

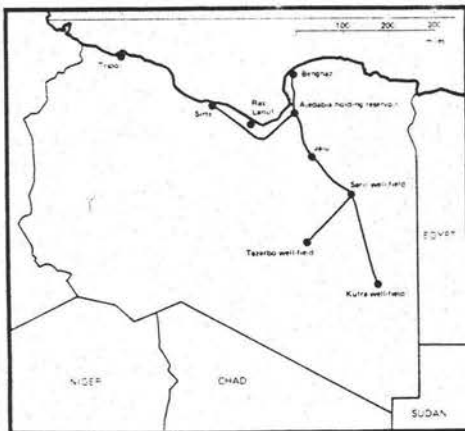
## LIBYA: TAPPING THE SAHARA FOR WATER

IN six years' time, most of Libya's water problems should be resolved. This follows the signing of a \$3,600 million contract for a scheme to pipe millions of litres of water a day from the Sahara desert to agricultural projects and towns on the country's Mediterranean coast. Final details of the job were hammered out in London by South Korea's Dong Ah Construction Industrial Company and the local Coastal Belt Water Authority (CBWA) in time for Libya's 1 September National Day celebrations.

Libya has long harboured dreams of tapping its huge water resources, discovered in 1964 by the US' Occidental Petroleum Company (MEED 13:5:83; 14:5:82, page 19). The scheme was first discussed seriously in the early 1970s, but it was not until 1980 that the UK subsidiary of the US' Brown & Root was appointed project management consultant. The following year 18 companies were invited to bid for the main contract, to make concrete-coated steel pipes to carry the water. The decision to award the job to Dong Ah — rather than to fellow South Korean Hyundai Engineering & Construction Company — was taken earlier this year.

Dong Ah is to build two factories in Brega and Sarir, which will together produce a total of nearly 2,000 kilometres of pipe. Nine-tenths of it will be a massive four metres in diameter; the rest between 1.6 and four metres. Once the factories are complete — in about 18 months — Dong Ah will start on the pipelaying. CBWA managing director Nuri Senussi estimates that, to keep to the schedule, a 7.5-metre section of pipe will have to be laid every 15 minutes, day and night. To meet the 1989 deadline, teams of South Korean workers will dig the trenches in which to lay the pipe as the factories are being built.

As each section of pipe weighs about 80 tonnes, transporting it could have been a problem. However, Dong Ah is to build a road parallel to the pipeline; to keep costs down, it will not be asphalted, Senussi says. Most of the equipment, including special steels and coils, plus joints for the pipeline, will be imported through Brega. The steel



will probably come from the UK, Japan or France, and bids for the 1 million-tonne special steel supply contract will be called in late 1984, Senussi adds.

Plant and equipment for the factories are expected to come from the US' Price Brothers, which is also supplying the licence. Its subcontract is reportedly valued at about \$420 million. The pipe for the coastal section will be made at the Brega plant, which will have two production lines; the rest will be made on Sarir's three lines.

The contract is Dong Ah's first locally and is seen as a major breakthrough. The project was originally to have been awarded in smaller sections, and would have involved about 40 contracts. However, Senussi says co-ordinating such a scheme would have created enormous problems. Over the six years, Dong Ah is expected to have an average 8,000 South Korean labourers working on the job for whom it will build housing and lay on catering.

The water for the scheme will be gathered from 270 wells, to be drilled in Tazerbo and Sarir. Submersible pumps will push the water to a height of about 300 metres above sea level; it will then flow at a rate of 2 million cubic metres a day through two pipes to a reservoir at Ajedabia, which is

100 metres above sea level. From Ajedabia it will flow along two pipes to Sirte and Benghazi, providing irrigation for about 120,000 hectares en route.

Nobody knows the origin of the water. Theories abound: some hydrologists believe it comes from the Nile river, others that it is from Lake Victoria, and yet others that it is a trapped deposit formed during a past ice age. What is known is that the water will probably last for only 50 years or so before depletion bumps up the cost of maintaining supplies. In a second phase, a further line is to be built to Kufra. This phase, estimated to cost \$1,200 million, will take the daily through-flow of water to 3.6 million cubic metres; pumps are also to be installed 60 kilometres south of Ajedabia to boost pressure.

The contract to drill and extract the water from Sarir and Tazerbo is expected to go to Yugoslavia's Geotehnika. The \$110 million job, for the Dams & Soil Investigation Authority rather than the CBWA, should be signed in the next three months, Senussi says.

Another way of supplying the areas with more water would have been to build desalination plants, but this option was discounted by the CBWA because of cost, Senussi says. Water from such plants would cost at least \$2 a cubic metre; the cost in the present scheme will be just \$0.17. The water from the well-fields is also of very good quality. Standard drinking water has a salinity level of 300-500 parts a million — that from water at Tazerbo is 470 parts a million, and that from Kufra 70 parts a million.

And bids for another water scheme on which Brown & Root is management consultant are likely to be invited in nine months. They are for a contract to carry out topographical work for a project to tap water from Hasawna, 400 kilometres south of Tripoli. An initial ground survey is being done by the UK's Scott Wilson Kirkpatrick & Partners.

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by keeping them abroad, the fighting destroyed five Boeing 707s and damaged a further six. Hangars, other buildings and equipment were also damaged substantially.

Press reports that MEA has obtained reciprocal operating rights with *British Caledonian*, which flies out of Gatwick, have been denied by both airlines. MEA already has operating rights with *British Airways*, which flies between Heathrow and Beirut.

### IN BRIEF

o The Council for Development & Reconstruction (CDR) has signed a £1.5 billion (\$117.6 million) seven-year loan, lead financed by Beirut-based merchant banker *J Henry Schroder & Company* (MEED 22.7.83). The loan, signed on 25 August, will be used to pay compensation, and to provide electricity and

sewerage in areas around the Voie Littorale road scheme.

o The Board for Economic Relations (BER) is organising two exhibitions in Beirut. The first — at the Carlton hotel from 6-9 September — is being co-sponsored by a West German contractors' association; the second, being held in co-operation with Italy's Foreign Trade Ministry, will take place in the Sin el-Fil district from 15-20 September. About 100 Italian companies have been invited to take part.

o The West German Arab Society plans to hold an economic conference on Lebanon in Bonn on 7 October. It follows the society's June trip to the country.

o Police have seized 4.5 tons of hashish from a Lebanese cargo ship in Marseilles, in what may be France's biggest recorded hashish haul. The drugs have an estimated street value of £120 million (\$2.5 billion).

## LIBYA

### Bidders seek foreign finance

At least three of the four companies shortlisted for work at the \$1,000 million Sirte fertiliser complex are reported to have failed to put together a financing package for the scheme. The deadline was 26 August; it is unclear if the firms are continuing their search for funds.

The four companies are Milan-based *Foster Wheeler Italiana*, Japan's *Marubeni Corporation*, Italy's *Snamprogetti* and West Germany's *Uhde*. The companies are bidding for the complex's two NPK (nitrogen phosphate potash) plants, a sulphuric acid plant and an ammonium sulphate plant. Project manager is the