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## Nubian Aquifer

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# Transition to Nuclear Desalination

by Marcia Merry Baker

Speaking on Nov. 20 in Washington, D.C. on U.S. policy intentions for Sudan, U.S. Presidential Special Envoy to Sudan Andrew Natsios raised the issue of water shortages in the region, and referred to potential use of the Nubian Aquifer. Noting that Libya has installed a \$20 billion system of pumping from the Aquifer to serve its needs, he downplayed the idea that such large sums could be found for use elsewhere. He added that at least the money now going into warfare, could instead fund water projects, if the strife were to end.

In fact, over the past three decades, Lyndon LaRouche

FIGURE 1

### The Nubian Sandstone Aquifer



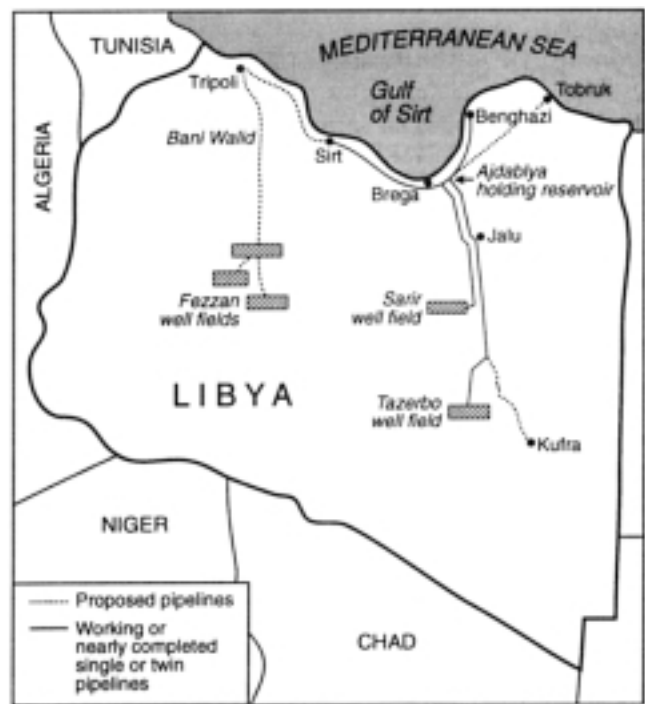
has repeatedly put forward the necessity of an “Oasis Plan” approach to peace, based on the deliberate economic development of the Northeastern Africa/Southwestern Asia desert region. The idea is that fair and high-tech use can be made of the existing scarce water resources of the Nile and Jordan Basins, while new “man-made” natural resources are brought on-line by the siting of nuclear-powered desalination facilities. For example, just 20 nuclear-desalination plants of the modern, ultra-safe design, could *double the entire current annual water volume of the Jordan Basin!*

In 1975, LaRouche, after travelling to Baghdad for meetings with Arab leaders, announced a proposal for an “International Development Bank” for funding just such projects in this region, and other parts of the world. Subsequently, he elaborated IDB specifics for Southwest Asia, which became known as his “Oasis Plan.” In 1980, he circulated this widely in the U.S. Presidential election campaign, in which he was a candidate. In 1990, his policy was submitted to the United Nations, for discussions of the Fourth UN Development Decade. Then, just after the signing of the historic Oslo Accords in September 1993, LaRouche stressed the urgency to get moving on development, issuing a policy statement, “Break Ground Now; Make the Gardens of Jericho Bloom Again!” Instead, the region was again plunged into geopolitical warfare and economic disaster.

Now, the mention of the Nubian Aquifer, in connection with suffering in Darfur, once again throws the spotlight on

FIGURE 2

### Design of Libya’s ‘Great Man-Made River’



the kind of development approach needed on an emergency basis, to build up national economies across the multi-state region as the basis for peace. The immediate geophysical specifics are straightforward.

**Figure 1** shows how the Nubian Sandstone Aquifer spreads under a large multi-nation region of northeast Africa, covering parts of Sudan, Egypt, Libya, and Chad. It is the world’s largest fossil-water reserve, and is strategically located near the center of the world’s largest continuous stretch of desert, spanning the Sahara to the Arabian Peninsula.

The locked-in Nubian lake basins underlie more than 2 million square kilometers of land—about 20 times the area of the Great Lakes of North America. There is not yet a definitive “age” of the system, nor historical flowpaths, but the consensus is that these deposits are geo-hydrologically only about 35,000 years young. The immense fossil-water volume is considered equivalent to about 500 years of average discharge of the Nile River.

### Isotopic Studies Proposed

Isotopic studies are proposed by the Egyptian Atomic Energy Authority and other scientists, to get a refined reading on the geochemistry involved. Deep Aquifer samples can be analyzed. “Because the isotopic description is within the hydrogen-oxygen water molecule itself, samples can be ‘fin-

gerprinted' to understand the mix, flow, origins, and recharge processes," according to the International Atomic Energy Agency.

Hydrologists have mapped the Nubian Aquifer reserves—including with satellite remote sensing as well as test drills, sufficiently to know that, although it is considered a "closed water system," the Aquifer complex of underground lake basins is so vast, and so little used, that it could easily provide supplies in the interim until nuclear-powered desalted seawater came on line.

"Fossil water is simply not renewable. But this doesn't mean that fossil water should be left under the ground. We need to develop and manage it wisely," is the view of the Director of Groundwater for the Egyptian Ministry of Water Resources and Irrigation, Dr. Fatma Abdel Rahman Attia.

## The Libyan Project

At present, the "Great Man-Made River" project in Libya (**Figure 2**) pumps water in the desert, and conveys it through a huge underground pipeline to Tripoli and other Mediterranean coastal population centers. In several Western Egypt desert oasis towns, pumping is supplying newly developed settlements.

Scientific caveats on how to plan to make best use of the groundwater are stressed by Egyptian geologist Dr. Rushdi Said. There is the depth factor. Speaking of western Egypt in a 2003 interview with *EIR*, Dr. Said said, "It's deep, and you need a lot of energy to lift it up out of the ground. So it will make agriculture very expensive. The solution is to use that limited fossil water for a more useful thing—into manufacturing. Use it for industry, rather than agriculture. . . . Just imagine that you will have a deep well of 600 meters below the surface of the Earth—2,000 feet to lift it up."

Dr. Said, who worked on the Libyan "Great River" project, shown in Figure 2, said that he had proposed a counterplan. "My suggestion was, rather than moving it to the North, just keep it there [in southern Libya]. And since you will have farmers from Egypt anyhow coming, bring them to the South. Because it's very expensive to transport that water. . . . The groundwater should be used where it is, and in manufacturing industries. First of all, it's fossil water. Once you get it, you don't replace it."

The recommendation, in Dr. Said's overview, is that there is a mutual interest for a division of labor between regions and countries in northeast Africa, based on resources. Sudan has great agriculture potential—with ample water in southern Sudan—"a beautiful area to develop." Egypt should use the fossil water for industrial development, until nuclear-desalted supplies come on-line. He said that "the best union you can have, is with the Sudan, of course. And that's why, the history of Egypt was tied with the Sudan all the time. The separation of the two countries is bad for the Sudan, and bad for Egypt."