LaRouche's Oasis Plan: Developing The Desert Is the Basis for Peace

by Marcia Merry Baker

Lyndon LaRouche has put forward formulations of his "Oasis Plan" of economic great projects for Southwest Asia and North Africa since the beginnings, in 1975, of his discussions of a common policy with leading Israelis and Arabs. This "Oasis" outline was published in EIR*, Jan. 5, 1996 and excerpted in a Special Report, "Who Is Sparking Religious War in the Middle East," in December 2000.*

The Oasis Plan outlined by Lyndon LaRouche as essential to peace in the region of Southwest Asia, refers to a program encompassing already-proposed water management, transportation, and other projects, combined with the large-scale use of nuclear power to desalinate water, to establish systems of canals, energy supplies, and new freshwater sources throughout the Middle East-North Africa region, through strategic growth corridors, on a scale equivalent to adding the water volumes of new, "man-made River Jordans." By this means, along with agricultural and industrial facilities, and the related provision of social infrastructure—housing, schools, health care, towns, cultural centers—the foundation is provided for economic development and durable peace.

We present here a summary picture of the priority projects for the region.

Power To Make 'New Jordan Rivers'

First, consider what we can do with nuclear energy. Take an hypothetical case: Imagine an agro-industrial colony in the middle of a desert, in a location not conveniently reachable from a variety of freshwater management projects now on the drawing boards, but adjacent to salt water from the sea.

We take half a dozen high-temperature nuclear reactor (HTR) modules, of the type which today could be produced on assembly lines. We put together these modules into a power plant producing 1-2 gigawatts of electric generating power and an additional 1-2 gigawatts of usable heat output. We apply a portion of that electric and thermal output to desalinating seawater, using a combination of existing processes, at the rate of 70-100 cubic meters per second. This provides ample freshwater for the domestic, irrigation, and industrial needs of a self-sustaining agro-industrial colony of 1 million people—in the middle of a desert! The rest of the HTR power we use for pumping, between the sea and the location of our colony (at an elevation of, let us say, 400 meters). A few more nuclear units cover the electricity and process-heat requirements of the colony itself. The entire complex, centered on the nuclear power sources, is an updated version of the 1950s "nuplex" designs of Atoms for Peace and Project Plowshare.

Two dozen of such large-scale HTR desalination centers could produce rates of freshwater flows equivalent to that of the Nile and Euphrates combined—a man-made river system!

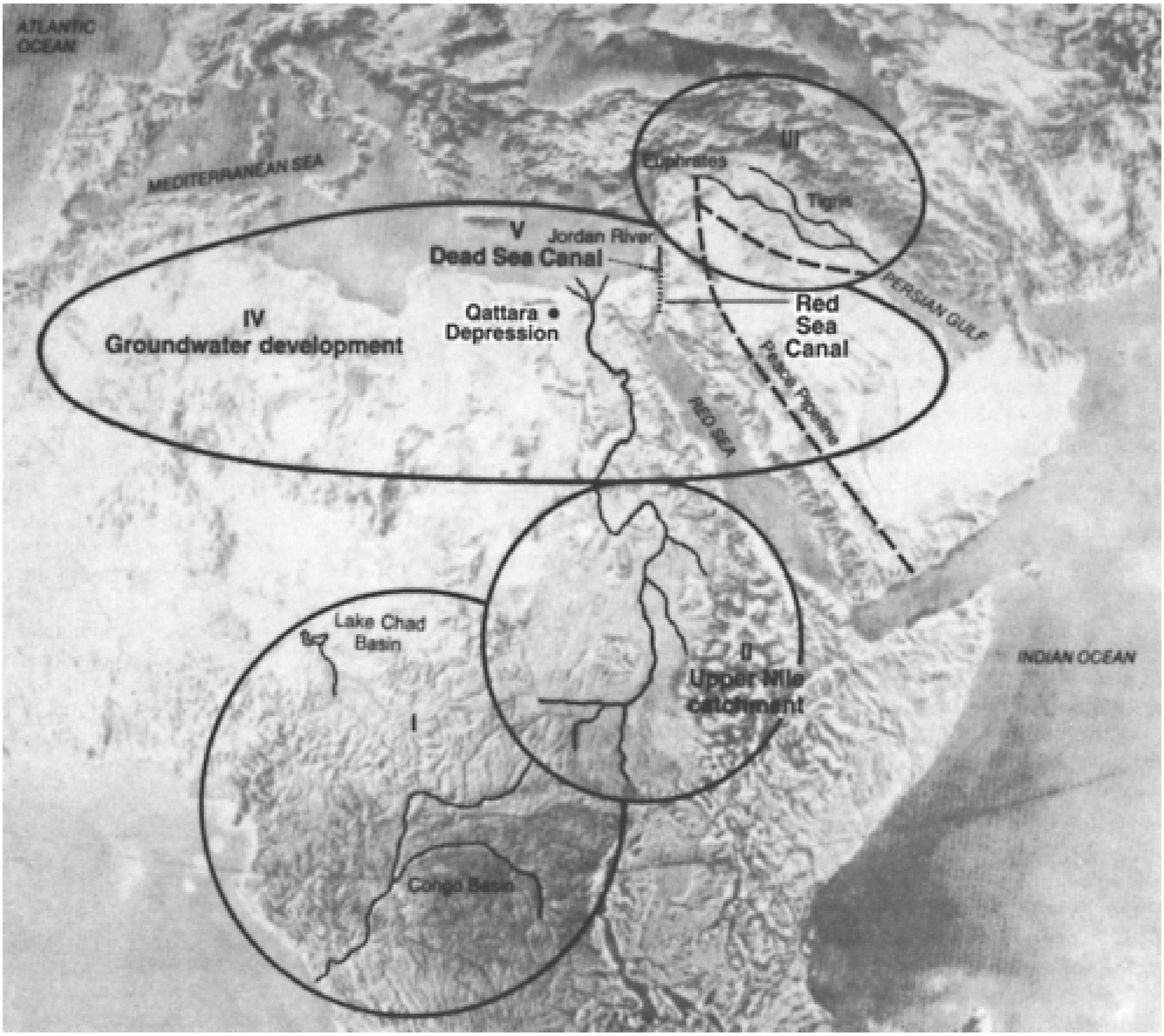
Project designs for smaller, modular HTR units are at the ready-to-go engineering stage from the German firm Siemens and the Swedish-Swiss combine Asea Brown Boveri; and also from California-based General Atomics. The HTR modules possess characteristics of stability and inherent safety which make them ideally suited for the region.

For example, the General Atomics power plant design, first proposed for a Pacific coast location in southern California, has four modules (each at 135 megawatts-electric), located underground, for a total power output of about 540 megawatts; which gives a net electrical output of 466 megawatts, after fueling the attached multi-stage flash distillation process for desalting sea water. In the most advanced design, electrical power can be drawn off the helium gas cycle directly, without the need for turbine generators. It would take about 22 of this type of facility to provide the volume of water equal to the current 3,500 million cubic meters of renewable water in the Jordan River Basin—in other words, a second Jordan River.

Complete desalination units, including nuclear power sources, can be built in assembly-line fashion, and shipped into place on floating platforms for rapid transport and installation. The technology and most of the development work for such mass-produced units are already complete.

This application of nuclear power illustrates what can be done more generally, with the quality of productive power which nuclear technology embodies. Apart from the unlimited potential of desalination, it is eminently possible to transfer huge quantities of freshwater from areas with a surplus of such water—above all, the tropical rain regions of Central Africa—into the Sahel, North Africa, and even into the Middle East. Projects to accomplish this, through systems of canals, reservoirs, and pumping stations, have long been on the drawing boards.

FIGURE 1
Major Water Development Projects for the Middle East



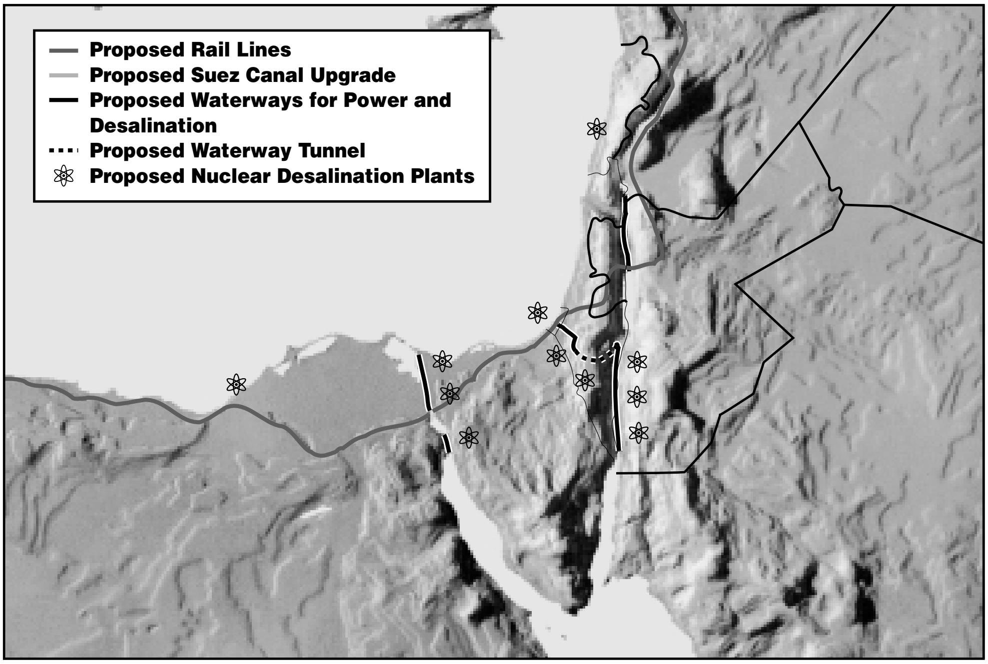
The Great Projects

Engineering plans exist for the following projects (**Figure 1**):

- Transferring water from the Zaire (Congo) basin, out of the Ubangi River system, into the Lake Chad basin to stabilize the lake and provide water resources for Sahel development.
- Capturing more of the White and Blue Nile Rivers to improve the headlands and downriver regions.
- Developing the groundwater resources from underneath the Sahara, from North Africa across to northern Somalia, and under the Arabian Desert. In particular, there is a plan for the Qattara Depression in northern Egypt, where a huge dry hole is a made-to-order lake bed for seawater to be transferred in via a 35-mile canal from the Mediterranean. In Libya, 1992 saw the opening of the "Great Man-Made River" project, in which water is pumped up from under the Sahara and carried by a huge underground pipeline to population centers on the Mediterranean coast which are otherwise running out of water.
- The centerpiece projects of the entire region are proposed canals that would connect the Dead Sea either to the

FIGURE 2

LaRouche's 'Oasis Plan' for Development of Middle East Crossroads



Lyndon LaRouche's "Oasis Plan" for the Mideast features canals linking the Mediterranean with the Dead Sea and/or the Red Sea to Dead Sea to provide fresh water for agriculture, industry, and domestic use. Shown are the general locations for nuclear-powered desalination facilities to provide, in effect, a new Jordan River.

Mediterranean, or to the Red Sea, or to both, serving as seawater channels, along which nuclear-powered desalination units can provide the water resource base for development corridors throughout the region **Figure 2.** shows schematically the possible routes of these canals.

Through these and related projects, significant improvements in the water supply of the Southwest Asian and North African nations could be realized within a few years, with dramatic improvements accruing by the turn of the century.

Man-made Rivers and Lakes

Thus, with plentiful power, a network of man-made rivers and lakes can be created to span strategic regions of North Africa and the Middle East, with water from the Mediterranean, Red Sea, Persian Gulf, and Arabian Sea. Then, at selected inland points, nuclear-powered desalinated seawater can provide required volumes of freshwater, that, in turn, can be piped, stored, and used as a new water resource base.

Where necessary, seawater must first be raised through pumping to points from which the water can then flow through the canal system of channels and lakes, or storage basins. The power for this can be supplied by nuclear reactors. Where the creation of canals and storage basins requires large earth-moving operations, nuclear excavation can be employed with advantage.

The volumes of salt water channeled inland from the seas will serve several purposes. First, they supply the desalination plants and various industries along their banks and shores. Second, they provide a means of transport, together with the canals. Third, the water from these lakes enhances the water cycle of the atmosphere; and there are potential hydrostatic benefits for the groundwater.

Along the canals and reservoirs we can construct "nuplexes"—complexes of nuclear power and various sizes of desalination units, generating freshwater for the spectrum of uses required—"protected" desert agriculture (hydroponics, drip-irrigation, greenhouses, etc.), food processing, industrial and chemical processing, and residential. Extensive tunnel and piping distribution systems can provide freshwater farther away, to more distant areas, thus creating "green bands" of growth based on new "artificial rivers."

The courses of the seawater canals, and the locations of freshwater creation and potential "green bands" must be determined on the basis of geographical, geological, and infrastructural considerations, bearing in mind the future growth of population and transport.

The ability to provide freshwater in the indicated fashion also points to the future potential of beneficial modifications of the climate in the region. Evaporation from lakes and reservoirs, and above all, transpiration from plants and the other effects deriving from large-scale, irrigated, intensive agriculture in desert areas, greatly enhance the natural processes for generation of rain. Provided that water management and agriculture expand in parallel with the increase in rainfall, this process becomes self-accelerating. The throughput of water among the atmosphere, sea, land, and biomass grows to the point that the deserts tend to diminish, in favor of a milder, "Mediterranean" climate.

War Against the Desert

The process outlined here can be usefully thought of as a war against the desert, with the goal of eventually attaining "final and complete victory." Freshwater is the immediate ammunition, and the "frontline soldiers" are the construction workers and corps of engineers who build the canals, towns, industrial complexes, and railways, and the farmers who work the greenhouses, and irrigated land "conquered" from the desert. "Behind the lines" are the industrial workers and engineers who provide the "armaments" for the "war": steel, concrete, piping, desalination and power equipment, bulldozers and tractors, and prefabricated housing. Each new piece of territory won from the "enemy" must be consolidated, colonized, and converted into a base for further assaults on the "enemy." The measure of firepower is the amount of useful energy which can be applied per square kilometer and per capita, in terms of intensities of agricultural, industrial, and infrastructural activity.

Just as with real armaments, increasing the firepower is a question of the level of technology. In the face of such a formidable enemy as the deserts of North Africa and the Middle East, we would be foolish not to employ the most modern arms available—"nuclear weapons," such as the high-temperature reactor, combined with advanced desalination technologies, and so forth.

The ability to use these weapons of modern technology depends on the education, training, and moral qualities of the soldiers and those who must supply and maintain such weapons. To these are added the scientists and engineers who must constantly develop and perfect new weapons in the course of the war. Ultimately, it is the productive power of society, the expansion of its economic base, which determines whether or not the protracted war against the deserts will end in victory.

Social Infrastructure

Ranking equally with the need for water in the region is the need for provision of housing, health care, education, cultural and religious centers, and all manner of social infrastructure. Despite strife and economic hardship, several local examples of new town development show the way.

For example, in the East Egyptian Desert, in the 1980s, agriculture complexes were created from the ground up, located at chosen sites convenient to new experimental agriculture development zones. Power was supplied for pumping groundwater. Where for the past 5,000 years only desert brush grew, water was supplied, and soils "created" by a scientific sequence of cropping, resulting in humus formation and good yields.

Wholly new towns were designed and built for the new residents, accounting for dwellings, schools, shops, religious and cultural centers, with attention to the architectural features. Now the design and construction of new towns becomes the foremost Great Project of the accords.

Let's Complete the Projects!

An immediate goal is to complete the rail lines along the main routes of Istanbul-Baghdad-Basra-Kuwait, Aleppo-Damascus-Amman-Jiddah-Mecca, Alexandria-Qattara, and Heluan-Bahariyah-Qattara.

Since the conceptual work done by the Arab governments in the 1970s, additional useful projects have been envisaged, especially in connection with the Oslo Peace Accords (**Figure 3.** Resuming work on the Syrian-Jordanian segment of the old Hedjaz railroad, in connection with a Jordan Valley development project with extended operations at the ports of Tripoli, Haifa, and Aqaba and with the modernization of rail links between these ports, would create a joint region of rapid economic growth that could define mutual, sound interests in peace between Israel and its Arab neighbors.

Furthermore, direct cooperation between the Suez Canal and the port of Aqaba could serve the development of a riparian urban culture along the western rim of the Arabian Peninsula, from Aqaba to Jiddah and Aden, and launch a mirror development on the western rim of the Red Sea, along the eastern African coast from Suez to Djibouti.

The natural extension westward of Egypt's Qattara development project would be the construction of a trans-Maghreb rail route from Alexandria to Oran to Tangier, along the Mediterranean coast of northern Africa, and the construction of another rail link from the Nile to the Lake Chad development project in northern Central Africa.

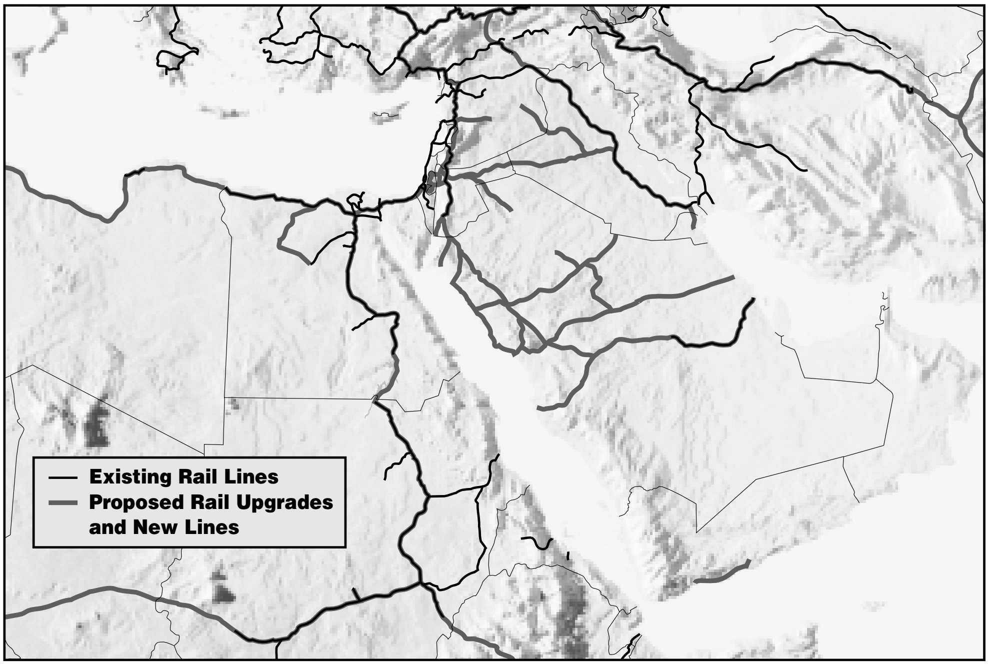
The creation of a rail ferry link from southern Italy and Sicily to the Libyan port of Tripoli, plus the drilling of two rail tunnels below the Strait of Gibraltar in the west and beneath the Dardanelles in the east (modelled on the Channel Tunnel between France and Britain), would establish three central connections of modern transport infrastructure among Africa, the Middle East, and the envisaged Productive Triangle in central Europe.

Generally speaking, the main trans-Arabian rail routes should be laid out in a two-track mode, at least, and eventually even in three or four tracks, to provide a basic, future-oriented rail grid that could last for the next 100 years. Electrification and broadening of many old tracks from the 1,000 mm gauge to the European standard gauge of 1,435 mm width is necessary to link the entire rail infrastructure of the North African and Middle Eastern regions to the modern rail grid of Europe.

If done properly, concentrated investments in the transport infrastructure, with emphasis on modernized and high-speed railroads, could lay the groundwork for a great region of economic cooperation among Europe, Africa, and the Middle East that would, after a long period of war and conflict, manipulation, and imperialist ventures, finally make the Mediterranean a lake of peace and development.

FIGURE 3

Greater Middle East, Existing and Proposed Rail Development (Arab League)



Selected rail route proposals, shown against existing lines, from the 1970s Arab League's "Guidelines for Railroad Projects in the Middle East," and from 1994 Palestinian Authority and Jordanian proposals. This is the crossroads between Eurasia and Africa.

Moving Water from Surplus To Deficit Regions

I. Developing the Waters of the Highlands of Turkey Through Iran

The famed Euphrates and Tigris Rivers rise in the mountains of Turkey, and flow into the Persian Gulf through Iraq. In ancient times, the runoff from the slopes arcing through Lebanon, southern Turkey, Syria, Iraq and Iran formed a belt of lush agriculture known as the Fertile Crescent. With today's technology, dams, man-made channels and storage lakes could be created all along the watersheds to vastly expand the fertile agricultural zone in this region, and also serve industrial processing.

Iraq embarked on these projects: the building of straight channels in the Shatt al-Arab, the construction of the open holding tank before the juncture of the Tigris and Euphrates, the plans for the Badush Dam near Mosul.

Upriver on the Euphrates, Syria completed the large Al-Thawra Dam in 1975. In April 1990, a draft treaty was concluded between Syria and Iraq for sharing the Euphrates. Previously, Turkey was also part of the treaty negotiations for water-sharing agreements.

In 1986, Turkish President Turgut Ozal proposed a "Peace Pipeline," which would take water from the Ceyhan and Seyhan Rivers in southern Turkey—now flowing unused into the Mediterranean, and transport it southward by twin pipelines all the way to Yemen, and towards Kuwait. It would be drinking quality water, and pipes could tap off to Lebanon, Syria, Jordan, Israel, Saudi Arabia, and Yemen. U.S. and London officials ridiculed the Peace Pipeline as "propaganda," and at the time of the first Iraq war, pressured Turkey to restrict the flow of the Euphrates River to Iraq—also harming Syria.

The Euphrates water is being withheld by the giant Ataturk Dam, constructed from 1985-1990, whose reservoir can hold as much as 50 billion cubic meters of water, which is more than the total annual flow of the Euphrates from Turkey to Syria. The Ataturk is the fifth largest earthen dam in the world, and was intended to be the centerpiece in the "GAP" (General Anatolian Development) plan, involving 21 projected dams on the upper reaches of the Tigris and Euphrates in southeastern Turkey. There were plans for sharing irrigation water with Syria from the Ataturk Reservoir, and other water sharing agreements for the entire region.

II. Utilizing Groundwater

Eleven distinct basins of underground rivers and lakes have been charted under the deserts of northern Africa, and also aquifers under the northeastern Arabian Peninsula, and points east into India's Deccan Plateau.

Limited utilization of these has shown the fabulous results that are possible. Saudi Arabia has over 2 million acres of wheat cultivation watered from aquifers under the desert, making it self-sufficient in wheat. Pilot projects in Egypt have created new "oasis towns" in the East Egypt Desert.

The grandest project to date is the "GMR"—Great Manmade River program—in Libya. The scheme involves pipelines of prestressed concrete, up to 4 meters in diameter, to carry water from aquifers under the desert in southern

Libya, northward to the water-short population centers along the Mediterranean coast. Construction began in 1984 on the first phase, which is a twin pipeline taking water 1900 kilometers from the Sirt and Kufra basins north to lines serving Benghazi, Brega and Sirt. It is now in operation.

In Southwest Asia, however, Washington and London officials have intervened to prevent development of underground water, issuing every variety of rationalization, including the imperial assertion that "fossil water" (the name for old water trapped underground), simply should not be used because it is old. Libya faced the same opposition, but went ahead.

III. Dead Sea Canal, Qatarra Depression Lake

A canal could be run from the Mediterranean to the Dead Sea, to serve as a development pathway for the region. This Dead Sea Canal could be lined with new agroindustrial centers, each drawing power from a nuclear plant. One of the main industries would be desalination—producing freshwater from seawater using power from the nuclear plant. The watercourse thus becomes a corridor for urban growth, and a location for industries and farming in the adjacent region. There have been many proposed routes. The idea of Prof. Haim Ben-Shara, former president of Tel Aviv Unviersity, was to stress power generation rather than water, based on creating a series of waterfalls going into the Dead Sea in its southern end. Originally, there were protocols envisaged to involve Jordan in the development benefits.

These intentions have all been dashed in the sequence of wars and crises of the past 30 years. They were revived again in the Oslo Peace Agreement of 1994, but were blocked by IMF and World Bank refusal to approve funds for such projects, and their demise was assured by the outbreak of new armed conflict with the Ariel Sharon government since 2000.

Development of the Jordan River Basin for the mutual benefit of Syria, Lebanon, Israel, Jordan and the Palestinians has likewise been obstructed. In the mid-1950s, the men who had successfully established the Tennessee Valley Authority (TVA) worked up a plan for the Jordan Valley Authority which they presented to the nations of the region and the UN. During the 1930s and '40s, the TVA built 20 dams, improved channels and did other work in the Tennessee River basin; and the Jordan project involved many dams on feeder rivers and other plans that were never acted upon. Now water usage has reached the maximum available in the Jordan Basin.

In northern Egypt, only 35 miles south of the Mediterranean Sea, is a huge, dank, sinkwell, 185 miles long, called the Qattara Depression. A water channel could be cut to within a few miles of this depression, then water could be transported to the steep escarpments, creating man-made waterfalls with great hydro-power potential. A German engineering plan estimated that 2.7 billion kilowatt-hours of electricity a year could be realized. The Qatarra is only 140 miles west of Cairo, making the transmission of electricity easy. In addition, hydroelectricity could be used to desalinate the sea, and create a huge, expanding oasis.

IV. Jonglei Canal Plan

A canal to create a straight channel for the upper White Nile, which meets the Blue Nile at Khartoum the capital of Sudan, and creates the Nile, would capture millions more gallons of water for the benefit of the 25 million Sudanese and 60 millions Egyptians downstream. As it is, the upper White Nile is a swamp in southern Sudan—the breeding grounds for malaria and parasites, and a barrier to travel and communications. Called the Sudd (which means barrier or swamp in Arabic), this marshland loses millions of gallons of water to evaporation. The waters of the Nile could be increased by 5% by capturing more of this water, and construction on the Jonglei Canal—named for the local region—began in 1978.

A huge self-propelled digging machine was brought in from previous work on the Jhelum Link Canal in Pakistan. Able to lift 3,500 tons of earth per hour, this was the largest excavator in the world, owned by the French consortium CCI (Compagnie de Constructions Internationales) and built by Krupp. The Jonglei Canal embankment itself is wide enough for a multi-lane highway, and for small planes to land.

However, in 1983, all work on the canal ceased because of rebel action, and opposition from the International Monetary Fund, the World Bank and the World Wildlife Fund. Excavation has been completed on 240 kilometers out of 360 total, but now all work has stopped.

The IMF also demanded that Sudan focus any new projects on cash crops for export. Within three years of acquiescing to the IMF in the 1970s, the first famine occurred in Sudan—territorially the largest nation in Africa, and equivalent to the U.S. Great Plains in agro-ecological potential.

New Desalination Technologies

About 60% of all the world's desalination plants are located in the Mideast. Turning salt water into drinking water requires reducing the parts per million (ppm) of dissolved solids (80% of which is sodium chloride or salt) from 35,000 ppm to less than 500 ppm, a reduction of 70 to 1. There are three methods of desalination: 1) distillation (evaporation using steam heat), 2) the reverse osmosis membrane system, and 3) electrolysis. Today, most of the plants are some form of the first method, using using multi-stage, vapor-compression systems. The efficiency of most of the Mideast plants is low, which has been acceptable only because of the low cost of local energy—for example, flare gas—that would otherwise be wasted from the oil fields.

However, with the provision of nuclear power to the region, and also the development of more intensive, efficient desalination methods, vastly more water can be made available per capita. The route for research and development on desalination should include optical biophysics, to study the how water "behaves" differently in retaining salts in living organisms, than in the surrounding medium.