

Defying Britain's Genocide System: Sudan's Great Project in Agriculture

by Hussein Askary

As the world faces one of the deadliest food crises in modern times, Sudanese farmers used modern machines in April of this year to reap the first wheat harvest in Merowe, near the newly built dam by the same name. This harvest, although still small in scale, is a symbol of what can be achieved in Africa, not only to feed Africans, but to give those nations a high living standard within less than a generation. That is not just a possibility, but a reality in progress.

While the public in the United States and Europe was being bombarded by lying, British-orchestrated reports about genocide in Tibet and Darfur, the Chinese and Sudanese nations were finalizing one of the world's major sensations this year—and one of the greatest in Africa in many, many years. This was something which almost no one, outside of activists and readers associated with the LaRouche international movement, heard a word about.

On April 16, workers completed the third and last diversion for the Nile River path, and the closure of the last spillway gate in preparation for the formation of the Merowe Dam's reservoir (**Figure 1**), which stores the water needed for power generation and irrigation. This signalled the near-completion of the largest engineering project in Africa in decades.

This project, which is being accompanied by other large-scale infrastructure and agricultural projects in Sudan, largely in collaboration with China, also signifies the total bankruptcy of the current trans-Atlantic speculative financial system and the dawn of the system of long-term physical-economic collaboration among sovereign nation states.

Sudan is admittedly a poor nation, which has been targeted by Anglo-American destabilization in the form of sanctions, civil war, and threats of invasion, and has been cut off from any financial or economic assistance from the International Monetary Fund, the World Bank, the European Union, and the United States. For Sudan to accomplish such achievements is, to say the least, historic. It shows the tendency in Africa and Southwest Asia to move away from the bankrupt British free-trade system, and into collaboration with what Lyndon LaRouche has called the Strategic Triangle of China, Russia, and India.

But imagine what Africa would look like if the full economic and technological force of the United States and Europe were put behind hundreds of such projects all over the continent! This was the vision of U.S. President Franklin D. Roosevelt in

the 1940s, and now, of Lyndon LaRouche and his associates.

Sudan's emerging oil industry has been developed to a large extent through collaboration with China and Malaysia. The income from the oil has been used wisely to develop the country's infrastructure. China has been involved in building oil pipelines and refineries in Sudan for national consumption and for export. Sudan has also been aided financially by oil-exporting Arab countries in the Gulf, which have realized the importance of Sudan even for their own food security, and have contributed to finance the dam project, and other infrastructure and agricultural projects.

The Merowe Dam and Its Spin-offs

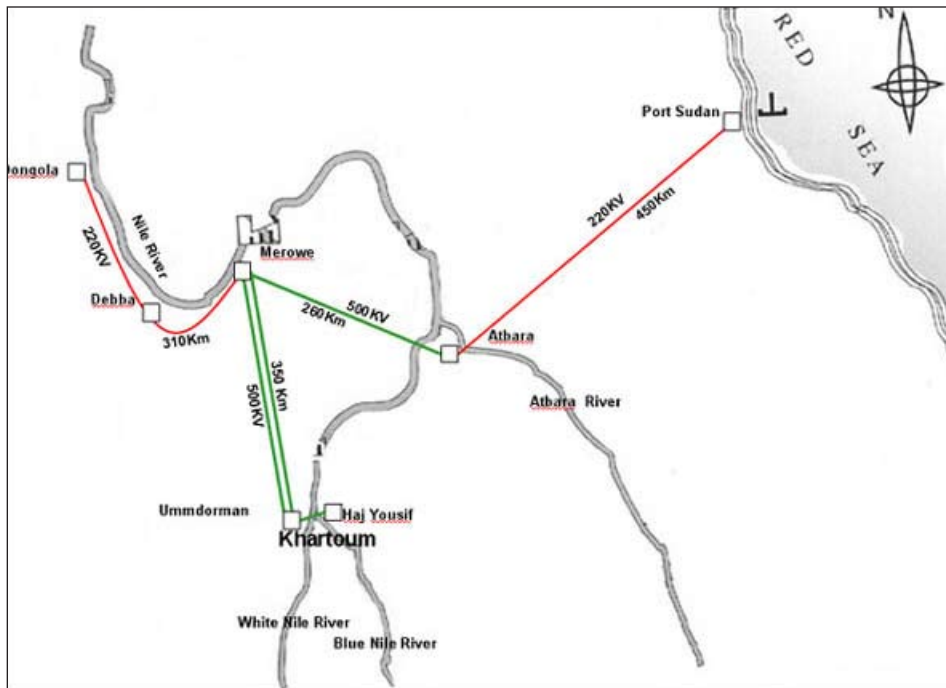
The construction work for the Merowe Dam was launched in 2003, near the city of Merowe at the fourth cataract of the Nile River. It lies about 350km from the capital, Al-Khartoum. The construction work has been largely performed by Chinese and Sudanese engineers. One of the conditions of the contract between the two governments was that the project should include the training of 4,000 Sudanese engineers, who have been involved in all aspects of the construction and installation work.

The main construction work was carried out by a Chinese consortium (CCMD), comprised of two Chinese state-owned companies: The China International Water and Electric Corporation (CWE), and the CWHEC Company, which was involved in the construction of the giant Chinese Three Gorges Dam. Harbin Power Engineering Company, Ltd. is installing the power-generation equipment and will draw the 400-km power lines from the dam to other major cities. The turbines are provided by the French Alstom company, and the German firm Lahmeyer International provided the engineering consultation assistance.

In mid-April this year, the work on the main body of the dam was completed, and the last spillway gate was closed in preparation for the formation of the Merowe Dam's reservoir. The first two turbines (of the Francis type) out of a total of ten, are being installed now, and are expected to start operation in October, producing 250 megawatts per hour. Two of the other eight turbines will be installed every other month, to be completed in Autumn 2009. The new 1,250 megawatts per hour will double Sudan's electricity output on its national network.

This dam project is the largest ongoing engineering proj-

FIGURE 1
Sudan's Merowe Dam



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ect in all of Africa. The 9.2-km-wide project includes a 311-meter homogeneous earth dike and a 4.4-km concrete face rockfill dam on the right bank; a 154-meter spillway, and a 370-m power intake dam in the right river channel and on Mirwi Island. On the left river channel is a 841-m major earth core rockfill dam, and on the left bank, there is a 1.4-km concrete face rockfill dam and 1.7-km earth dike. The dam at the power intake point will stand 67 meters high.

In conjunction with the dam construction, 400 km of high tension electricity transmission lines were built, along with an additional railway line, a 350-km highway, and a major bridge on the Nile, south of the dam, to replace the primitive ferry transport between the towns of Merowe and Karima. The bridge, built jointly by Chinese and Sudanese engineers, is called Friendship Bridge, a fitting name. A new airport is also being built in Merowe, and many industries are expected to move to the region, including mining companies.

New Modern Villages and Farms

The resettlement plan for the affected villages at Hamdab and other areas upstream, is one of the most interesting undertakings in the country. Instead of living in primitive mud houses and working the land with methods that are as old as the ancient pharaohs, 70,000 inhabitants have been compensated and resettled in five modern villages with paved roads, electricity, running water, sewage systems, and modern

schools, health-care centers, and technical-assistance centers for the farmers.

Of great importance for the food question, 100,000 new hectares of farmland have been prepared for the farmers who have been resettled (1 hectare, or ha, is about 2.5 acres). Modern agricultural methods and machinery will be used in cultivating the land. The project will be irrigated through a 41-km irrigation network fed with water from the dam, through a new 9-km canal, which is supported by nine pumping stations to be run with electricity from the dam power station.

In April, about 8,000 hectares of wheat planted the previous year were harvested, with excellent results. The harvest operations were done simultaneously at the three agricultural projects in Hamdab, Amri, and New Manaseer. (The names refer to

the villages that were resettled.) Although limited in scope, this symbolic first harvest is significant, in that it shows what can be achieved in a short time, if the right measures are taken.

The financing of the project reflects the importance of reliance on national sovereign credit and intergovernmental credit lines. Sudan did not get a nickel from the IMF, World Bank, EU, or U.S.A.—which, ironically, could be the reason for the project's success. The \$1.9 billion to finance the project was provided by the Sudanese government (\$575 million) and the Chinese government (\$525 million). The Chinese loans for the project have an allowance period of 6-7 years before the first repayment, and the maximum repayment period is over 20 years. The rest of the funding came from oil-exporting Arab countries in the Gulf, such as the United Arab Emirates, Saudi Arabia, Oman, and Qatar.

There are many other giant projects waiting to be accomplished, especially in collaboration with China, such as the Kajbar Dam farther north, near the Third Cataract. This would be as large as the Merowe Dam.

As expected, a resistance movement to this dam project and other water projects is being organized (literally) out of London; the opposition claims that the water from the dam will bury the Nubian historical heritage. Of course, the government has to take into consideration the social and cultural concerns of the population in these areas, but the only way to do that, is through development, giving the population a decent living standard. And, the only way to accomplish that,

is to build the country's infrastructure and develop its agricultural and industrial potentials.

Sudan's Agricultural Potential

Sudan is Africa's largest country in area, with 2.5 million square kilometers. According to the UN Food and Agriculture Organization and other government estimates, more than one-third of the total area in the country is suitable for agricultural development. This is, however, an underestimate, because it takes into consideration only the current level of technology available, and excludes the real potential of building massive infrastructure in the whole country.

As a nation, Sudan is self-sufficient in basic food requirements. However, lack of rainfall in certain seasons can create acute shortages of food, especially in central Sudan, which points to the necessity of developing water infrastructure systems in that part of the country, to avoid the impact of fluctuations in rainfall.

Sudan has not been called the world's "bread basket" without good reason. A look at the potential of agricultural production in Sudan makes this clear. The cultivable area is estimated at about 105 million hectares, 42% of the total land area, while in 2002, the land that was cultivated only amounted to 16.65 million ha, or 7% of the total land area and 16% of the cultivable area.

As in other African countries, a substantial part of the agricultural output is lost, or productivity is reduced, because of the lack of efficient infrastructure for irrigation and for removing mud and silt from the canals; for lack of pesticides; and for lack of storage facilities and adequate transport of products. With the introduction of modern infrastructure and cultivation techniques, both the cultivable area and productivity would increase beyond the current estimates, to feed not only Africa, but other nations as well.

About 65% of the labor force in Sudan is engaged in farming or livestock grazing, but with a low productivity level. Crop production in 2000 included large quantities of cereal grains, such as sorghum and wheat (3.9 million metric tons); root crops, such as potatoes and yams (170,100 metric tons); fruits, such as dates (963,580 metric tons); and pulses (178,500 metric tons). Sugarcane, processed into sugar by local industry, is also grown. Cotton is Sudan's leading cash crop; it is produced in large amounts in the Al-Gezira Project.

Sudan's livestock population is the second-largest in Africa. In 2000, the livestock numbered 37 million cattle (cows and water buffalo), 40-46 million sheep, 38 million goats, 3 million camels, and 42 million poultry. However, more than 90% of that livestock is raised in traditional pastoral systems, mainly in the western states of Kordofan, Darfur, and in the southern states; the ranches represent a low level of productivity because the animals must cover huge areas of the country to find fodder. Fodder cultivation covered less than 126,000 ha in the late 1990s.



Government of Sudan

With the introduction of modern infrastructure and cultivation techniques to Sudan, productivity would increase, allowing the country to produce enough to feed all of Africa.

The Issue of Water

Sudan has abundant water resources, but, as elaborated here, the variability of water resources, both in terms of rainfall and the rivers, presents a tremendous challenge to the nation.

In addition to the waters of the White and Blue Niles, much rainfall in the South supports both agriculture and cattle grazing. Were the Jonglei Canal (in the state of Jonglei) to be completed, much more water could be saved from the Sudd swamps, and the massive drained area itself would become added agricultural land. The Sudd covers over 16,200 square kilometers.

The Jonglei Canal was projected to be 370 km long, 75 m wide, and 5 to 8 meters deep. About 250 km had been excavated when the work was halted by the civil war in 1983. A new agreement was reportedly signed between the federal Southern Sudan government and the Egyptian government in 2007 to resume the work on the canal. It is estimated that the Jonglei canal project would produce (save) 5-10 cubic kilometers of water per year. Much of that water disappears through evaporation now. The canal would also reduce the river transport distance between south and north Sudan by 300 km.

Sudan's total natural water resources are estimated by the FAO to be 149 cubic kilometers per year, of which 30 cubic km/

yr are internally produced. In a dry year (which happens one out of every ten years), the internal water resources are reduced to about 22.3 cubic km/yr. Of the internal water resources, 28 cubic km/yr are surface water, and 7 cubic km/yr are groundwater. As a result of the Nile Waters Agreement with Egypt, the total actual renewable water resources of the country amount to 64.5 cubic km/yr, and Egypt is to receive 55 cubic km/yr.

The high variability of river flows necessitates storage facilities. The total storage capacity of the existing four main dams (not including the new Merowe Dam) is estimated at 8.73 cubic km, reduced to about 6.90 cubic km because of sedimentation.

- The Sennar Dam on the Blue Nile has a potential capacity of 0.93 cubic km, but a present capacity of 0.60 cubic km. It is used for the flood control and irrigation of the Al-Gezira Project.

- The Roseires Dam on the Blue Nile with a present capacity of 2.2 cubic km is for flood control, hydroelectric power generation, and water for irrigation. In April 2008, Sudanese President Omar Al-Bashir and Chinese Ambassador Li Chengwen signed an agreement to increase the dam height and its water reserve capacity to about 4.0 cubic km. The construction work will be performed jointly by Sudanese engineering companies and the Chinese Sinhydro Corporation. The \$390 million project is partially financed by the Arab Development Fund based in Saudi Arabia.

- The Jabal Al-Awlia Dam on the White Nile has a capacity of 3.5 cubic km.

- The Khashm Al Girba Dam on the Atbara River has a capacity of 1.3 cubic km, but at present it holds only 0.6 cubic km, and is used for flood control, hydropower, and irrigation of the New Halfa Project.

- The Merowe Dam, when completed, will contain a reservoir of 12.5 cubic km, or about 20% of the Nile's annual flow. The reservoir lake is estimated to extend 174 km upstream.

A Fluctuating Water Budget

The fluctuating characteristics of the rainfall and the flow of the Nile make the development of water systems a life-and-death issue for the nation of Sudan. The average annual rainfall is 416 millimeters, but ranges between 25 mm in the dry north and more than 1,600 mm in the tropical rainforests in the South. Rain-fed agriculture in Sudan is mainly concentrated in the Central-South of the country, but is seasonally limited because the dry season extends for about eight months, and the productivity varies widely from one year to another. The potential annual evaporation ranges from 3,000 mm in the North to 1,700 mm in the South.

The fluctuations of water supply extend also to the rivers. The flow of the Blue Nile reflects the seasonality of rainfall over the Ethiopian highlands. The flood period, or wet season, extends from July to October, with the maximum in August-September, and the low flow or dry season extends from November to June. The average annual flow of the Blue Nile and

its tributaries is about 50 cubic km; the daily flow fluctuates between 10 million cubic meters in April, to 500 million cubic meters in August (a ratio of 1:50!). This shows the urgent necessity of regulating the water flow through water management systems.

As for the White Nile, the loss of water in the Sudd swamp area, leaves that area with only about 16 cubic km, out of the 37 cubic km it has on entering it. The daily discharge fluctuates between 50 million cubic meters in April, to 110 million cubic meters in November (a ratio of 1:2). During the flood period, the Blue Nile forms a natural dam that obstructs the flow of the White Nile, and consequently floods the area upstream of the confluence.

Groundwater. The major groundwater basins are the Nubian Sandstone Basin (north and northeast of Sudan) and the Umm Rwaba Basins (west). In 2007, the geologist Dr. Farouk El-Baz said he had discovered the imprint of an ancient underground lake, as large as the state of Massachusetts, in Darfur, where a civil war is raging, fueled by Western intervention and aid. The discovery could make possible the construction of 1,000 wells, which could run for 100 years, El-Baz said. He and a team of 20 other Boston University researchers identified possible streams running from a 5,000-year-old lake, which was once replenished by rain and is now obscured by the arid sands of northern Darfur.

El-Baz, an Egyptian scientist, who worked with NASA on the Apollo Project, has visited Sudan to show his discovery and satellite images to Sudanese officials, and Egypt is helping to drill the first 20 wells. With electricity from the water dams, the underground water will give great hope for economic reconstruction and growth for this dry region.

Irrigated areas. Different Sudanese governments have historically put great emphasis on regional development projects. These have become the main food and income source for the nation generally. The Al-Gezira Project, located in Al-Gezira state, between the Blue and White Niles, before they meet in Khartoum, is the world's largest farming operation under a single management, and provides a substantial portion of foreign exchange and government revenue. This storage irrigation project, which covers 840,000 hectares, has an additional potential of 2 million hectares.

Under the British colonial rule, this project was initiated for production of cotton for the British Empire's textile mills. Part of that legacy remains, as a great part of that area is allocated for cotton production for export. The project is run by the government Ministry of Irrigation and Water Resources (MIWR), jointly with the farmers association through the Al-Gezira Board.

Other major farming projects are the one watered by the Khashm Al-Qirbah Dam on the Atbarah River (Al Qatari state) and the Rahad Project (Southern Kordofan state).

Although the irrigated area in Sudan constitutes only about 11% of the total cultivated land, it contributes more than half of the total volume of the agricultural production. Irri-

gated agriculture has become more and more important over the past few decades, as a result of drought, rainfall variability, and uncertainty. It remains a central option to boost the economy in general and increase the living standard of the majority of the population.

According to the FAO, the total area equipped for irrigation in 2000 was 1,863,000 ha, comprising 1,730,970 ha equipped for full or partial control irrigation, and 132,030 ha equipped for spate irrigation. Only about 800,000 ha, or 43% of the total area, are actually irrigated, because of deterioration of the irrigation and drainage infrastructures. In 1995, surface water was the source for 96% of the total irrigated area land; the remaining 4% was irrigated from groundwater. The irrigated area where pumps are used to lift water was 346,680 ha in 2000.

In May 2008, the Chinese Ambassador to Sudan, Li Chengwen, signed an agreement with the governor of the State of Al-Gezira permitting China to develop 500,000 hectares of land adjacent to the Al-Gezira project. This Chinese initiative can expand potentially to 1 million hectares, which would mean a doubling of the irrigated area in the same project to about 2 million ha.

Additionally, Arab countries, such as the United Arab Emirates, Saudi Arabia, Qatar, Oman, and Jordan have been entering agreements with the government of Sudan to finance new irrigation projects to secure their own food needs.

The Bankrupt Liberal Free Market Policy

The futility of liberal free market policies, can be seen in an anecdote from the Al-Gezira project in the 1990s: Under pressure from the IMF in 1995, and as part of the liberalization of the economy, the government withdrew from financing the cost of irrigation services, among other things. As reported by the FAO, farmers were left to pay irrigation fees to the newly established Irrigation Water Corporation (IWC), which would use these fees to supply water services to the farmers.

Instead of setting up its own mechanism for collecting the fees directly from the farmers, the IWC relied for collection on the agricultural associations that were managing the project. Because the associations themselves were facing financial difficulties, a great part of the fees paid by the farmers were used for other urgent activities. This resulted in the inability of the IWC to collect sufficient resources to deliver the water services. This in turn led to the accumulation of sediment in the irrigation canals, and deterioration of the water regulation structures, machinery, and pumps.

Fortunately, the IWC was dissolved by the government in 2000, and the Ministry of Irrigation and Water Resources once again took responsibility for the management of the irrigation projects. The Ministry of Finance and National Economy now provides the MIWR with the annual budgets for operation and maintenance. And everything is functioning as well as possible.