

NAWAPA XXI NOW!

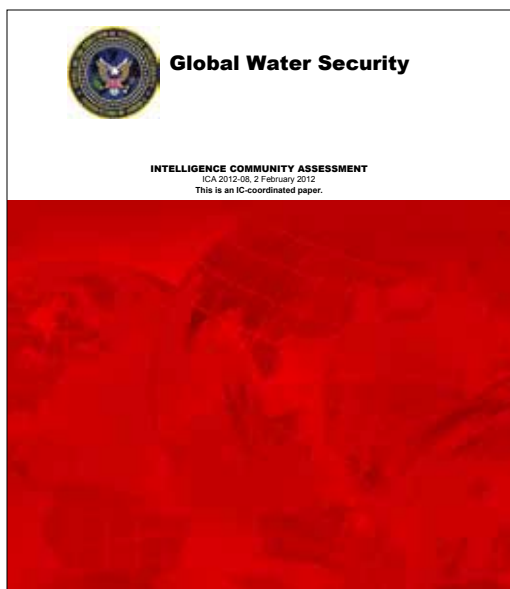
‘Water Security’ Report Threatens National Security

by Marcia Merry Baker

March 31—The urgency of immediate adoption by the United States of LaRouchePAC’s [NAWAPA XXI](#)—an action program to restore the United States and the world system of nation-states back onto the path of progress and security, and away from the present collapse and warfare, by creating massive new water resources—is dramatized by a new report from the highest intelligence institution in the United States on the question of water security.

The *Global Water Security report*, issued in February by the U.S. Office of the Director of National Intelligence, is an assessment of the strategic implications of world water supply problems from now to 2040. It is an unclassified version of a National Security Estimate (NIE).

It proceeds from the premises which have been imposed on the world by British imperial greenie-ism and monetarism over the last 50 years. Rejecting the scientific and traditional American view that it is man’s intervention into the biosphere that *creates* resources, this report, like the Club of Rome’s now-discredited *Limits to Growth* of 40 years ago, argues that water resources



are fixed and can only be better “managed,” not expanded. Therefore, the report argues, “water wars” are inevitable and the United States must be prepared to deal with them.

Faulty Assumptions

The principal drafter of the 30-page *Global Water Security* was the Defense Intelligence Agency (DIA), with contributions from the CIA, Department of Energy, State Department/Bureau of Intelligence and Research, the National Geospatial Intelligence Agency, and others.

The report was commissioned by the State Department, and done under the auspices of the Director of the Strategic Futures Group. (Intelligence Community Assessment 2012-08, 2 February 2012).

The report’s conclusion is: “We assess that during the next 10 years, many countries important to the United States will experience water problems—shortages, poor water quality, or floods—that will risk instability and state failure, increase regional tensions, and distract them from working with the United States on important US policy objectives. Between now and 2040, freshwater availability will not keep up with

demand. . . .”

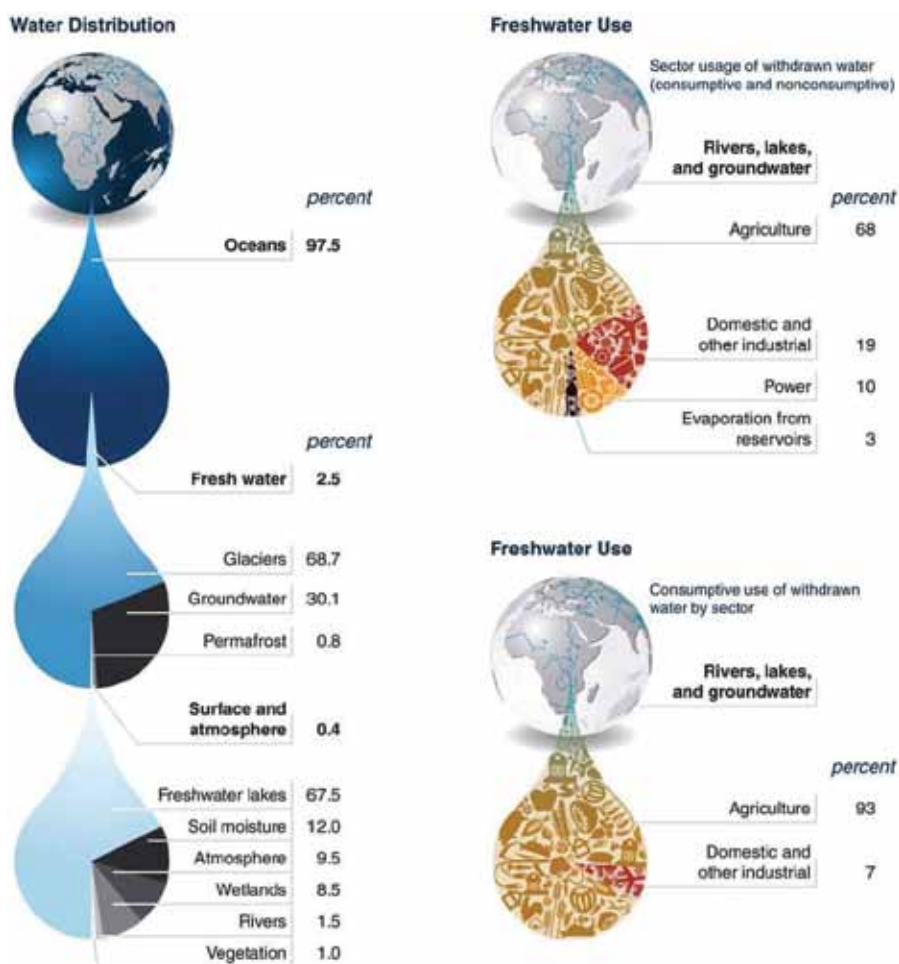
This doom-and-gloom assessment follows from the assumption that nothing can be done to increase the water resource base. “We assume that water management technologies will mature along present rates and that no far-reaching improvements will develop and be deployed over the next 30 years. . . .”

The study focuses on the geostrategic region stretching from Northern Africa through Southwest and Southern Asia, involving the nations along the seven principal river basins in the region. “For the core classified analysis—a National Intelligence Estimate—we focused on a finite number of states that are strategically important to the United States and transboundary issues from a selected set of water basins.” The seven river basins are the Nile, Jordan, Tigris-Euphrates, Indus, Amu Darya, Brahmaputra, and Mekong.

This is the very region where geopolitical interventions by the dying British empire, have fomented warfare and collapse in Great Game fashion, notably in Afghanistan, Iraq, Libya, the trans-Jordan, and Syria, and now threaten nuclear holocaust by new escalations on the borders of Russia and China (see “Britain and Its Followers Cast a Crooked Shadow over Central Asia,” in *International*).

In this context, incompetent assessments of water resources, based on an assumption of fixed and linear behavior, are unacceptable. The need for the NAWAPA XXI plan could not be more obvious. The National Intelligence Council, which coordinated the production of “Global Water Security,” is badly in need of education about the rudiments of the creative nature of man, and the unbounded potentials of resources, if human creativity is unleashed to solve problems like the global water crisis.

FIGURE 1
The Earth’s Water



Note: When humans use water, they affect the quantity, timing, or quality of water available to other users. Water for human use typically involves withdrawing water from lakes, rivers, or groundwater and either consuming it so that it reenters the atmospheric part of the hydrological cycle or returning it to the hydrological basin. When irrigated crops use water, it is consumptive use—it becomes unavailable for use elsewhere in the basin. In contrast, releasing water from a dam to drive hydroelectric turbines is generally a nonconsumptive use because the water is available for downstream users but not necessarily at the appropriate time. Withdrawals by a city for domestic and industrial use are mainly nonconsumptive, but if the returning water is inadequately treated, the quality of the water downstream is affected.

Source: Multiple, as quoted by World Bank, 2010.

No Limits to Water Supply

The diagram of “The Earth’s Water,” provided in the *Global Water Security* report, reproduced here as **Figure 1**, encapsulates the essential problem with the outlook of the report. The left column gives the standard representation of planetary “Water Distribution,” showing two apparent constraints. Over 97% of the Earth’s water is in the oceans; and of the remaining 2.5% which is fresh water, only only 0.4% is surface (rivers, lakes) and atmospheric. Groundwater is a much larger share of the planetary 2.5% fresh water, in the range of 30%.

This gives the general situation fairly enough, to un-

underscore the challenge for mankind to think about orienting present economic and scientific activity from the vantage point of continually providing for the future. This means, most simply, that additional freshwater resources need to be continually “created” through desalting seawater and brackish groundwater, and through redistributing water supplies—moving water from where it is plentiful, to where it has become scarce, by means of regional and even continental water-conveyance systems.

Mankind’s success in “manufacturing” and redistributing freshwater is one of the leading elements of the general process of human biospheric engineering, which will produce new patterns of water cycles and distribution, affected also by larger solar and galactic dynamics.

However, the NIE assessment of global water rules out any such biospheric activity, in favor of the geopolitical axiom that we are at the end of the line: Water scarcity is a given. Strife and warfare are inevitable.

Therefore, the right column, “Freshwater Use,” while presenting a useful snapshot of present-day categories of usage of freshwater, mostly for agriculture, implies that the relative volumes cannot be much changed, and thus, any problems currently experienced can only get worse. The best that can be done is improved management of scarcity.

Desalination and Water Diversion

This crazed outlook pervades the report. There are two key aspects to it—desalination and water diversion.

First, large-scale desalination is not only not presented as an option by the authors, but there is no mention whatsoever of nuclear power, which is the key to making the several high-tech desalting methods work cheaply anywhere. For example, just one modern nuclear-powered desalination facility could provide enough water for the drinking supply of a city the size of Atlanta, Georgia.

Worse, when the report does mention that desalination methods exist, the authors raise as an obstacle, the “problem” of where the salts can be disposed of, which is an issue entirely within modern geological and engineering expertise.

Second, the same non-think prevails with respect to water diversion projects. The report makes scant mention, and mainly criticism, of large-scale water reorganization proposals—canals, aqueducts, inter-basin transfers, tunnels, and other conveyances. One of the

two explicit references to such water transfers is relegated to a footnote on page 6, which cites “development of water infrastructure (dams, levies, canals, water treatment facilities, etc.), the use of water infrastructure to control water flow,” as just one of several means of “water management,” alongside pricing mechanisms, transboundary water agreements, and increasing trade in “virtual water” (water in food and goods) from water-rich to water-poor nations.

The report mentions no such water diversion projects by name, but alludes to China’s grand South North Water Diversion program (**Figure 2**), by stating, “Engineering solutions to water shortages—including the transfer of water between rivers, are becoming increasingly common,” and then goes on to criticize this approach as “raising tensions,” hurting people who live there, and harming the ecosystem.

In this sense, the *Global Water Security* report is outstandingly ahistorical. As of the mid-20th Century, both desalination and large-scale water diversion programs were on the agenda on every continent. Then they were deliberately thwarted by the anti-nation-state policy of the financial power nexus that is best called the British Empire.

In the 1930s, under President Franklin Roosevelt, the Tennessee Valley Authority (TVA) approach, of full basin-infrastructure development, along with the Colorado and Columbia River Basins programs, and others, set the model. Looking over the horizon from these projects, engineers and policy leaders in the 1950s looked to the continental-scale North American Water and Power Alliance (NAWAPA).

The world over, on varying scales, plans were underway. In Eurasia, the Soviets began work on diverting some of the northward flow of the Ob-Irtysh river systems southward into the Aral Sea Basin. In Australia, the Murray-Darling Basin plan was implemented; and the Snowy Mountain scheme was built. In South America, TVA teams did initial planning work in Colombia and elsewhere. On the small island of Hispaniola, in Haiti, the U.S. Army Corps of Engineers deployed to build the Peligre Dam, part of the intention to fully develop the Artibonite River Basin, for nationwide electrification and expanded irrigation. In Africa, engineers associated with the 1970s TransAqua program mapped outlines for developing the Congo River, including diverting some of the flow northward to upgrade and regulate the Chad Basin.

Alongside this was research for nuclear-powered

FIGURE 2

China's South-North Water Diversion Program



The Haihe River and the Grand Canal, part of the South-North Water Diversion program. The project is being built as a series of canals, reservoirs, huge underground tunnels, and pumping stations to take water from the Yangtze River Basin northward to the Yellow River Basin, to add to China's wheat, corn, and rice breadbasket. Two routes for the water diversion are under construction: one near the east coast, which uses much of the Grand Canal; and the other in central China. A third route, far to the west, nearer the headwaters of the Yangtze and Yellow rivers, is still in the planning stage. The project will link the Yangtze, Huai, Yellow, and Hai rivers. Engineers completed a huge double tunnel beneath the Yellow River on the eastern route this January. Water should start flowing to northern China by 2013; the central route will start to carry water north a year later. When finished in 2050, the whole project will bring 44.8 billion cubic meters of water a year from the Yangtze Basin to northern China.

desalination, under the Atoms for Peace program. For example, Mexico and the United States had a joint study program based in their drylands cross-border area. In the 1960s to 1980s, the Metropolitan Water District of Southern California—one of the world's largest public water utilities—had intentions for Pacific coastal installations for nuclear-powered desalination.



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The Empire Sets Limits

It was this impetus of man's improvements on the planet—being led by the United States—which was slammed by decades of opposition from the British Empire, based on monetarism, malthusianism, and globalization, and deploying networks in academia, pop-culture, the United Nations, and other world organizations, including subverting U.S. government institutions with greenie insanity.

The point has been reached today, where allowing these operations to continue means backing genocide. Masses of people are being denied water, and the means of existence, under the pretenses of “conservation ... ecosystem preservation ... sustainability” and similar excuses.

The nature of the subversion can be seen in a short chronology of some of the leading moments in this onslaught, again taking the mid-20th Century as a benchmark.

1950s: The Conservation Foundation (CF) (set up in 1940s in Washington, D.C.) and other groups associated with European pre-war, master-race networks, such as the International Conservation Union, pumps out propaganda that “natural” resources are threatened by overpopulation.

1960s: The World Wildlife Fund (WWF) is established (1961). WWF co-founder Philip Mountbatten, the Royal Consort, calls for drastic population reduction. *The Population Bomb* (1968) by Paul R. Ehrlich, pre-

dicts inevitable mass death in the 1970s from starvation.

1970s: In 1972, *The Limits to Growth* is issued by the Club of Rome, presenting a hoked-up computer model to assert that population is outstripping natural resources. *The Greening of America* (1970, by New Left guru Charles A. Reich) deplores “uncontrolled technology ... and destruction of the environment” by overpopulation.

1980s: The WWF starts an international campaign (1982) to stop Third World development projects, in order to “protect the environment.” The 1980s GATT talks result in the WTO in 1995, imposing globalization in agriculture, instead of upgrading all nations’ water resources base.

1990s: The Rio Earth Summit, the UN Conference on Environment and Development (1992), decrees that water and other resources are limited, and only “sustainable” practices of water use are permissible. The concept of Integrated Water Resource Management (IWRM) is promulgated, to vanquish the concept that mankind can create new resources. Also in 1992, the International Conference on Water and the Environment publishes the “Dublin Principles,” of how water is limited, and use must be cut, in order to be “sustainable.” In 1996, the Global Water Partnership (GWP) is founded, in conjunction with the World Bank and London-centered financial interests, to police the world to limit water projects.

2000s: The World Summit on Sustainable Development (WSSD), 2002, calls for all countries to set up IWRM by 2005; the target date is set for 2013.

2012: Rio+20 is scheduled for June. One of its official issues is “sustainable management of scarce water resources.”

On cue, Hollywood has a new movie out, “Watershed” (Robert Redford, director), on the inadequacy of the Colorado River, to say that all you can do is cut your personal use of water.

The *Global Water Security* assessment follows this scarce resources/genocide vector in every way. In its section on the “Use of Technology and Infrastructure,” the emphasis is on reducing water use. “The use of existing technology for conservation and efficiency—particularly in agriculture—offers the best hope to increase human security and facilitate economic growth.... Simple and inexpensive water management improvements in agriculture, including improved irrigation practices and land-leveling (to obtain an even distribution of water), are often the most straightforward way

to compensate for increased demand and stretch existing water supplies....”

It promotes “point-of-use” methods of water treatment, a polite reference to such primitive practices as putting water into bottles in the sunlight for solar purification, as is advocated for low-tech use in poverty-stricken parts of Africa.

Otherwise the report advocates three major pathways for the future: 1) pricing of scarce water high enough so that “the markets” will ration it among competing demands; 2) treaties among nations to share the scarcity, where nations are in the same river basins; and 3) seeking to obtain imported virtual water, in the form of food and other goods, if yours is a water-short region.

On this last point, the report lauds food import-reliance in the western part of the seven river basins: “The Middle East and North Africa have partially addressed their water shortages by purchasing high-water-content food commodities whose virtual water content is equivalent to having another Nile River flowing into the region....” But, the report demurs, “Increasing water shortages and rising food prices will present growing challenges for all but the wealthiest countries in these regions....”

Equally venal on the face of it, is the fact that this report extols world water and food shortages as a potential trade advantage for the United States. “The United States, Russia, and Canada, as major agriculture exporters, can benefit from an increased demand for their products, as water shortages increase in various parts of the world.” And the report calls for more free-market trade in virtual water.

The sick joke, is that it is the United States itself that is relying more and more on large flows of food-imports from water-short nations. For example, Mexico, now suffering desperate food shortages from drought, is the source-nation for mega-food cartels to ship large tonnages of fresh and frozen produce to the United States and Asia, including avocados, onions, melons, tomatoes, citrus, cauliflower, and many other forms of virtual water. What this means is an epic world food shortage—famine, in the making—thanks to the genocidal share-the-scarcity policies in force.

A ‘Second’ Jordan River

Just one example—the Jordan River Basin—gives the lie to the entire thrust of the NIE’s world water assessment.

There is no basis for asserting a need to restrict, share, manage, or otherwise do without water in the Jordan Basin. Instead, a man-made “Second Jordan River” can be brought into being! Just 20 nuclear power plants, with desalination facilities, could duplicate the entire water resources available in the Jordan Basin, as of 1990.

This calculation was made and published as part of the “Oasis Plan” perspective put out by Lyndon LaRouche since the 1970s (see *Documentation*), and reiterated in 1993 at the time of the historic Oslo Accords between Israel and the PLO. Creating new water resources for the entire trans-Jordan was a critical part of mutual-interest geographic engineering for new resources and new agro-industrial capacity in the region.

The parameters are straightforward. Begin with the baseline: As of several decades ago, all the available surface water in the Jordan River Basin was being drawn off, plus groundwater is being overpumped at a rate causing increased salinity and depletion. The flow of the Lower Jordan River itself (below Lake Tiberius, also called the Sea of Galilee or Lake Kinneret) declined from 1,200 million cubic meters (mcm) a year in the 1950s, down to barely 100 cmc in the 1990s, which makes it just a ditch—and even less today. In the early 1990s, the volume of water used from all sources (surface and underground) was in the range of 3,500 mcm. And of that, Israel takes the lion’s share.

Using the metric of freshwater available from designs for nuclear-powered desalination plants¹ and the specifications for modular high-temperature gas-cooled reactor (MHTGR) model plants, building installations at strategic sites could duplicate the “natural” Jordan surface water in short order, by adding increments of new water in the range of 146 mcm each.

Look at the results, in terms of the few tributaries of the Jordan River system. Just one such nuclear-deal plant, for example, would exceed the annual average discharge rate of the Hasbani River on the Lebanon-Israel border. Five nuclear-desalination plants could produce more water than the Dan and Yarmuk rivers combined. Ten plants would double the volume of the Upper Jordan River. And with 20-25 plants, a new Jordan Basin flow would come into existence.

1. See “Introduction to Nuclear Desalting: A New Perspective,” by S. Golan et al., in *Fusion Technology*, December 1991.

Documentation

LaRouche’s 1991 Call for Middle East Development

In January, 1991, the first Iraq War began, with U.S. bombing raids against that nation. In April 1991, Lyndon H. LaRouche, Jr., through his Presidential campaign committee, Democrats for Economic Recovery, LaRouche in ’92, issued a mass-circulation pamphlet: “Demand Development in the Middle East! Stop Bush’s Genocidal New World Order.” LaRouche’s statement in the pamphlet warned of a new Thirty Years War in the Mideast, and called instead for “A Peace Plan in the True Interest of Arabs and Israelis,” in which he said to look broadly “at the tactics of economic geography.” Build up the resource base with high-technology intervention, to involve all peoples in a productive, growing economy, and create an economic platform of hope and growth for the future. LaRouche presented his Oasis Plan, for nuclear-powered, high-tech creation of water resources, and agro-industrial capacity.

LaRouche capped off his proposal by stressing, “The essential underlying principle is the relationship of man to nature. Man is unlike any other creature, in that man’s relationship to nature is defined by the potential for creative reason in man.”

The 30-page document ended with the section, excerpted below, by Marcia Merry Baker, reviewing the economic-geographic projects urgently required in the greater Southwest Asian region at that time. These projects were all blocked over the past two decades, in line with the outlook made explicit at the 1992 Rio Earth Summit, that water scarcity is inevitable, and can only be managed. This is, in effect, an outlook associated with strife, as has been promoted by British geo-strategists in the Mideast, in particular since the Sykes-Picot Treaty that divided up the area among imperial powers after World War I. Allowing this to continue today, puts us on the edge of World War III.

This 1991 report embodies the radical shift in outlook we must force through today, which can be done with the LaRouchePAC NAWAPA XXI action plan. The particulars of the Mideast situation have only become more extreme since this survey was written. There are more people, but less water, less hope, and more suffering and desperation.

Development, Not War, In the Mideast; Build Rivers And Lakes in the Desert

The central development issue in the Mideast is water. The Persian Gulf region is situated in the center of the vast expanse of desert stretching from leeward of the Atlas Mountains in west Africa, all the way across the Sahara and the Arabian Deserts to arid west India. The land area of the Mideast—taken to comprise Libya and Egypt, through to Iran, and including Turkey—amounts to 3.5 million square miles, or more than the 3.0 million miles square of the lower 48 states of the U.S.A. There are 246 millions of people in the Mideast, comparable to the 250 millions in the United States.

However, precipitation is almost non-existent in most of the Mideast. Even if the crazed Anglo-American leaders had not begun their genocidal warfare, the lack of sufficient water per capita in the Mideast was leading to crisis conditions. The cause of the problem has not been the desert itself, but years of obstruction of infrastructure projects by the same evil forces now making war. . . .

There are three sources of increasing fresh water to the Mideast: 1) Moving surplus water southward from the Anatolian highlands in Turkey, and better utilizing the run-off from the Iranian slopes; and moving surplus water northward from the upper Nile in the Sudan, and from the Congo and Lake Chad basins; 2) utilizing underground water and aquifers; 3) desalinating sea water and building a Dead Sea Canal and similar channels, utilizing modern nuclear power and desalinating technologies.

By these high-technology means of geographic engineering, you could picture new man-made “Great Lakes” in northern Africa, and corridors of green in the desert—all of which approaches LaRouche describes as the “Oasis Program.” Water volumes equivalent to a New Euphrates River could be created. For comparison, the Euphrates is about the same length as the Danube River (1,700 km). The average discharge at the mouth of the combined Euphrates-Tigris and Karun Rivers—called the Shatt-al Arab—is equivalent to the Po River of Italy.

Though the costs are relatively high to provide water in the desert, compared to the cost-free rainfall in many other regions, there is the offsetting benefit here of growing three or four crops a year. The climate is similar to southern California, and farm potential is analogous to the fabulous output of the Imperial Valley and Arizona “garden” agriculture. Much of what is con-

sidered hopeless desert void, is really potentially soil with the provision of water, nutrients, and humus.

The map [Figure 1] summarizes the major types of geographic engineering needed to expand water in the region.

Moving Water from Surplus to Deficit Regions

I. Congo-Lake Chad Basins Project. The Congo River carries millions of gallons of fresh water out to the Atlantic Ocean, lost to man. The Congo is second only to the mighty Amazon in volume of water. A canal, or link tunnel, could be constructed to divert water from the Ubangi River—a tributary of the Congo—into the Lake Chad drainage basin to the north. This would expand and stabilize Lake Chad, from which canal and irrigation systems could be constructed to water the drylands of the five nations on its shores.

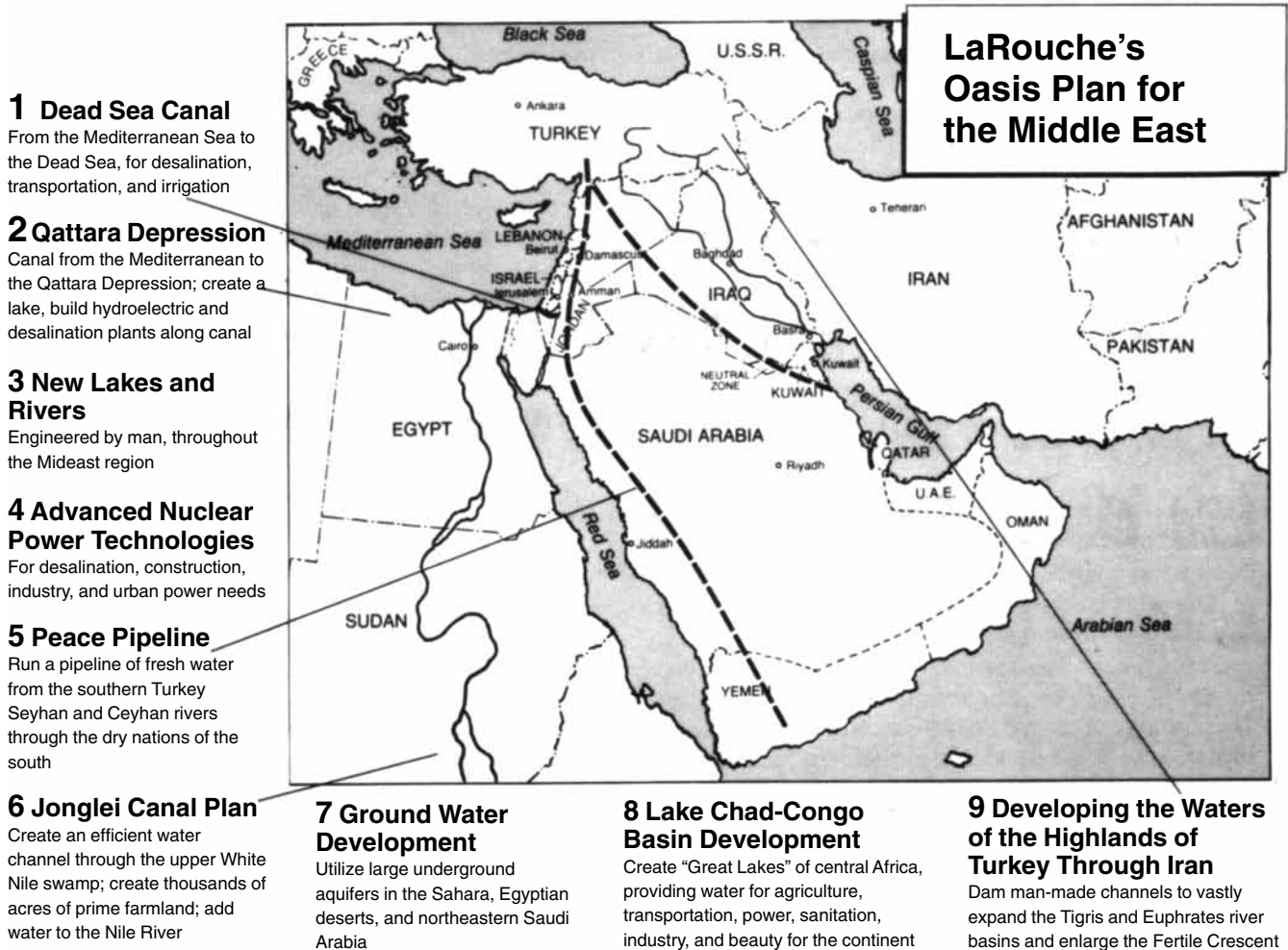
II. The Jonglei Canal plan. A canal to create a straight channel for the upper White Nile, which meets the Blue Nile at Khartoum, the capital of Sudan, and creates the Nile, would capture millions more gallons of water for the benefit of the 25 million Sudanese and 60 million Egyptians downstream. As 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 percent by capturing more of this water. Construction on the Jonglei Canal—named for the locale, began in 1978. . . .

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.

III. 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. . . .

IV. Utilizing Groundwater. Eleven distinct basins of underground rivers and lakes have been charted

FIGURE 1



LaRouche in '92 (published in 1991)

under the deserts of northern Africa, and also aquifers under the northeastern Arabian Peninsula, and points west 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. . . .

Washington and London officials have intervened to prevent development of underground water, issuing all variety of rationalizations, including the imperial assertion that "fossil water" (the name for old water trapped underground) simply should not be used, because it is old.

V. Dead Sea Canal, Qattara 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 fresh water from sea water, using power from the nuclear plant. The water course 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 University, 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 20 years.

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 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 Qattara Depression 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.

New Desalination Technologies

About 60 percent 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 percent 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 utilize some form of the first method, 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 from the oil fields, which would otherwise be wasted.

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 R&D on desalination should include optical biophysics to study how water "behaves" differently in retaining salts in living organisms than in the surrounding medium.

Breaking the Ice on Arctic Development

LPAC's Michelle Fuchs reports on two sides of a potential global perspective for Arctic development: One, Russia's planned Arctic City, dubbed "Umka," which will be modelled on the International Space Station; and two, the planned expansion of the River Shannon Estuary, which will make Ireland a lead player in deep-sea science.

(27 minutes).

<http://larouchepac.com/node/20614>