

# Call for an African Water Revolution

## INVESTING IN THE INVISIBLE MAJORITY – FINANCE INVESTMENTS TO ENHANCE GREEN WATER PRODUCTIVITY

### A continental crisis

The statistics of Africa's rural economies and agricultural production make for uncomfortable reading.

- Around 90 per cent of agricultural land is rain-fed and accounts for close to 80 per cent of staple food production.
- Between 60 and 70 per cent of Africa's population of over 500 million people live in rural areas and are engaged in rain-fed subsistence agriculture.
- The continent is one of the two driest on earth with ongoing desertification and increasing population pressure rapidly reducing the available arable land per capita.
- Across the continent, 25 countries have widespread hunger, poverty and undernutrition.
- One third of the population of Sub-Saharan Africa faced severe food insecurity in 2016 (31 per cent ~ 307 million people).
- Each year food imports cost sub-Saharan Africa \$35-42 billion USD which is a cost, not an investment.

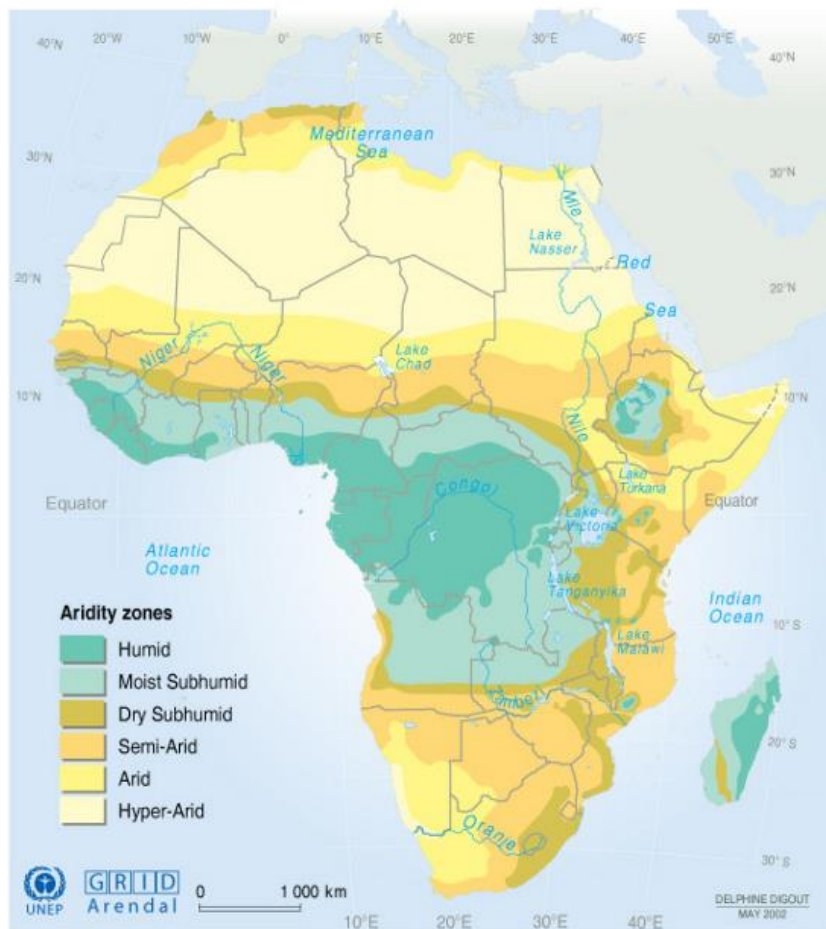
**The invisible majority** | The 60 to 70 per cent of Sub-Saharan Africa's population living in rural areas of the continent, most of whom are engaged in rain-fed subsistence farming, are only marginally counted as part of the economies of their countries – and when hit by periodic drought they frequently require emergency aid.

The consequences are vast and incalculable, not only for those surviving in the vast rural hinterlands of the continent. No economy can flourish whilst a large proportion of its human capital is trapped in poverty and recurrent crises which saps national wealth and perpetuates reliance on foreign aid. "Sub-Saharan Africa can only grow if it solves the hunger crisis" (UNDP 2012).

**Visible consequences** | *Degradation*: Not only is the failure of the rain-fed rural agricultural economy a limit on the national growth of African countries, it is also destroying the natural resources of the continent through the degradation of land, forests and soil – for example 51 per cent of land in the Zambezi Basin is moderately degraded and 14 per cent is highly degraded. This results in the loss of environmental assets, the silting up of dams impacting hydropower production and irrigation, and the further impoverishment of communities depending on the land.

*Food security, conflict and migration*: Hunger and conflict are closely interrelated. "Exacerbated by climate-related shocks, conflicts seriously affect food security and are a cause of much of the recent increase in food insecurity."

## Aridity Zones



Source: World Meteorological Organization (WMO), United Nations Environment Programme (UNEP), *Climate Change 2001: Impacts, Adaptation, and Vulnerability*, Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

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<http://www.grida.no/resources/7028>

## Turning the situation around

**Investing in sustainable livelihoods** | Sustainable rural development has been an elusive quest for many decades across Sub-Saharan Africa and requires support from multiple different sectors. However, there is no question that increasing rain-fed agricultural yields is central to this, which in turn is dependent upon the availability of water.

Whilst by far the majority of water related infrastructure investments in Africa are in irrigation (using 'blue water'), some 90 per cent of agricultural land is rain-fed which produces close to 80 per cent of staple food production. This provides the basis for a solution to the continental food security challenges, the rural poverty and the degradation of natural resources.

Initiatives to develop irrigated agriculture are expensive, difficult to maintain sustainably and benefit a relatively limited number of people. African countries are generally not suited to large-scale irrigation, as was the case in the Green Revolution in Asia, due to physical characteristics such as topography and soils. Conversely, investments in securing water for 90 per cent of agricultural activity on the continent enjoys very little public investment in most countries and none at all in some.

**Green Water: A hidden resource** | Rain-fed agriculture depends on infiltrated rainfall water which is stored in the upper layers of the soil and is available to plant roots – this is called ‘Green Water’. Maximising the capture, storage and utilization of this precious resource is at the heart of the Call for an African Water Revolution.

Currently, the yields from rain-fed subsistence farming are typically very low – a quarter of potential yields – which points to green water being lost to evaporation through poor in-field water conservation practices. As rainfall is predicted to become increasingly variable due to climate change, it is even more urgent to improve the conservation of green water through a variety of methods both in-field and in localized catchment areas to increase infiltration and to store water in micro infrastructure such as small dams.

#### Green water

Soil moisture from infiltrated rainfall available for plants.

#### Blue water

Rain water run-off occurring in stream, rivers, wetlands, dams, lakes and aquifers.

**Benefits of an African Water Revolution** | There are many benefits to adopting an approach to rejuvenating rain-fed agriculture in Africa:

- Enhanced local-level food security through access to stored and infiltrated rainwater;
- Catchment management services which can reduce soil erosion and dam sedimentation (protecting large infrastructure investments);
- Cheaper to develop than irrigation schemes making it more realistic to gain the needed resources;
- Increased sustainability through community ownership and participation, especially of women;
- Allowing rural communities to invest in themselves in areas such as education, healthcare and innovation; (contributing to multiple SDGs) – strong gender dimension

**Redefining ‘subsistence’** | Subsistence farming is *“the practice of growing crops and raising livestock sufficient only for one’s own house-hold use, without any surplus for trade.”* Where resources – particularly water – are so scarce that families are barely able to feed themselves in average rainfall years, they are often forced to resort to high-risk survival strategies which have dire long-term consequences.

Where water security is increased through conserving green water and localized resources, the bad years can be survived and excesses in average to good years can be traded, providing a route out of the poverty trap and changing rural economies. Generally, people engage in subsistence farming only out of necessity, not out of choice, and will produce surplus for trade whenever they can.

## Financing an African Water Revolution

It will take significant resources to achieve a step-change in addressing rural livelihoods and to transform the Invisible Majority into net contributors in their national economies. Financing the regeneration of rural livelihoods must first and foremost come from domestic and existing regional and international financial sources. Some catalytic external resource will also be needed to mobilize these existing resources and to encourage public expenditure in a green water revolution across the continent.

Financial interventions can help to scale up green water solutions and rain fed agriculture and can seek to leverage public expenditure. Possible financing mechanisms could include:

- A matching finance scheme to incentivize increased public expenditure in green water and micro infrastructure;
- 'Off-set' financing through investing in green water and micro infrastructure in order obviate the recurrent sunk costs of emergency feeding and other crisis interventions;
- Payment for Environmental Services (PES) – where blue water investments (dams for hydropower, irrigation etc.) pay for upstream catchment conservation to protect their investments;
- 'Green' funds for reclamation of degraded lands through conservation agriculture;
- Accessing existing climate related funds to increase climate resilience for the invisible majority;
- Support the extension of micro-credit schemes to enable farmers to invest in their own livelihoods;
- Other options to be determined...

## A new initiative: the African Water Revolution

The African Water Revolution is an emerging initiative to scale up green water and rainfed agricultural solutions across Africa through financial investments and political leadership.

The idea for the Africa Water Revolution came out of the Malin Falkenmark Symposium at World Water Week in Stockholm 2016 where experts called for a water revolution to alleviate the world water and hunger crisis. Discussions deepened in Kigali, June 2018 when 80 experts came together to identify barriers, test the need for an African Water Revolution and map out different pathways for action.

The initiative, led by Stockholm International Water Institute (SIWI), Stockholm Resilience Centre (SRC) and the Sustainable Development Goals Center for Africa (SDGC/A), is currently designing the nature of the financial intervention and next steps for the initiative. Advocacy and outreach will take place at the following events to refine the proposed financial solution and to clarify the nature of the approach including hosting arrangements, operational procedures, governments, sources of finances, access criteria and other operational details:

- Malin Falkenmark Symposium / World Water Week, Stockholm, August 2018.
- AGRA, Kigali, September 2018
- UNGA, New York, September 2018
- Africa Water Week, October 2018
- African Union meeting, January 2019

## References

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