize the amount of ‘crop per drop’ of water. By applying these types of agricultural practices, Sub-Saharan Africa can help improve livelihoods and reduce poverty while taking great strides towards strengthening food security and climate resilience. If this can be achieved while maintaining sustainable river basins, it will also support access to clean water and help maintain the region’s ecosystems.

What’s more, if key export crops are produced with higher levels of water and land productivity, it would provide greater levels of export value for the same amount of water and land area used. For example, sugar cane produced in Kenya is more efficient than the global water footprint benchmark while in Mozambique, sugar cane consumes six times as much water per tonne of production, compared to the global benchmark. If sugar cane production in Mozambique met the global water footprint benchmark, the same amount of water could produce four times as much sugar cane as is produced now.

Opportunities also lie in selecting crops and cropping systems that excel in water productivity. Growing crops that have a comparative advantage over others will enhance livelihoods and protect ecosystems by reducing pressure on water resources. Transitioning to crops that ‘fit’ the local conditions would not only provide benefits locally but would also be attractive to businesses reliant on these products in their supply chains because the source would be more reliable.

Alongside these pathways for progress rings a bell of caution with regards to the expansion of irrigated land. This is because many areas of Sub-Saharan Africa are already facing moderate to severe blue water scarcity for some or all of the year. While irrigation may improve yields in some cases, care is needed to avoid the negative social, economic and environmental impacts that result from overuse and depletion of surface and groundwater resources. Assuring water availability and the protection of aquatic ecosystems, both now and under future climate change scenarios, before more land is irrigated can help protect against this.

By conducting these Water Footprint Profiles, we’ve laid a scientific foundation for identifying how programmes aimed at green growth can support a holistic approach to sustainable development. In practice, a balance must be struck between self-sufficiency and food security, export value and trade, infrastructure development and sustainable use of water resources. Yet it’s also vital that the interlinkages across domestic sectors and across the SDGs are recognized. By understanding the synergies between agriculture, trade, economic and energy policy and water resources management and across the SDG targets, policy development can be integrated. In doing so, the aims of each individual sector and target can be aligned and unintended consequences that result in negative impacts on water resources and water-related ecosystems avoided.

We hope that these insights will be further examined and considered in discussions with ministries and departments concerned with water resource development and management, agricultural and economic development, trade and

environmental protection and can support planning and policy development as well as corporate policy development. Using them to inform a balance that improves water productivity within a holistic approach to development would support better livelihoods, healthier ecosystems and stronger economies.

For an overview of the reports' findings, please read our briefing paper.