

Thirsty, hungry and no power?

African resources in a global world

by Terje Oestigaard

Water, food and energy are fundamental to African development. However, several crucial issues need to be addressed.

Are African resources used to meet African needs or are they being exploited to satisfy the needs of other actors facing food and energy insecurity?

The near future will see three predicted and interlinked crises related to poverty and population growth: a water crisis, a food crisis and an energy security crisis. Water is the main link between all these challenges.

About 70 per cent of global water consumption is for agriculture, however, in least developed countries, agriculture accounts for more than 90 per cent of fresh-water withdrawals. For the purposes of agriculture and food production, water, not land, will be the major limiting factor.

In sub-Saharan Africa more than 40 per cent of the population live in poverty. The majority lives in rural areas and most of them rely on their own food production. The rapid population growth in Africa also means rapid urban growth. This means a larger population in the cities will depend on food it does not itself produce. Paradoxically, though, hunger is most widespread among smallholders producing food.

Water – the common link

Providing safe and accessible water is a major challenge today. Some 2.5 billion people lack improved sanitation and 800 million have limited access to safe water. More than 40 per cent of those without improved drinking water live in sub-Saharan Africa. Each day, about 10,000 people die from



In 2050 will 70-90% more food be needed to feed the world population, which results in 70-90% more water consumption in agriculture. In addition, there will need to be a 55 per cent increase in water use for energy production.
Photo: Sérgio Santimano

waterborne diseases such as malaria, dysentery, cholera and various forms of diarrhoea.

In expanding urban areas, improved water and sanitation services are the city's invisible life-giving arteries and are literally the foundations for the future. "Water is Life; Sanitation is Dignity," the saying goes. More importantly, safe water is required to eradicate poverty and improve living conditions.

Electricity is fundamental

The water and sanitation sector is also a major energy consumer (pumping, treatment, distribution, use and consumption, sewage pumping and treatment). A sustainable water and sanitation system depends on a secure energy supply.

Sub-Saharan Africa is the least developed region in the world in terms of electricity. In 2011, 57 per cent of the population lacked electricity. Many African governments view hydropower as

the main energy option for future development, particular since it is a renewable source and dams can also capture reliable water for agriculture.

World's highest potential

Hydropower is the largest renewable source of power production, supplying 16 per cent of electricity worldwide. Africa has the world's highest potential for hydropower development. Currently only about 8 per cent of Africa's hydro potential is being used, but it still supplies 32 per cent of Africa's energy.

Dams can also mitigate the consequences of climate change by storing water and releasing it for cultivation in years of insufficient rainfall and by impeding floods following excessive rain.

Agriculture is the largest consumer of fresh water. In an era of climate change, there is increased uncertainty about how much water will be available where and when. Higher temperatures affect the hydrological

cycle: will there be more or less rain? Will there be more droughts or floods, and will the right amount of water be available in time for cultivation?

Climate change

The repercussions of climate risk and change in the hydrological cycle will most affect agriculture and rural development, the very spheres in which poverty and hunger are highest.

About 50 per cent of African land is vulnerable to desertification and degradation. This is expected to lead to large cultivation losses in parts of sub-Saharan Africa. By 2050, annual river run-off and water availability will be reduced by 10-30 per cent in dry regions. Moreover, rainfall will become more variable in Africa. Heavy precipitation is likely to increase, thereby increasing the risk of floods, which also threaten food security.

In sub-Saharan Africa, about 95 per cent of the agriculture is rain-fed, and is highly vulnerable. If the rains fail, or are abundant at the wrong

time, harvests may fail, leading to famine and even death. In addition, rapid population growth means more people are dependent on food from the same or smaller plots, leaving less food for household members. While smallholder agriculture is labour intensive, it needs to enhance labour productivity and yields to produce sufficient food.

The agrarian question in Africa raises the issue of how capitalism can enable agricultural development, which in turn contributes to industrialisation and decreased poverty.

The failure of structural adjustments

In the 1980s, international donors demanded structural reform. In agriculture, large-scale farming of cash crops for export was advocated. Traditional and smallholder farming was declining. After some decades, it was realised that the structural adjustments had largely failed to increase agricultural productivity. Instead, they had undermined the welfare and livelihoods of rural people in particular.

Irrigation projects are expanding and is often seen as making agricultural conditions more predictable. They are also more profitable as a study in Ethiopia suggests (*see picture caption*). Notwithstanding the high investments costs, irrigation may thus provide a substantial income and surplus. However, there are other serious concerns and challenges.

Irrigated agriculture is largely dependent on dams. While hydrodams may release water downstream to other users, water used for irrigation is not available for other downstream uses. Massive irrigation schemes upstream may severely impact water flows to downstream countries.

The Nile is the longest river in the world and the Nile Basin catchment spans 11 countries and drains an area one tenth the size of Africa. Flowing from the Equatorial lakes, the White Nile meets the Blue Nile at Khartoum forming the Nile.

Egypt totally depends of the river, the source of some 97-98 per cent of its water. About 85 per cent of the water reaching Egypt comes from the Ethiopian tributaries of the Nile.

Ethiopian water use may thus have consequences for water availability downstream, prompting the urgent question: in a complex river basin, who has the right to use water and how much?

In all the Nile Basin countries there are plans to expand irrigation, especially in Sudan and Ethiopia. If all the projects are implemented in the long term, they will require 1.5 times as much water as actually flows. Although technological improvement may increase the efficiency of water use, currently all these planned irrigation schemes cannot be implemented.

Food or cash crops?

In 1950, the total population of the countries of the Nile Basin was approximately 86 million. By 2050, it is expected to be 860 million.



Irrigated onion plants in the Laka Tana area, northern Ethiopia. An study in Ethiopia shows that rain-fed agriculture gives 147 US dollar per hectare compared to 400 US dollar with medium-scale irrigation. Large-scale irrigation brings 1 456 dollar income per hectare.

Photo: Ataklte Beyene



28 000 MW supply 500 million people in sub-Saharan Africa (South Africa excluded). 29 000 MW supply 5 million people in Norway.

Photo: Sérgio Santimano

Given that agriculture consumes most water, the challenge is whether there will be enough of it to produce food for the growing population. Perhaps more importantly, as elsewhere in Africa, will the water and land of the basin be used to produce food for Africans or cash crops for export?

The water, food and energy crises are global, but take different shape in different countries. The US, EU, China, India, the Gulf States and others have policies to enhance their own resource security by engaging with countries abroad. Today, the majority of land investments target Africa.

Variably called “land investments,” “land acquisitions” or “land grabbing,” the extent of these deals is uncertain and estimates vary widely. Over the past decade, an estimated 230 million hectares in developing countries have been the subject of international deals.

Land deals are also water grabs

In 2010, the World Bank conservatively estimated that each year until 2030 about 6 million hectares of additional land will be brought under biofuel production. Of this, some 4 million hectares will be in sub-Saharan Africa and Latin America.

Behind every land deal there are also water acquisitions or water grabs. Investors are not interested in barren

lands with no prospect of plentiful cash or biofuel crops. In many cases, there is a close link between land investments and dams for irrigation.

Win-win scenarios?

There are many reasons for this land surge. African governments often welcome the investments and capital injections. Consistent with the classical agrarian question about modernising agriculture through capitalism, investors often highlight “win-win” scenarios.

They claim that investments will enhance production and reduce poverty. From a state’s perspective, global oil and gas reserves will be depleted and alternative energy sources have to be found. At the same time, the aim is to reduce carbon emissions.

The US and EU aim to be less dependent on Arab oil. Saudi Arabia seeks to be less dependent on US food, even as the country is phasing out some of its own food production because of water scarcity. China and India both need more food and alternative energy supplies. African water and land is seen as a valuable supplement in achieving wider water, food and energy security. In addition, private investors see business opportunities.

There is, however, a misconception

that plenty of unused land and water exists in Africa. Notwithstanding the misconception, land prices in Africa are also generally much lower than elsewhere.

In Brazil or Argentina, the cost of a hectare of land is around US\$ 5,000 per year. In Ethiopia or Liberia, some lands are leased for as little as five dollar. Hence, Africa has become a prime target for foreign investment, and in some countries land deals involve contracts lasting up to 99 years.

Grow to eat or to drive the car?

Global plans to substitute fossil fuel with biofuel are massive. Fertile land has been given over to maize, sugarcane and palm oil for biofuel, but growing energy in place of food has a high cost.

To produce enough food to satisfy a person’s daily needs requires 2-3,000 litres of water, but one litre of biofuel also needs 2,500-3,500 litres of water. In short, a person in the West can drive 10-15 kilometres or an African farmer can have a satisfactory daily diet using much the same volume of water.

From a water perspective, the energy derived from biofuel has a water footprint 40-70 times greater than that of fossil fuels. In converting agricultural fields to cash crops,

harvesting those crops and processing the products, more carbon emissions are released than by using fossil fuels.

Less employment

Moreover, not only may smallholders lose their lands and livelihood opportunities when the land is sold or leased, but mechanised farming offers limited job opportunities. In Brazil, large-scale mechanised agriculture needs one-tenth the work force of small-scale agriculture over the same area. Hence, rural unemployment has increased.

Awareness of the social consequences of large-scale land deals has gradually started to impact policies. A major cause of the international food price peak from 2008-09 onwards was these land investments. Although estimates vary, biofuels may have led to an increase in food prices of about 30 per cent.

Regardless of the exact percentages, biofuel production raises general concerns about food security, in particular in developing countries.

Today, many land investments focus on sugar production, since sugar can be used for a variety of products, biofuels included. But in a world with an increasing population, cash crops are insufficient and do not necessarily increase food security.

Cash-crops threats food security?

Food has to be produced somewhere and not everyone can import it from other places. This draws attention to rural areas and smallholder farmers, most of whom rely on food they produce. It is also in the countryside that most people live and where hunger and poverty in sub-Saharan Africa are greatest.

In a situation where there is a need for more water, more food and more energy, setting the right priorities

and development policies becomes all the more important. With greater pressure on water resources, there will at times be competing and conflicting interests and actors as regards water use – by whom, where, when and for what purposes.

Resources for whom?

Massive international exploitation of these resources at a time when the African population has an increasing need for them raises the question of whether African resources should be used for and by Africans or to secure the needs and interests of other states and parties? And in a situation where hunger is a major challenge, should agricultural land be used to grow food for domestic consumption or energy and cash crops for export?

Whatever course is taken, it will have significant consequences for African development and food security.



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