

## Creating a network of rivers and lakes in the desert

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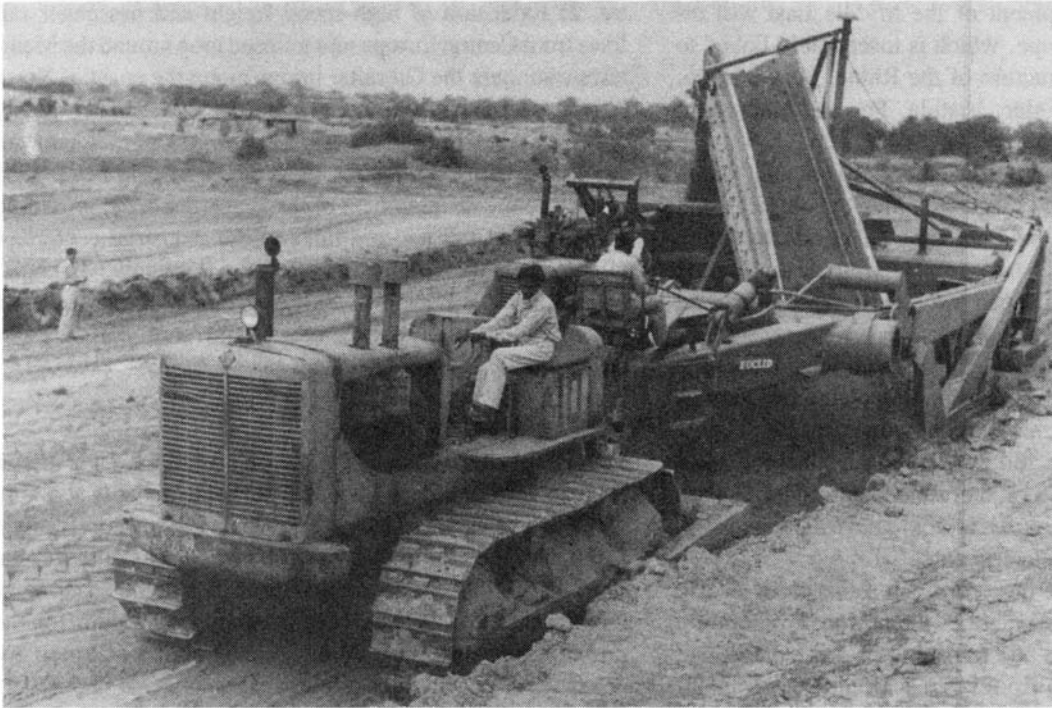
Without water there is no life. He who can bring fresh water to the deserts, wields a power greater than any force of arms, a life-giving power which alone can bring stable peace to the tortured Middle East.

Contrary to the conceptions of British "economics," fresh water is not a limited resource. Based on the expansion of human productive powers, through science and technology, we can generate as much fresh water as human needs will ever require—anywhere on this planet, at any level of population, and at any time in the future. The same is true of every other commodity needed to sustain and enrich human life. The doctrine of "limited resources" is a lie, propagated by imperialists who seek to control nations and populations by imposing artificial scarcity.

We call for combining a series of already proposed water-management projects with the large-scale use of nuclear power to desalinate water, to establish a system of reservoirs and man-made fresh water canals and rivers throughout the Middle East-North Africa region. By this means, we can meet all foreseeable water needs and provide the foundation for development and peace into the next century.

Consider what we can do with nuclear energy. Take an extreme case: an agro-industrial colony in the middle of a desert, in a location not easily reachable from fresh water-management projects now on the drawing boards. We take half a dozen high temperature reactor (HTR) modules of a type which today can be produced on an assembly line. We put 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 desalinate sea water, using a combination of existing processes, to the rate of 70-100 cubic meters per second. This provides ample fresh water for the domestic, irrigation, and industrial needs of a self-sustaining agro-industrial colony of 1 million people. 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.

Two dozen such HTR-desalination centers produce a flow of fresh water



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*Contrary to the beliefs of the imperialists and ecologists, we can generate as much water as human beings require, anywhere on Earth. India, with over 50,000 dams, has great experience in greening the desert, and its engineering expertise is a potential treasure for water management in the Mideast. Shown here: Earth-moving equipment at work on the construction of the Panchet Hill Dam in India, a giant project of the 1950s that developed the Damodar River system.*

equivalent to that of the Nile and Euphrates combined—a man-made river system.

In practice, the actual size of desalination complexes can vary over a wide range, using recently perfected modular nuclear reactor designs. Complete desalination units, including nuclear power sources, can be built in assembly-line fashion on floating platforms for rapid transport and installation. The technology and most of the development work for such mass-produced units are already complete. The HTR modules possess stability and inherent safety characteristics which make them ideally suited for large-scale use throughout the region.

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 fresh water from areas with a surplus of such water—above all the tropical rain regions of Central Africa—into the Sahel, North Africa, and the Middle East. Projects to accomplish this, through systems of canals, reservoirs, and pumping stations, have long been on the drawing boards. Included are projects for channeling water from the Congo River system (Ubangi) to expand Lake Chad, and for generating a “second Nile” by further developing the source regions of the “White Nile.” To this is added a smaller, but significant and expandable fresh water potential which could be pumped from Turkey to its southern neighbors, as proposed by the Turkish government in its “Peace Pipeline” plan. Through these and related projects, significant improvements in the water supply of the Middle East and North

Africa could be realized within a few years, with dramatic improvements by the year 2000.

It is crucial that the water flows thus generated not be dispersed in an arbitrary manner, but be organized and concentrated in a network of man-made rivers and lakes.

Water from the Mediterranean, Red Sea, Persian Gulf, and Arabian Sea can be channeled via canals into a series of artificial reservoirs. The variants of the Qattara Depression reservoir project in Egypt and the plan to refill the Dead Sea from the Mediterranean, are illustrative of some ways in which this can be accomplished. Where necessary, water must first be raised through pumping to points from which the water can then flow to reservoirs via canals. The power for this can be supplied by nuclear reactors. Where the creation of canals and reservoir basins requires large earth-moving operations, nuclear excavation can be employed with advantage. Canals provide both the water flow to fill the reservoirs, and also a transport means. Along the canals and reservoirs we can construct complexes of nuclear power and large desalination units, generating fresh water for a system of fresh-water canals. Large-scale use of desalination is complemented by channeling and pumping of fresh water from natural sources.

Instead of simply spreading the fresh water around evenly in an irrigation system, we can create with these rivers a network of interconnected “green bands” of development. As opposed to mere isolated “green islands,” these green bands become at the same time transportation axes for the movement of goods and persons by ship, rail, and road, and the locations for new towns, cities, and industrial complexes.

In this way, the development of the Middle East will re-create the history of Europe, which is inseparably linked to the natural water infrastructure of the Rhine, Seine, Loire, Rhone, Danube, Elbe, Oder, Vistula, Po, and other great rivers.

The locations and courses of the new rivers and "green bands" must be determined by geographical, geological, and infrastructural considerations, bearing in mind the future growth of population and transport as well as the regime of water flows which will arise through increase in natural rainfall.

The reservoirs of (salt) water channeled inland from the seas will serve to supply the desalination plants and various industries along their shores; provide a means of transport, together with the canals; and evaporation from these lakes enhances the water cycle of the atmosphere. The Qattara Depression and Dead Sea projects would have these benefits, in addition to their hydroelectric potential.

The ability to provide flows of fresh water gives us also the power to modify the climate of the region. Evaporation from lakes and reservoirs and transpiration from plants and the other effects deriving from large-scale, irrigated, intensive agriculture in desert areas, enhances 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 finally disappear, and a mild, "Mediterranean" climate is established.

### Link to the 'Productive Triangle' in Europe

The most essential precondition for the proposals outlined here, is the speedy realization of Lyndon LaRouche's infrastructure development program for the Paris-Berlin-Vienna "Productive Triangle." The fate of the Middle East is inseparably linked to generating a new "economic miracle" in Central Europe via high-speed rail and magnetic levitation systems and a renaissance of nuclear energy. Given the collapse of the U.S. economy, it is continental Europe, together with Japan, which must provide the decisive margin of technology for developing the Mideast. This includes the mass production of nuclear modules and desalination units over the next 15-20 years.

In this context, we must upgrade the transport infrastructure between North Africa, the Middle East, and the "Productive Triangle" in Europe. The LaRouche "Triangle" program provides for a series of infrastructure corridors known as "spiral arms," which link the core Paris-Berlin-Vienna region to the entirety of continental Europe and which include connections to the southern tip of Spain, a bridge to Sicily, high-speed rail connections to Istanbul, and connections to the Black Sea. These infrastructure corridors must now be extended to embrace North Africa-Middle East in the following manner: 1) Construction of a bridge over the Strait of Gibralt-

ar. 2) Extension of high-speed freight and passenger rail lines from Central Europe into a closed loop around the Mediterranean: over the Gibraltar bridge along the coast of North Africa, over the Suez Canal to Israel-Jordan-Lebanon-Syria, and via Turkey back to Central Europe. 3) Upgrading of rail connections through Turkey into Iraq, Iran, and beyond. 4) Infrastructure development of the Black Sea area, providing for improved rail and sea links to the industrial centers of Ukraine, via the "Danube arm" of the Productive Triangle, and through the Caucasus. 5) Improvement of maritime and pipeline connections between Sicily and North Africa (Tunisia), with the option of a tunnel.

### 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." Europe's Productive Triangle is the decisive ally in this war. To cement this alliance, we must clarify that the common interest lies in the securing of long-term peace and the generation of real wealth for the present and future generations. This requires a common understanding of what constitutes real wealth, as opposed to fraudulent (British) notions.

There is no wealth apart from the power to maintain human life. In the war against the desert, we must maintain and extend human life in a hostile environment, just as man one day in the future will conquer Mars and other planets. It is the power to do that which constitutes, in first approximation, real wealth. Wealth resides in the power to advance the productive powers of labor, as measured by the relative potential population density of a society: the maximum density of population which could sustain itself, by the forms of economic activity prevailing in that society, per square kilometer of any given quality of land. It is growth of productive powers—to *produce* what human beings require to live and work *productively*—that constitutes real wealth, not "natural resources" in and of themselves. This is proven by the huge population density in Japan and Western Europe, which are poor in natural resources compared to many other regions of the world, but have achieved high rates of progress.

Oil, for example, has no intrinsic value in and of itself. It is useless without the technologies which extract, refine, and consume that oil. Only through technology does oil become useful for the maintenance of human life. And the progress of technology will one day make oil obsolete.

Water would seem to be immediately valuable, for life is impossible without it. But, is it the immediate possession of some quantity of water now which constitutes wealth, or the power to *generate* sources of water in any quantity into the future? If we have water to drink today, but are going to thirst tomorrow, is that wealth?

In the following pages, we present the major projects that must become reality to bring water and peace to the Middle East.