

TURKEY TAPS THE EUPHRATES' RESOURCES

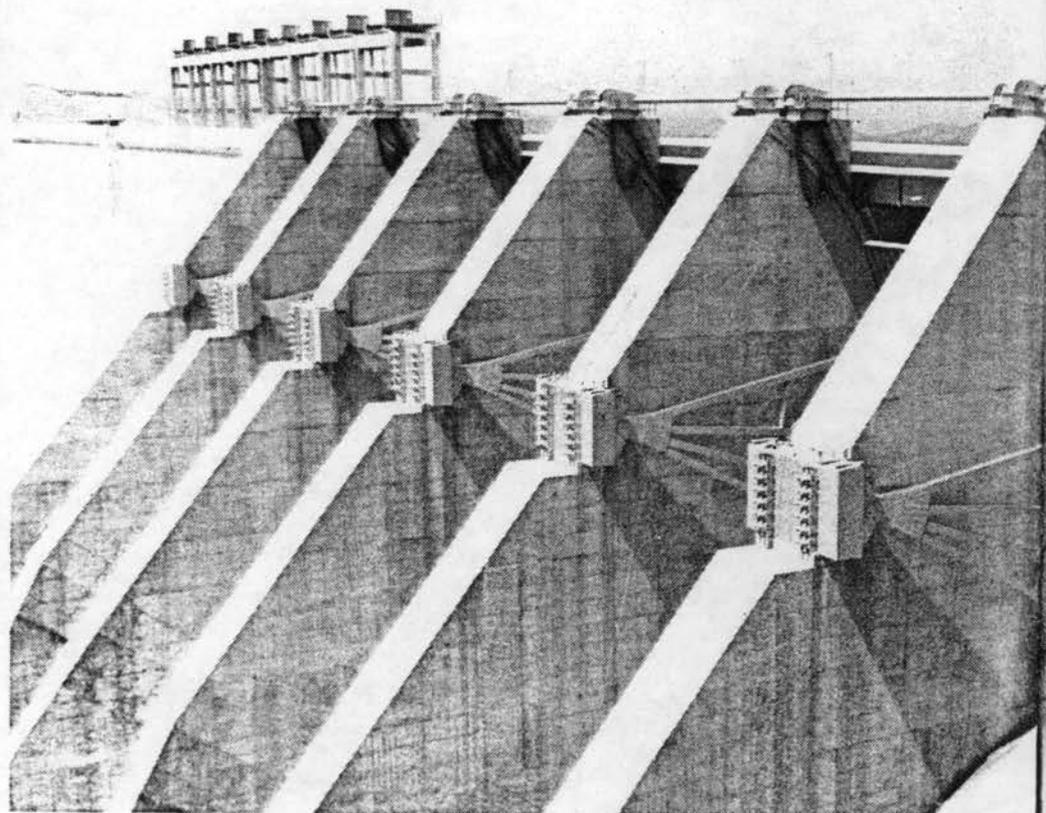
By 2000 Turkey plans to increase its hydroelectric output almost ten-fold as part of its priority development of domestic energy resources.

The Euphrates dam project is to play a major role: one dam is already operational, another still being built, and the third – the giant Ataturk dam, to cost at least \$3,000 million – is to start construction in 1981. However, the project – which will also transform the region's agriculture – has already been plagued by domestic, political and economic problems, and its consequences for the region's Kurdish population have yet to be properly weighed up

IN a steep rocky gorge 600 kilometres southeast of Ankara, work is in progress on the second in a planned chain of dams along the Turkish Euphrates. By 2000, Turkey's production of hydroelectricity may have risen from the 11,000 million kWh anticipated in 1981 to about 100,000 million kWh.

National priority is being given to the development of domestic energy sources. One of the major contributors to Turkey's chronic balance of payments and inflation problems has been the rapidly rising cost of energy. Coal, lignite and water are the three major domestic sources in the next 20-30 years. Hydroelectric power now accounts for 43 per cent of electric power generated, and this proportion is expected to rise. However, thermal power produces more rapid results. For hydroelectric power, with projects taking up to 15-20 years to come to fruition, a long-term view has to be taken.

The string of Euphrates dams is expected to be the biggest contributor to the planned increase in hydroelectricity. By 2000 – if the Turkish State Water Office's (DSI's) plans are carried through – the dams will also have revolutionised agriculture in the eastern Anatolian plains between Diyarbakir, Urfa and Mardin. Food production is expected to rise sharply, cotton production to double and rice output to treble. Sugar beet



The Keban dam, completed in 1974 and now working at 50 per cent of final capacity

production is to rise by nearly 50 per cent and grain output to increase by 2.5 million tonnes.

Only one of the dams in the project is so far complete. The Keban dam, the furthest upstream, was finished in 1974. It is now working at 50 per cent of final capacity with four 150-MW turbines. A fifth turbine is to come into operation towards the end of 1981; the remainder are to start up at three-monthly intervals thereafter.

Keban was built by a French-Italian consortium of SCI-Impregilio. External financing was obtained from the European Investment Bank (EIB), the US Agency for International Development (USAID), and the German, French and Italian governments. Total cost was about TL 8,000 million (\$85 million), including the turbines. Consultant was the US' Ebasco Services.

Karakaya dam – a joint venture between DSI and the Italian group Italstrade Torno – is being built about 160 kilometres downstream in the Diyarbakir region. Its hydroelectric capacity of 1,800 MW will be greater than Keban's. Total cost is estimated at \$500 million.

However, the main focus of Turkish interest is now the giant Ataturk dam, whose foundation stone is to be laid later in 1981 by military head of state General

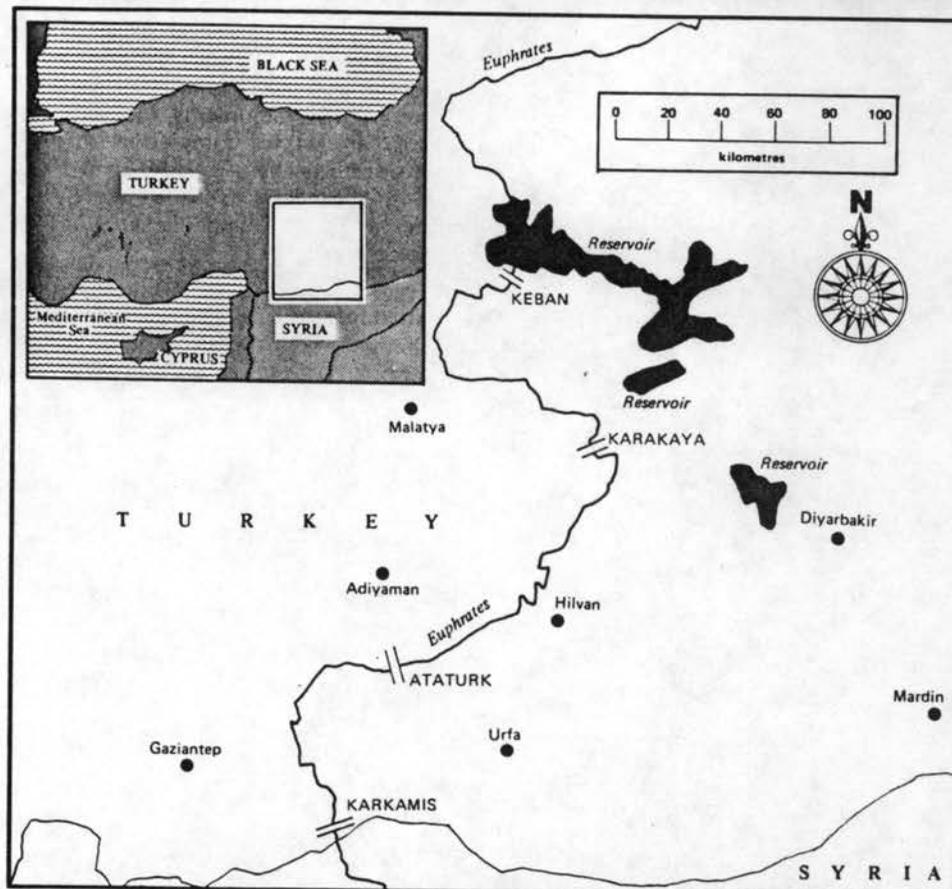
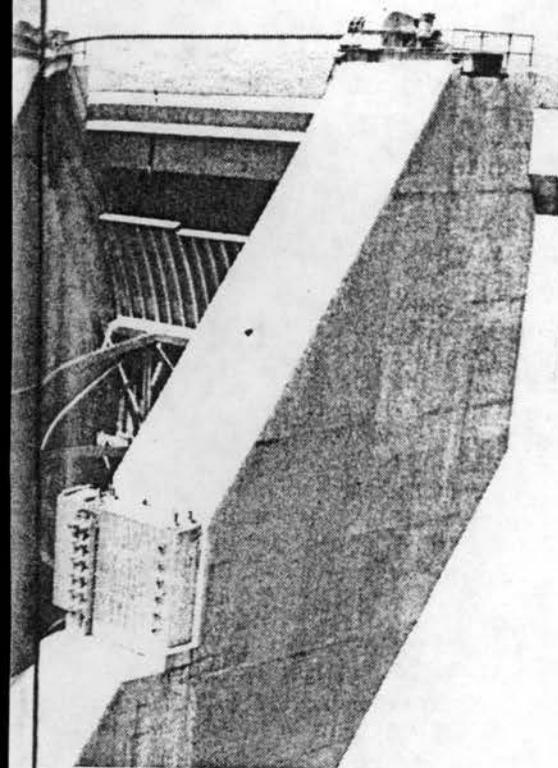
Kenan Evren. Ataturk will be one of the world's five largest dams in dam embankment volume – 82 million cubic metres. By far the largest such project ever attempted in Turkey, it will cost at least \$3,000 million – some estimate as much as \$4,000 million. Located north of Urfa and Gaziantep, and 180 kilometres downstream from Karakaya, the rock-fill dam will have a crest length of 1,664 metres, compared to Keban's 1,125 metres and Karakaya's 462 metres. In contrast to the other two, Karakaya is a concrete arch-type dam, suited to the deep gorge in which it is sited. Ataturk will eventually have eight 300-MW units producing more than 8,000 million kWh of electricity a year.

Formidable problems

Domestic, political and economic problems have already plagued construction of the dams. The area is remote, barren and mountainous. The twin construction villages at Karakaya are amid a series of peaks which stretch away to the horizon in every direction with no sign of habitation. The region – in the heart of Turkey's Kurdish-speaking provinces – is lawless and politically uncertain, and was badly hit by political violence before the September 1980 military coup.

Such formidable difficulties foreshadow those to be overcome on the

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larger and more expensive Ataturk dam. Keban was completed four years late; Karakaya is already three years behind schedule. The latter's diversion tunnels, which must be completed before the dam wall can be built, are not yet operational — and may not be for more than a year.

Most of the delays have been caused by financing problems. Karakaya's civil works contract was awarded in September 1976 to Italttrade-Torno. However, no loan was obtained for the foreign currency requirement, the DSI says. In the contract it was specified that these payments were to be made by the DSI; but, because it was a period of serious foreign currency shortages in Turkey, the DSI could not meet the payments. Consequently, work almost stopped: the delays caused problems for the contractors and negotiations on their claims against the DSI caused further delays. An addendum to the contract has now been signed and "work will resume fully," the DSI says. So far only 10-15 per cent of the civil works are complete.

More loans were finally secured in 1980 for the civil works. These included \$120 million from the World Bank and \$110 million from the EIB. In July, Italy made \$20 million available for the project. The mechanical and electrical works contract was awarded in 1977/78 to Escher Wyss and Brown Boveri & Com-

pagnie, both of Switzerland. The firms found financing for the equipment and went ahead with manufacturing. However, since the whole project is now so behind schedule, the DSI has had the further expense of building a special storage yard in which to keep the equipment until it is needed.

At Karakaya, staff relations between Turks and westerners seldom appear to be easy, but Italttrade officials deny there is any strain. The two construction villages are almost three kilometres apart and there is no telephone connection. MEED's correspondent, who visited the site, heard Turkish engineers contemptuously referring to the westerners as *gavurs* (infidels).

The government intends the Ataturk civil works contract to go to a joint venture of the UK's Wimpey International and West Germany's Hochtief, and the electrical/mechanical works to go to Escher Wyss and Brown Boveri & Compagnie. However, the award is conditional on the companies securing finance for the project in the commercial market. About \$2,000 million will be needed, as a foreign currency requirement; a further \$1,000 million will be needed for the transmission system attached to the hydroelectric station, which is the responsibility of the Turkish Electricity Authority (TEK).

The companies will not confirm at present whether they have secured the required finance — and the longer the process, the more expensive the project becomes. However, a spokesman for one of the Swiss companies points out that, as Swiss inflation is only 6-7 per cent, the time-scale is less of a problem than it would be on funds from UK or US sources.

World Bank reservations

International aid agencies seem reluctant to provide funds. The World Bank is still studying the question of the most economical way to meet Turkey's energy needs in the next 20 years. It does not seem entirely convinced that the Ataturk dam is the most important priority at this stage.

More serious, however, may be World Bank reservations over the irrigation scheme. Most of the irrigation from the Euphrates project is to be linked to the Ataturk dam. There are two irrigation systems planned. One, which links the Ataturk reservoir with the plains around the southern city of Urfa, is to irrigate 300,000 hectares; a second system, based on Hilvan, is to irrigate some 400,000 hectares. Construction of the Urfa tunnel was tendered in 1977 but only eight kilometres of the 26-kilometre double-tunnel project were completed. Public tenders

COVER STORY

for the scheme are to be re-invited, the Ankara daily Ebanewsletter reports.

The main problem is that Turkey's downstream neighbours, Syria and Iraq, are reluctant to let Turkey take a sizeable proportion of the Euphrates annual flow for irrigation purposes. Both countries also have their own important dam schemes. Some Turkish engineers privately admit that the actual amount removed from the annual flow could be nearer one third when all the projects are complete.

The World Bank — and, following their lead, most international funding agencies — are not prepared to lend on water projects involving international riparian rights unless the interested nations have come to an agreement. No funds are likely to be made available until Turkey can agree on the question of sharing the waters with its neighbours.

DSI head Refik Akarun argues: "The scheme is for everyone's benefit." He says flow levels at present vary — according to season — between 162 and 700 cubic metres a second. Once all the dams are operating there should be a steady flow of about 500-600 cubic metres a second. "Actually, it improves the situation from our neighbours' point-of-view," Akarun says. His deputy, Hirant Mumcan, adds that the DSI will eventually need the

help of the World Bank. It remains to be seen whether the bank — and more importantly Syria and Iraq — are convinced by these arguments. Karakaya and Ataturk are set for completion — somewhat optimistically — by 1987 and 1990. Two smaller dams close to the Syrian border at Findikli and Karkamis are to complete the series.

Agrarian reform

One unspoken theme running through the whole project is the political one. Until now the southeastern region has been dominated by large landlords, mainly Kurdish. Now a land reform is planned. Without land reform, says Akarun, "the Turkish state will simply have made a colossal investment in order to make some landowners living in Istanbul into billionaires." According to a recent report by the Turkish Industrialists Association, 18.5 per cent of farmers in eastern Anatolia are landless or are sharecroppers who do not own land. This is the highest proportion in the country.

Efforts to introduce land reform in the Urfa region started in 1973. However, these ground to a halt two years later after an adverse constitutional court judgement and entrenched opposition from Sulaiman Demirel's Justice Party.

The present military leadership is committed to some sort of agrarian reform but exact details have yet to be announced.

The dam projects have also involved the relocation of many people. Some 25,000 had to be resettled from the Keban site, 15,000 from Karakaya and a further 17,000 will be moved from the Ataturk area, the DSI says. The Settlement Ministry offers four alternatives: a cash payment; alternative land; housing in a city, or much-prized priority in obtaining permission to work abroad.

The major question is how the country's Kurdish-speaking population will be affected by the massive changes following the dams' completion. "By making our biggest single investment since the second world war in this area," says one official, "we are showing that we are not indifferent to the scandal of the poverty and backwardness of eastern Turkey, which most of us believe to be a much more potent factor than the Kurdish sentiment for the troubles in this area."

SARAH GRAHAM-BROWN
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