

What role have natural resources played in the politics and economy of the Middle East?

Lesson 2: Got Water?

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MIDDLE EAST WATER. TIME RUNNING OUT.

A 4-part series

Middle East's Cup Runneth Dry

Part 1, March 8, 1990

George D. Moffett III, Staff writer of The Christian Science Monitor
Dateline: Jerusalem

ALREADY troubled by economic woes and sectarian conflict, the Middle East is facing an imminent new danger that could plunge the region into famine and war.

Water resources, historically in short supply, are on the verge of being overwhelmed by runaway population growth, placing a huge strain on fragile political and ecological systems.

Experts and government officials in half a dozen Middle East countries say that, together with the proliferation of chemical and nuclear weapons, over-taxed rivers and falling water tables are creating the most worrisome long-term trend in the region.

"Sometime around the beginning of the century, the problem of water scarcity will break out into an acute crisis," says Meir Ben Meir, a former water commissioner of Israel.

"The Middle East is living on a time bomb," adds Elias Salameh, director of the University of Jordan's Water Research and Study Center. "It could explode at any time."

The effects of a prolonged water shortage, experts say, could include a deterioration in water quality, a dramatic reduction in living standards, the loss of food security, huge food import bills leading to crushing foreign debts, and political instability.

"This issue could decide the fate of the region," says Usama al-Baz, a senior advisor to Egypt's President Hosni Mubarak. "If the water problem is not solved you will have famine. And this will destabilize big countries and instability will move to neighboring countries."

Experts attribute the gathering crisis primarily to the pressures of population growth, which

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have stretched available resources to the breaking point in the region's three main river basins - the Nile, the Jordan, and the Tigris-Euphrates. Unless population growth rates, now averaging 3 percent in the Middle East, are curbed, excess population will wipe out all projected gains in water development and conservation within 30 years. If conservation efforts falter, the crisis could come much sooner.

Worsening water shortages are also a function of climatic changes which have intensified drought cycles, and of inefficient water management. In Saudi Arabia, for example, irrigation for growing wheat, which the country could import far more inexpensively, could deplete underground aquifers – the source of 90 percent of the kingdom's water - within 20 years.

Regional politics also contributes to the growing water problem, as the nations that share the region's main river systems have been unable to rise above historic rivalries to cooperate in the development and allocation of precious water supplies.

Experts warn that in the foreseeable future there will be no panacea in dealing with the impending water shortage. Desalinating seawater for mass irrigation will remain prohibitively expensive until the technology is advanced and energy costs are lowered by breakthroughs in solar energy or nuclear fusion.

Impressive recent advances in biotechnology, which have produced more water-efficient crops, are not keeping pace with growing food demands.

As a result, unless population growth rates are curbed, irrigated agriculture restricted, and conservation efforts dramatically expanded, the supply and demand lines on the Middle East water graph could soon cross, with potentially disastrous consequences.

The growing likelihood that water disputes could fuel regional tensions stems from three factors:

*Fifteen nations now compete for the dwindling resources of the Euphrates, Jordan, and Nile each controlled by a non-Arab state (Turkey, Israel, and Ethiopia).

*Because of existing political tensions, none of the three basins is governed by a comprehensive water-sharing agreement.

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*International law, which is contradictory, has not provided a clear basis for such agreements.

Throughout the region, water is replacing oil as the most prized and contested commodity.

Since the days of the pharaohs, life along the Nile has conformed to the inexorable cycles that ensured an eventual flood after every drought. But for reasons that remain unclear, the amount of water in the Nile has decreased over the past century, according to a study by Princeton University expert John Waterbury. If the trend continues as the country's population soars, Egypt will fall further behind in food production.

"Whatever the explanation, we'd do better to plan on decreasing discharges," says Dr. Waterbury of the Nile's yield. "It would be foolish for planners to assume they are going to increase."

Elsewhere in the Middle East, Turkey's plans to tap into the Euphrates for its massive southeastern Anatolia development project have sounded alarm bells in Syria and Iraq, which both rely on the river for agriculture and power generation. Competition over the Euphrates could exacerbate existing tensions created by raids on Turkish territory by Kurdish guerrillas operating from Syria and Iraq.

The biggest problem lies in the smallest river basin, the Jordan, where competition for water resources between Israel, Jordan, and Syria has already led to bloodshed and now threatens to put peace between Israelis and Palestinians living in the occupied West Bank and Gaza Strip beyond reach.

Experts say the incipient water crisis could serve as a catalyst for political cooperation, spurring the fractious nations of the region to find ways to develop and share common water resources.

But if water is the best way to peace, it could also prove the shortest route to conflict in a region already beset by old feuds and now armed to the hilt with sophisticated weapons.

"The politics of the Middle East after 2000 will be a struggle over water," says former Egyptian diplomat Tahsin Bashir.

Adds a Syrian official: "No region on earth is as vulnerable to war because of conflicts over water between neighboring states."

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Downstream Fears Feed Tensions

Part 2, March 13, 1990

George D. Moffett III, Staff writer of The Christian Science Monitor
Dateline: By the Ataturk Dam, Turkey

STRETCHED across the fog-enshrouded Euphrates River, the massive stone mountain that will soon be the world's ninth-largest dam stands in defiance of nature - and of protests downstream.

Now nearing completion, Turkey's Ataturk Dam will be the crown jewel in an ambitious project to harness the Euphrates to produce electric power and irrigate 46,000 acres of arid land in the country's southeastern provinces.

But for Syria and Iraq, which share the waters of the Euphrates with Turkey, the implications of the \$21 billion Southeastern Anatolia Project seem ominous. If the three nations fail to negotiate a water-sharing agreement by the time the Anatolia project is fully developed, Syria could lose 40 percent of its Euphrates water and Iraq up to 90 percent, according to Thomas Naff of the University of Pennsylvania, director of Associates for Middle East Research (AMER).

Such catastrophic reductions are not inevitable, says AMER, a group of international water experts. Even so, one year before its giant turbines begin spinning out electricity, the Ataturk Dam has emerged as the most disquieting symbol of the potentially dangerous competition for water that most experts believe will soon dominate the politics of the Middle East.

"The Ataturk Dam makes an implicit problem explicit," says Elias Salameh, director of the Water Research and Study Center at the University of Jordan. "This is the beginning of water conflict in the Middle East."

Under the terms of two international conventions, the Helsinki Rules of 1966 and a United

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Nations' convention of 1972, water rights are to be shared according to population and need, with historical allocation taken into account.

But international law also acknowledges the absolute sovereignty of nations over the resources they control.

Thus, upstream countries like Turkey insist that they are under no more obligation to give away their water than, say, Saudi Arabia is to give away its oil.

"We have no international obligations," says Turkey's State Minister Kamran Inan, who points instead to a 1987 "gentlemen's agreement" with Syria and Iraq "to do our best not to harm our neighbors."

Despite pressure from Syria and Iraq, Turkey has been unwilling to commit itself to a basin-wide water-sharing agreement.

The case of the Euphrates also illustrates the complex synergism found elsewhere in the Middle East over water issues and other regional conflicts.

Tensions generated by the infiltration of Kurdish guerrillas into Turkey from Iraq and Syrian-controlled east Lebanon have been a major obstacle to a basinwide water sharing agreement, and have provoked fears downstream that Turkey might choke off the river in retaliation.

"We give them water, they give us terrorists," grumbles an official in Ankara who, nevertheless, insists that Turkey will never exploit its control of the Euphrates for political purposes.

On the other hand, reaching an agreement on water rights could pave the way for cooperation on such political issues as Kurdish terrorism and provide a catalyst to regional peace.

"Water can unite or divide the region," says Professor Naff. "It can be a catalyst for cooperation and peace or for conflict."

CONCERN over water rights in the region reached critical mass when Turkey closed off the Euphrates for one month in January to begin filling the huge reservoir behind the Ataturk Dam. It is one of 21 dams that will help irrigate an area of southeastern Turkey the size of East Germany.

Turkey compensated by increasing the flow downstream for 50 days starting late last year to

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blunt the effect of the closure. Meanwhile Turkish officials, members of a tripartite technical committee, have sought to allay concerns in Syria and Iraq, which will have to endure months more of such closures over the next five years before the reservoir is topped off.

But Damascus and Baghdad worry that the dam and the Anatolia project could pose big long-term problems in a region that is just coming out of the worst drought in 15 years, and that is heavily dependent on the Euphrates for irrigation to cut food import bills that in Syria alone last year claimed 6 percent of the national budget.

To meet the food needs of a population expected to swell from 13 to 22 million in 20 years, Syria plans to irrigate 100,000 acres of new land along the Euphrates. One official in Damascus calculates that because of extra demands on the river upstream, plus the rapid depletion of groundwater in Syria, the 15 million cubic meters of water needed for Syria to avoid severe food shortages by the year 2000 may be unavailable.

"It is a problem of 'to be or not to be' for Syria," says the Syrian official of the consequences of excess demand on the Euphrates. "You are dealing with a very hot problem."

Matters are even worse for Iraq, which is at the end of the Euphrates water line.

Iraqi officials say that while the Ataturk reservoir is being filled, the country's electric power generation on the Euphrates could be cut by 40 percent, while water supplies to 5 million users in northwestern Iraq will be disrupted. Wheat and rice production could also suffer.

Without some form of trilateral sharing agreement, construction of the Ataturk Dam "will have severe repercussions on the amount of water and the quality of water that reaches Iraq," warns Nizar Hamdoon, Iraq's deputy foreign minister.

Adding to Iraq's troubles is the prospect that Syria will trap most of the remaining Euphrates flow behind its Tabaqah Dam, reducing the downstream flow to a trickle.

The two countries nearly went to war 15 years ago when the filling of new Turkish and Syrian dams temporarily cut the Euphrates to a third of its normal volume at the Iraqi border. If Turkey and Syria implement additional development plans, led by the Anatolia project, relations could be strained to the limit.

"We're heading towards a war, unless there is intervention by the United Nations," grimly predicts a Western diplomat in Damascus. "It must be done now."

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MIDDLE EAST WATER. TIME RUNNING OUT.

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If Jordan Valley Wells Run Dry...

Part 3, March 14, 1990

George D. Moffett III, Staff writer of The Christian Science Monitor
Dateline: Jerusalem

IN the politically volatile Jordan Valley, competition for water, not land, is becoming the biggest obstacle to peace. For 6 million Israelis and Palestinians, the future will be dominated by the question of how to allocate the region's most precious resource.

Israel, whose water-efficient farmers made the desert bloom, is now living beyond its means. With all of its renewable water supplies already being over-exploited by 15 percent a year and with no new sources to turn to, the country is on the verge of one of its most severe crises.

With water already being shifted away from agriculture to meet urban needs and with a 30 percent water deficit looming within a decade, Israel's security is at risk.

"Israel is on the threshold of a catastrophe," warns Arnon Soffer, a Haifa University geographer who, in a recent unpublished report to Israel's Foreign Ministry, cautioned that the combination of arid lands and exploding populations was a "formula for disaster" throughout the Middle East.

For Palestinians living under Israeli military occupation, water shortages are not so much a function of nature as of politics. Although the West Bank is the source of 600-700 million cubic meters (mcm) of water annually, Israel has limited West Bank residents to one-fifth of that amount, stunting agriculture and retarding development.

In Gaza, meanwhile, overpopulation has produced the most acute water shortages in the Middle East. At stake for Palestinians: the political and economic viability of a state now demanded by West Bank and Gaza Arabs. "For Palestinians under occupation, time has ceased since 1967," says Palestinian economist Ibrahim Matar. "Palestinians have been pre-

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vented from expanding their own water supplies since the occupation began."

In Israel, the issue of water has become a potent tool in the hands of conservatives opposed to relinquishing the territories. In a recent advertisement, under a menacing photo of Palestine Liberation Organization Chairman Yasser Arafat, the right-wing Israeli Tsomet Party warned that "Israeli withdrawal from Judea and Samaria (the West Bank) means that this man will have the power to determine the quality and quantity of water you and your children drink."

Palestinians, meanwhile, have their own worst-case scenario: the influx of hundreds of thousands of Jewish immigrants from the Soviet Union. Whether the 'emigr'es settle in the occupied territories or not, they will strain available resources and leave less water for Palestinian farmers.

Of combined water resources available in Israel and the territories, Israel consumes 86 percent, including more than 80 percent of the West Bank water table.

Meanwhile, competition for the dwindling resources of the Jordan Valley is joined by two other thirsty countries, Jordan and Syria. Despite United States mediation efforts, an agreement to share the Yarmuk River, one of the Jordan's main tributaries, has proved elusive, leaving officials on both sides increasingly concerned.

Competition over the Jordan River and its tributaries has already prompted the region to take up arms. Syria protested to the United Nations when Israel began construction of a pipeline during the 1950s which now diverts Jordan River water to its southern Negev Desert. (With water in the Sea of Galilee (Lake Kinneret) at the northern end of the pipeline at the lowest level ever recorded at this time of year, its continued use is now in jeopardy).

A 1964 Arab League decision to attempt to divert the Jordan's headwaters produced border skirmishes and later contributed to the outbreak of the 1967 Arab-Israeli war. After seizing the Golan Heights from Syria, Israel gained effective control of the Jordan.

Pressure for a Palestinian state in the West Bank and Gaza Strip now raises new questions. Palestinians say they have a right to control their own water supplies. They argue that like any two states, "Palestine" and Israel can negotiate an equitable sharing of water resources.

Israel says if it loses control of West Bank waters, its coastal cities and farmland in northern and central Israel will be at risk. Whatever the case, unrestrained competition between two

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sovereign states in the region could prove lethal.

“If there's competition, that means drilling deeper and that means causing an ecological disaster with our mutual resource,” says Meir Ben Meir, a former Israeli water commissioner. “Nobody can win this war.”

In the future, Israel plans to use more reclaimed wastewater for irrigation, freeing fresh water for domestic use.

But such news is small solace for Palestinians, whose water now accounts for one-third of Israel's annual consumption. After the occupation began, Israel quickly took control of West Bank water resources. Under military order, Palestinians were prohibited from digging all but a handful of new wells for drinking and irrigation, while limits were placed on the amount of water that could be pumped from existing wells.

Access to the Jordan River, once the source of 200 mcm of water for irrigation, was completely cut off. Meanwhile, Israel began drilling the first of more than 40 deep-bore wells with powerful motors that now pull up to 40 percent more water from West Bank aquifers than the 300 shallower pre-1967 sinkholes used by Palestinians.

Some of the new Israeli wells, used to provide water for Jewish settlements in the West Bank, were placed close to local Palestinian springs, causing the wells of many Palestinian farmers to run dry.

With no restrictions on pumping and with big subsidies from the World Zionist Organization, the settlers were soon using an average of four times more water per capita than Palestinians.

Responding to international pressure, Israel has agreed to compensate Palestinians for water shortages by providing, and in some cases charging for, limited supplies from some of its deep wells. But the arrangement has deprived local Arabs of their water independence and, in the opinion of many legal experts, violated international law governing military occupations.

“Palestinian farmers are now completely dependent on the Israelis for their water needs,” says Mr. Matar. “Their status has been changed from owners to renters of their own water resources.”

The situation is worse in the Gaza Strip, where population growth has overtaxed water sup-

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plies at an alarming rate. Underground aquifers in Gaza are capable of providing up to 60 mcm of renewable water each year for Gaza's 650,000 inhabitants. But 150 mcm are now being pumped annually, lowering the water table and causing seepage of salty sea water into the aquifer.

To allow the water table to replenish, usage will have to be dramatically cut even as Gaza's population dramatically increases. Palestinian and Israeli experts agree that if the present overpumping continues, agriculture and living standards will deteriorate catastrophically.

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Pouring Oil on Troubled Middle East Water

Part 4, March 16, 1990

George D. Moffett III, Staff writer of The Christian Science Monitor
Dateline: Aleppo, Syria

DEFYING the chill winds of a bleak winter day, the small green shoots of a chickpea plant venture out of the black Syrian soil.

Highly sensitive to cold and humidity, these protein-rich legumes - one of the staple food items in the the Middle East - have usually been planted in spring, too late to avoid the wilting, crop-stunting heat of summer.

But with a little genetic toughening, the plants on this experimental farm near Aleppo have learned to cope with winter, taking full advantage of limited seasonal rains, and thus prospering on the kind of semi-arid land prevalent in the region.

The new strain of chickpea, developed by agronomists at the International Center for Agricultural Research in the Dry Areas (ICARDA), is one way the Middle East is preparing for a future in which there will be less water to go around. For a region that relies heavily on irrigation to grow food, coaxing bigger harvests out of rain-fed land has become a top priority.

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Greater farm output and more-aggressive water-conservation efforts may not rescue the region from a drier future. Indeed, the Middle East is merely borrowing against the day, not far distant in the opinion of many experts, when spiraling population growth creates food demands that will be impossible to meet with available water resources.

But in a region that was largely excluded because of its dry soil from the benefits of the "Green Revolution" of the 1960s, the prospect of doubling output on some rain-fed lands has generated considerable enthusiasm among farmers and government officials alike.

"In these marginal lands you can make fantastic contributions," says Aart Van Schoonhoven, ICARDA's research director. "By doubling the efficiency of water use, you have the equivalent of two times as much rain."

One obvious way to control consumption of what is fast becoming the Middle East's most valuable resource is to charge more for water to effect rationing by price.

But few governments in the region are eager to risk the violence that has greeted price hikes in another basic commodity, bread. As a result, millions of gallons of valuable water continue to be squandered each year watering golf courses and washing cars.

In countries like Jordan, where up to a quarter of the water used for domestic and industrial needs is illegally siphoned off before reaching the meter, the effect of price increases would be blunted in any case.

"Because it's (practically) free, it's freely used," says ICARDA director Nasrat Fadda.

Instead, Middle East states have chosen less drastic means of improving water management and conservation in an effort some experts worry may be too little, too late.

In Israel, a growing network of treatment plants purifies waste water for agricultural use, making more fresh water available for domestic use.

In Egypt, where rain-fed agriculture is virtually nonexistent, an inefficient 20,000-mile network of public canals used to irrigate crop lands bordering the Nile is being upgraded. Some canals are being lined to minimize seepage, while 300,000 acres of new lands east and west of the Nile Delta are being fitted with more efficient "drip" irrigation systems, according to Egyptian government sources. Plans are also under way to capture more than 2 million cubic meters of irrigation runoff a year in Egypt's northern lakes before it drains into the

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Mediterranean Sea.

In Syria, farmers are being taught how to manage rain-fed crops more efficiently to maximize harvests and decrease reliance on irrigation. One technique: "harvesting" sparse rainwater by concentrating it in limited growing areas.

ICARDA agronomists are also teaching farmers how to use fertilizers more effectively, how to till croplands to minimize runoff, and how to rotate crops to intensify production.

Meanwhile, scientists around the world are seizing the last brief respite before the water crisis hits to develop and implement new technologies to make available water supplies stretch further.

By developing food crops with greater resistance to salt and viruses, an incipient revolution in biotechnology is opening the door to more water-efficient agriculture.

The ultimate technological challenge is finding a practical way to desalinate sea water.

"Desalination is the foremost challenge to the human race," says Meir Ben Meir, a former Israeli water commissioner. "The sea will be our main salvation in the future."

Less promising in the context of the Middle East have been schemes for regional cooperation in using water.

One technically feasible proposal is a canal that would link the Yarmuk River, which forms the border between Syria and Jordan and between Jordan and Israel, with the Sea of Galilee (Lake Kinneret) in Israel. During the winter months, the canal would funnel rains, that would otherwise be lost, downstream into the sea. Some of this water could then be used to replenish underground aquifers in Israel and the occupied West Bank. During the dry summer months, water could be pumped back through the Yarmuk into the 42-mile long Ghor Canal that irrigates the Jordanian side of the Jordan River.

"It is the most attractive water-resources development scheme in the region, both in terms of cost and the quantities of water involved," says Israeli water engineer Elisha Kally.

Another proposal, first put forward by former Egyptian President Anwar Sadat at the time of the Camp David negotiations in 1978, is to divert Nile waters across the Sinai Peninsula into the Israeli-occupied Gaza Strip, and perhaps even into southern Jordan and Israel's Negev

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Desert. But these and other propositions have run afoul of the hard realities of Middle East politics.

The absence of relations between Israel and Jordan precludes even technical cooperation. Meanwhile, the kind of water-basin transfers that have proved so successful in the United States are considered unworkable between states that are real or potential adversaries. Israel is unwilling to place its water security in the hands of an Arab country. At the same time, Egyptian officials have long since pronounced Sadat's proposal a dead letter.

"We have no intention now or in the future of transferring water outside Egyptian territory," says a well-placed government source in Cairo flatly. "It will never happen."

In the end, the biggest obstacle to water self-sufficiency is not politics but population growth. Few experts say a solution to that problem is anywhere in sight.

Until inroads are made on birth rates, even the most ambitious conservation plans are bound to be inadequate in the long run.

"We're merely delaying the crisis," says Mr. Fadda about ICARDA's success in improving dry-land productivity. "We're buying time to make the adjustment either until population growth is brought down or until technological advances are made."

"This will postpone for a time the onset of the crisis," adds the Damascus-based director of a Western development agency, referring to water-saving measures now being instituted throughout the Middle East. "But it may not prevent the crisis from happening."

This is the last in a four-part series. The first three parts ran March 8, 13, and 14. Editor of series: Susan Llewelyn Leach.