

# The Tennessee Valley Authority: a model for world development

by Marsha Freeman

In the mid-1950s, the men who had played key leadership roles in the Tennessee Valley Authority (TVA) presented a plan to the nations of the Middle East and to the United Nations, to economically develop this volatile region of the world as an alternative to political strife and war.

The plan was based on the remarkable success that the TVA had demonstrated during the previous two decades in the transformation of the southeastern region of the United States during the Great Depression. Their proposal was centered around the development of the precious river and other water resources in the Middle East, the technological improvement of agriculture, and the introduction of electricity for industrial and household use. Had that plan been fully implemented 35 years ago, these nations might not have been simply pawns in international geopolitical games, facing the current threat of war, but sovereign nations more in control of their own destiny.

The TVA, established at the trough of the U. S. economic collapse in May 1933, built a series of 20 dams in less than 20 years to control flooding and expand navigation on the Tennessee River and its tributaries. The program introduced electricity to virtually every farm and household in an area spanning seven states, developed improved fertilizers and advanced agricultural methods, and introduced health care and literacy to a population not very different, at that time, from many Third World nations.

Internationally, the TVA gave hope and optimism for the future to hundreds of millions of people, especially in nations which had only recently won their independence at the end of World War II.

According to then-TVA head David Lilienthal writing in 1954, representatives of nearly every nation in the world had visited the TVA over its first 20 years. These included Prime Minister David Ben-Gurion of Israel, and officials from many Arab countries. The TVA experts proposed to start a "TVA on the Jordan."

## How to transform the Middle East

The area of what was called Palestine in the 1940s is slightly over 10,000 square miles, or approximately one-

quarter the area of the Tennessee Valley. The major water supply for Palestine and Israel originates in Lebanon, Syria, and Jordan. Lilienthal wrote in 1944 that "cooperation between Israel and the adjacent Arab states would be absolutely essential to the successful execution of the proposed overall plan; only small portions could be developed to an individual country's advantage without such cooperation."

It was proposed that the water resources be developed for power and irrigation through a series of dams on the upper Jordan River and its tributaries, which could store water and also divert some into a network of irrigation canals. In order to compensate the Dead Sea for the loss of these waters, seawater from the Mediterranean would be introduced starting at a point near Haifa and conducted through tunnels and canals down the below-sea-level Jordan depression to the Dead Sea.

As this sea water dropped into the Jordan rift, there would be almost 1,300 feet of effective fall for the development of hydroelectric power. It was also proposed to develop underground water resources along the coastal plain from the northern border with Lebanon south to the Egyptian border. The plan was an eight-stage program.

It was estimated that irrigation would provide for at least 606,000 newly cultivated acres, and produce 660 million kilowatt-hours of electrical energy per year.

In the mid-1950s, the United Nations Economic Survey Mission for the Middle East was also proposing economic development programs. Gordon Clapp, who had been the general manager of the TVA, served as the head of the U. N. Economic Survey Mission for the Middle East.

For the Middle Eastern States of Syria, Lebanon, and Jordan, the U. N. recommended "pilot demonstration" projects on the Orontes and Litani Rivers, and the Wadis Zerka and Qilt Rivers. Reclamation of the large swamps on the Orontes River in western Syria would add 183,000 acres to the land already under irrigation. The Litani River in Lebanon could provide 350 megawatts of power capacity. The experts determined that a dam on the Wadis Zerka in Jordan could double the dry-season flow and double the irrigable land.

There were many people from the TVA in the U. N. project. Van Court Hare, from the TVA office of chief engineer, served as a member of the mission's engineering development staff, headed by William L. Voorduin, who was formerly the head project planning engineer for TVA. James B. Hayes, formerly project manager of TVA's South Holston project and an irrigation and power engineer with over 30 years of experience, was the Palestine Commission's chief engineer for the development plan. Other TVA people assisted, including Col. Theodore B. Parker, former chief engineer of TVA.

### **A Middle East TVA in Iran**

In southwestern Iran, north of the Persian Gulf, lies the Khuzistan region with an area of 58,000 square miles and a population of 2.5 million. It is an oil-producing region where the local population suffers a poor standard of living. After World War II, Iran embarked upon a Seven Year Plan which yielded disappointing results due to political, financial, and other difficulties. In the mid-1950s, Iran launched a second plan headed by Abol Hassan Ebtehaj, an economist and banker.

In 1955, Ebtehaj invited Lilienthal and Clapp to visit Iran. They arrived in 1956 and were asked to prepare a comprehensive program for the integrated development of this region, and to commit themselves to also *implement* the plan. A two-year program of surveys and investigations was completed, leading to the recommendation for an action program.

The study found that a virtually unlimited amount of natural gas existed in the region. The five rivers which are fed from mountain snow contain enough water to irrigate 2.5 million acres, and the hydroelectric potential was more than 6 million kilowatts.

The TVA team recommended: 1) the construction of a high, thin arch dam on the Dez River for irrigation, power, and flood control, and that eventually 14 dams be built on that river; 2) that a 132-kilovolt transmission line from Abadan north to Ahwaz be built to utilize idle capacity from a steam plant owned by the oil companies until power from the dam was available; 3) that an agency be formed to manage electricity production and distribution; 4) that a 10,000-acre sugar cane plantation be developed, with a mill and refinery; 5) that the agricultural groundwork be laid to prepare for future irrigation projects including the testing and demonstration of the economic use of fertilizers; and 6) that a polyvinyl chloride manufacturing plant be built as the first step in a comprehensive industrial complex based in part on the abundant reserves of gas.

The program was approved, though the polyvinyl plant was abandoned due to lack of money. Over 200 contracts were awarded, including to companies in Great Britain, Italy, Holland, France, Japan, the United States, Germany, and Sweden. Out of the 400 non-Iranian employees, about half were Americans, and over 30 had TVA experience.

By 1967, the initial plan was essentially complete. Electricity consumption had increased 300% since 1958 when the transmission line had been completed. A 50,000 acre pilot irrigation area for improved agriculture, fertilizer use, and improved seed varieties was in operation. As Clapp reported at that time, "in the pilot irrigation project, the desert truly has been made to bloom; and during the next four years, the irrigation network will be expanded to bring controlled flow of water to 360,000 acres."

By 1967, Iran had invested over \$190 million in the series of projects for the region, including \$42 million loaned from World Bank, with the rest from oil revenues.

Clapp reports that "in the beginning, there was a great amount of cynicism about the Khuzistan program. When plans for the dam and sugar cane factory were announced, only a small minority thought they would actually be built. Once started, many believed that the projects would never be finished. Once finished, it was assumed they probably wouldn't work. But as predictions, one after another, have come to pass, the old spirit of pessimism and cynicism has begun to fade. There is now new hope for a better future in Khuzistan."

Ironically, at the very time after World War II when dozens of nations around the world were demanding their own "TVA," the TVA itself was under constant political attack at home. As Clapp reports, with great frustration, "a Valley Authority on the sacred Jordan River as a useful device for international cooperation is espoused by the same government officials who refer to its prototype at home as 'creeping socialism'; an asp in the bosom at home, a dove of peace abroad."

### **The commitment to economic development**

There are numerous examples of the extraordinary impact the accomplishments of the TVA had in even the remotest parts of the globe. As early as 1944, one author in Canada wrote, "the idea of a 'Tennessee Valley Authority' on an international scale has spread widely. The term is now so commonly used that it has acquired a meaning of its own, independent of the experiment from which it took its name." In 1942 at a British Association Conference on agricultural reconstruction, a speaker advocated a "DVA for the Danube Valley," to provide electrical power, transport, and irrigation.

The philosophical approach of the people who created and led the work of the TVA was distinctly different than the "economic" gobbledygook put forward in 1932 by many "professional economists" as a way to get out of the depression. "The Authority was established in the U. S. of A. at a time of economic distress, in the gravest worldwide economic depression ever recorded. It came into being when governments were taking the desperate course of restricting production and destroying produce in the hope of restoring economic welfare," wrote author Herman Finer near the end of World War II.

"The TVA represented an altogether different conception of the management of a modern nation's economic resources: that of enterprise on a large scale, deliberately undertaken by the public authorities, with certain social and economic purposes clearly in mind from the beginning. It represented an economic policy of hope and expansion in which the government would play a dynamic part," Finer wrote.

As a TVA director for more than 20 years, David Lilienthal became one of the most outspoken advocates for national governments assuming their responsibility to develop the infrastructure prerequisite to economic growth.

In the preface to his 1953 book *TVA: Democracy on the March*, Lilienthal stated, "I recognize that in writing about the Tennessee Valley Authority I cannot be wholly objective. . . . For this I make no apology, for I believe the world badly needs conviction; it has had too much of a kind of impartiality that is inevitably irresponsible.

"There is almost nothing, however fantastic, that (given competent organization) a team of engineers, scientists, and administrators cannot do today. Impossible things can be done, are being done in this mid-twentieth century.

"No longer do men look upon poverty as inevitable, or think that drudgery, disease, filth, famine, floods, and physical exhaustion are visitations of the devil or punishment by a deity.

"In the desperation of war, miracles were wrought in laboratories and with machines. Seeing the reality of things they had never dreamed could happen, men the world over were deeply stirred; they began to think of tomorrow, to think of it with longing tinged with fear and uncertainty, livened with hopes for the future. . . . Peoples who for centuries were without hope now demand in earnest of good faith as to their future."

Lilienthal had witnessed the dramatic uplifting of a poor, rural population who before the TVA had had no hope and little future. He wrote, "the quantity of electrical energy in the hands of the people is a modern measure of the people's command over their resources and the best single measure of their productiveness, their opportunities for industrialization, [and] their potentialities for the future.

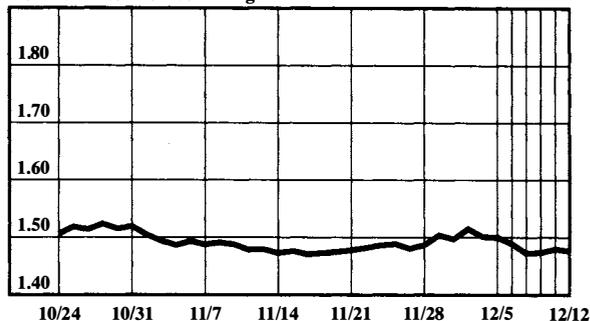
"A kilowatt-hour of electricity is a modern slave, working tirelessly for men. Each kilowatt-hour is estimated to be the equivalent of 10 hours of human energy; the valley's 18 billion kilowatt-hours can be thought of as 180 billion man-hours applied to the resources of a single region! This is the way by which, in the Age of Electricity, human energies are multiplied."

The situation in much of the world is, unfortunately, hardly different today. While hundreds of thousands of mainly American troops mass in the Middle East, the words in April 1952 of M.R. Masini, who was a former mayor of Bombay, India, should be juxtaposed: "The United States has no better ambassador-at-large in Asia than the one which bears the initials T. V. A."

## Currency Rates

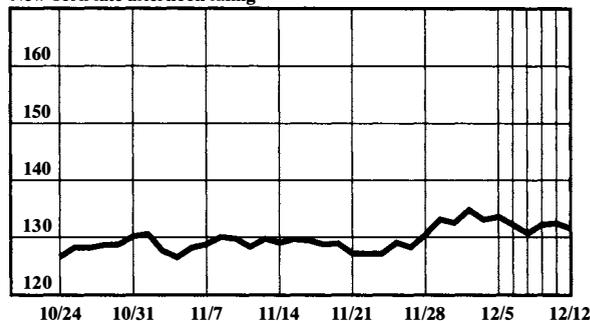
### The dollar in deutschemarks

New York late afternoon fixing



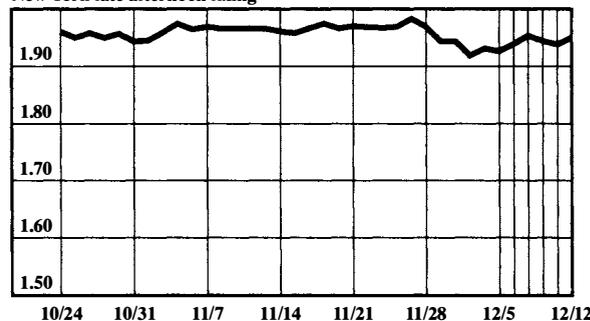
### The dollar in yen

New York late afternoon fixing



### The British pound in dollars

New York late afternoon fixing



### The dollar in Swiss francs

New York late afternoon fixing

