UNDERSTANDING LAND INVESTMENT DEALS IN AFRICA

LAND GRABS LEAVE AFRICA THIRSTY

LAND DEAL BRIEF | DECEMBER 2011

Overview

Cheap land and fairly easy access to water make Africa attractive for industrial agriculture. Investors see Africa as an "uncrowded space of opportunities," and the prospect of accessing abundant water resources is a focal point in business plans.[1] Some firms are explicit that they are as much agricultural land investors as they are investors in water supplies.[2] Others say that they only select land which has access to water for large-scale irrigation and that land only has value if water is available.[3] The availability of water gains further meaning as estimates show that the increased requirements for food to feed the world's population – exceeding 7 billion – will outpace existing water resources by 40 percent by 2030.[4]

The land grab taking place in Africa is accompanied by a major "water grab" which raises serious concerns over the future of freshwater resources when the vast areas of newly acquired land come under cultivation. The volume of water required to cultivate crops on the 40 million hectares of land acquired in Africa in 2009[5] is an unsustainable stress on the continent's freshwater supply. The Oakland Institute's research suggests that this new pressure on water resources will adversely impact small farmers, pastoralists and fisherfolk, who rely on water resources for their livelihoods. Research also warns that jeopardizing Africa's fragile river systems will also have political and ecological consequences. Furthermore, irrigation schemes and canals are going to divert water from rivers and lakes that are already under serious stress, such as the Niger River and Lake Turkana.

African governments and international development programs neglect investments in sustainable water management systems, including water harvesting, storage, use of wastewater and small-scale irrigation that would benefit smallholders while managing land and water resources in a durable way. Yet, investing in such systems is the only way forward to effectively address the challenge of food and agriculture on the continent.

Severe droughts are a common factor in recent food crises in Africa. Images of hunger evoke global concern and efforts among aid agencies and civil society to alleviate the damaging effects of drought and water shortages. It is a large-scale tragedy and betrayal that "responsible agro-investors," many from aid providing countries like the United States, will be producing crops on African soil – primarily for export outside the continent – and taking valuable, life-giving water used for cultivation along with them.

Extent of Water Takings

If all of the 40 million hectares of land that were acquired on the continent in 2009 come under cultivation, a staggering volume of water would be required for irrigation. The Oakland Institute estimates that 300 to 500 cubic kilometers (km^3)[6] of water per year would be used to produce crops on this land, approximately twice the volume of water (184.35 km^3) that was used for agriculture in all of Africa in 2005.[7] In the event that the annual rate of land acquisition continues at 2009 levels, demand for fresh water from new land investments *alone* will overtake the existing supply of renewable fresh water on the continent by 2019.[8]

Agrofuels – the Thirstiest Crops

Sugarcane, corn, and jatropha grown to produce agrofuels are some of the thirstiest crops. For example, jatropha, which some predict will cover 5 million hectares in Africa by 2015, requires 1,000 – 1,500 mm/ha of water per year to harvest.[9] The cultivation of 5 million hectares of jatropha alone will need 50 – 75 km^3 of water per year. Sugarcane requires even more water: approximately 1,500 to 2,500 mm/ha per year.[10] The cultivation of agrofuel crops is already having a negative impact on local communities. In Tanzania, a large agrofuel project operated by the Swedish company EcoEnergy has raised questions about the potential negative impacts the company's sugarcane plantations will have on the Wami River, a source of food and water for many Tanzanians.[11] EcoEnergy has been granted a concession of 20,000 hectares to grow sugarcane in an area where water rights have already been granted to many irrigation users with little concern for the minimum water flow level necessary to sustain the river. The Environmental Impact Assessment (EIA) for the project revealed that the amount of water EcoEnergy requested to withdraw from Wami River for irrigation during the dry season was excessive and would reduce the flow of the river. Changes in the quality of surface and groundwater are also expected due to the use of agrochemicals in the sugarcane plantation. Since a significant amount of water will be drawn from the Wami River, the EIA also predicts an increase in local conflicts related to both water and land.

Also in Tanzania, a British firm, Sun Biofuels, initially recommended that since certain areas in their acquired land were relatively water-scarce, the plantation should not cover any key water sources that local communities use.[12] Sun Biofuels's own survey showed that only two out of 96 water sources in the area were fully clean and operational before jatropha planting began.[13] Yet, according to Oakland Institute research, this investment did eventually affect water resources and locals identified the lack of water as the main issue they were facing as a result of this investment. Some local residents, especially women, now have to travel much further than before to find water and sometimes have to creep onto the Sun Biofuels plantation to access their old water sources and "steal" the water, or buy it at inflated prices.[14]

The growth of agrofuel production is only expected to expand with the support provided by a number of governments. US Secretary of Energy Steven Chu has stated that American investment in agrofuels is designed to "end [our] dependence on foreign oil and address the climate crisis."[15] The United States and the European Union have set targets to replace 30 percent and 10 percent, respectively, of their gasoline with agrofuels.[16] A study by the Institute for European Environmental Policy estimates that the European Union target may increase commercial pressure on 7 million hectares for the production of agrofuels.[17] With increased demand, agrofuel production is therefore booming on the continent. As the hectarage of land under agrofuel cultivation in Africa continues to grow so too will the scope and impacts of water withdrawals.

Case Studies: Local and Downstream Impacts

NIGER RIVER

The 4,180 km Niger River begins in Guinea and travels through Mali, Niger, Benin, and finally ends in Nigeria where it empties into the Atlantic Ocean. The river is an important lifeline for the millions of people living along its shores who rely on the Niger for their livelihoods through farming, cattle, and fishing. The Oakland Institute's research shows that the Malian government has recently granted over 544,567 hectares of land concessions to large investors and in turn increased the volume of water that can be diverted from the river for irrigation.[18] The intergovernmental Niger Basin Authority exists to preserve the Niger River, and to ensure an adequate use of its resources among all countries concerned. The Authority has thus far been mute on the current developments occurring in Mali, despite serious threats to the future of the waterway with the rapid expansion of agricultural activities along its shores.

In Mali, large land deals are focused in the inland delta of the Niger River in an area that is part of a semi-autonomous zone known as the Office du Niger. Referred to as a "state within a state" the Office du Niger authority has the responsibility to manage this land and to allocate it to investors.[19] The amount of water required to irrigate the 544,567 hectares already allocated is staggering; if all of this land were to be put under cultivation the water requirement from the Niger River would be 3.18 – 5.47 km^3.[20] This would almost double the 5.9 km^3 of water the United Nations Food and Agriculture Organization (FAO) says was used by agriculture in Mali in 2000.[21]

The volume of water diverted from the river is likely to grow given that in 2009 the Malian government announced its intention to drastically increase the allowable area of irrigated land on the shores of the Niger River from 100,000 to 1 – 2 million hectares.[22] In the event that 1 million new hectares of land come under cultivation as a result of this increase, the Oakland Institute estimates that 7.5 – 12.91 km^3 of water would be diverted from the Niger River. This level of water withdrawal would only exacerbate the fragile river whose level has dropped about 30 percent in the past 30 years, with experts expressing fears that the river itself could face extinction without careful management.[23]

Regardless of these threats, the Office du Niger continues to make land deals that include the right to extract water from the river for irrigation at very low prices.[24] For example, a lease granted to Moulin Moderne du Mali – a public-private partnership with the Malian government – involves a rent-free lease of 20,000 hectares on the banks of the Niger River.[25] The charges for water use are low at about $5 per hectare per year for spray irrigation and about $140 per hectare per year for gravity-fed irrigation. In addition, there are no restrictions on water withdrawals when the river is high, although the Office du Niger encourages the production of less water intensive crops in the dry season due to concerns about water availability.

In another case, the lease of 100,000 hectares for a 50-year period by the Libyan government through a subsidiary investment fund, Malibya, involves the use of all surface and subterranean water for the production of food crops.[26] Although the lease establishes water usage fees, it is unclear how they will be calculated, especially since Malibya plans to access water from the Niger River through a 40 km irrigation canal. This level of withdrawal will likely impact populations and ecosystems living downstream in the Niger floodplain due to the scale of water diversion and withdrawals made possible by the canal. The Malibya canal has the minimum capacity of 4 km^3 of water per year; more than what the 17 million habitants of Beijing use in a year and twice the capacity of other canals in the region.[27] When all of the lease's 100,000 hectares come under cultivation and are irrigated, 18-32 percent of the water taken from the canal would be eventually exported to Libya as virtual water along with crops.

Locals are concerned that the water withdrawals will deplete access to water for smallholders in the area and reduce the viability of floodplain agriculture.[28] The construction of the canal for the Malibya project in 2009 has already closed the small irrigation channels that were watering the market gardens of the women farmers' groups in that area. The women subsequently lost all their harvest and livelihoods.[29] This development also threatens the health of the Niger River and the other rivers in its system, since water diversions and excessive withdrawals have been shown to negatively affect hydrological cycles, sediment flow and ecosystem survival. The Niger River is considered to be in danger due to the accumulation of silt which is worsened by changes in water flow and water pollution, threatening navigation, fish stocks, water availability and the very existence of the river.[30]

NILE RIVER

Land deals that provide access to water from the Nile River are beginning to cause environmental and social distress in addition to creating political tension over water control disputes. In Ethiopia, where approximately 80-90 percent of the Nile's water originates, the government does not limit water use, which tends to encourage industrial agriculture. The Oakland Institute's research has found that the government is planning to put over 3.6 million hectares of land under irrigation.[31] When all of this land comes under cultivation 26.98 km^3 – 46.53 km^3 of water will be diverted from the Nile River and its tributaries.[32] This volume of water is almost nine times the total volume of freshwater resources used for agriculture in Ethiopia in 2002. The possibility of irrigating this much land has fueled the Saudi-Ethiopian company Saudi Star's plans to lease over 500,000 hectares for rice production and to build a 30 km irrigation canal in the area.[33] If Saudi Star's plans come to fruition, up to 11.25 km^3 of water would be diverted to irrigate 500,000 hectares of rice.[34] This development alone would more than double the 5.2 km^3 of water used by agriculture in Ethiopia in 2002.[35]

As in Mali, irrigation canals in Ethiopia have been designed to supply water to large agribusinesses and pose a threat to the prospects of water availability for populations living downstream in Sudan and Egypt. These developments may cause irreversible damage to the Nile River water system due to extensive water withdrawal and pollution from fertilizers and pesticides.[36] Ethiopia's plans to build a massive dam to provide water for irrigation and generate electricity[37] have also fueled a political conflict with Egypt over each country's share of the Nile waters. Egyptian agriculture is solely dependent on the Nile River for irrigation, and in a country of bread eaters, Egypt relies on the Nile floodplain to produce about 50 percent of the wheat needed for domestic consumption.[38]

OMO RIVER

Since 2003, Ethiopia's Lower Omo Valley, one of the most culturally and ecologically unique areas of Sub-Saharan Africa, has been thrust into the international spotlight due to the launch of the controversial Gibe III hydroelectric project. Since 2008 over 350,000 hectares of land have been earmarked for commercial agricultural production in the Lower Omo Valley. This includes the recently announced development of a massive 245,000 hectare state-run sugar plantation. Prime Minister Meles Zenawi summed up the relevance of the project in early 2011: "In the coming five years there will be a very big irrigation project and related agricultural development in this zone. I promise you that, even though this area is known as backward in terms of civilization, it will become an example of rapid development."[39] There are serious concerns about the impact that this "rapid development" will have on the environment and on the livelihoods of the 500,000 indigenous people that rely on the waters and adjacent lands of the Omo River and Lake Turkana, which is fed by the Omo river. Studies suggest that irrigating 150,000 hectares would lower Lake Turkana by eight meters by 2024. If 300,000 hectares are irrigated, the lake level will decline by 17 meters, threatening the very future of the lake, with an average depth of only 30 meters.[40]

The dam would have potentially devastating effects on the 200,000 agro-pastoralists of the Lower Omo Valley who rely on the annual flooding of the Omo River to provide nutrient rich sediment to the riparian areas and to replenish grazing lands, and on the 300,000 people (including the Elmolo, Turkana, Gabra, Dassenach, Rendille and Samburu) whose livelihoods depend directly on Lake Turkana.[41]

While livelihoods differ between ethnic groups, the majority are agro-pastoralists, practicing flood-retreat agriculture on the banks of the river, while also raising cattle for which the annual flooding of the Omo River replenishes important grazing areas. For many of these ethnic groups, cattle are a source of pride, wealth, food, and are intimately tied to cultural identity. The annual flooding of the Omo River dictates the rhythms of life and culture that permeate the area. But with the announcement of the Gibe III dam, the livelihoods and culture of the indigenous people in the area face decimation.

Sustainable Water Management for Sustainable Agriculture

By prioritizing industrial agriculture and large-scale irrigation schemes, African governments and international institutions neglect investments in sustainable water management systems, including water harvesting, storage, use of wastewater and small-scale irrigation that would benefit smallholders while managing land and water resources in a durable way. Yet, research shows that unlike large-scale irrigation, a focus on efficient small-scale irrigation, sustainable agriculture and water management methods can improve the lives of local smallholders, enhance food security and prevent environmental degradation from water depletion. [42]

In Zimbabwe, sustainable water management and water harvesting systems such as those established by the Zvishavane Water Resources Project have proven very effective in increasing yields, building resilience to climate shocks and improving income and food security.[43]

In Burkina Faso like in other Sahelian countries, the introduction of Soil and Water Conservation (SWC) techniques such as planting pits (i.e. zai), stone lines (i.e. bunds) and level permeable rock dams has led to enhanced productivity, economic security, population stability, enhanced biodiversity and improved water tables. With the introduction of such techniques in the 1980s, farmers achieved 50-60 percent higher yields of both millet and sorghum.[44]

In Mali, the establishment of the System of Rice Intensification (SRI) among smallholders in the region of Timbuktu resulted in reduced quantity of water used while rice yields increased to 9 metric tons per hectare, an increase of 50 to 100 percent over yields obtained under conventional irrigated production techniques.[45]

In Ghana, the production of staples such as millet and sorghum show, on average, better yields under small-scale irrigation than under large-scale irrigation. Research has showed that small-scale irrigation in Ghana contributed to 1.5 metric ton / hectare of millet compared to 0.50 metric ton / hectare under large-scale irrigation.[46]

In Kenya, biointensive agriculture, a low-cost agricultural technology designed for small farmers, has been shown to use 70 to 90 percent less water than conventional agriculture (due to the establishment of higher soil organic matter levels, continuous soil coverage by crops, and adequate fertility for root and plant health).[47]

In Lesotho, the improvement in peasants' access to the water supply and the use of small-scale irrigation technologies, such as drip irrigation and treadle pumps have improved water conservation and the crop yields of subsistence farmers, who have been increasingly able to sell excess produce in the local market.[48]

> Small-scale irrigation is advantageous because it requires lower investment costs, allows farmers to adapt and share knowledge, and does not involve population displacement since large dams or reservoirs are not necessary.[49] Nor does small-scale irrigation have serious negative environmental impacts since it preserves natural habitats while maintaining a high level of efficiency and high returns given the lower implementation costs in comparison to large-scale schemes.[50]

All over Africa, sustainable water management and smallholder irrigation schemes have led to substantial increases in crop yields. In general, small-scale irrigation has 10 times the potential to generate economic returns in Africa than large-scale irrigation schemes since they are easier to implement and more accessible to local communities.[51] Investing in small-scale irrigation and sustainable production systems appears to be the best way to sustain communities, ensure their food security and protect livelihoods while preserving essential natural resources. Yet, for a number of governments, the choice has been made to invest in large-scale irrigation schemes and plantation agriculture, which pose real threats of drying out and imperiling some of Africa's greatest lakes, rivers and the many communities that rely on them.

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