

Harnessing the power of the Zambesi

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The Cabora Bassa project, which involves harnessing the Zambesi for hydro-electric power generation and crop irrigation at the Kebrabasa Gorge, near Tete, where the river plunges down off the Central African plateau on to the East African coastal plain, is not only enormously important to Mozambique—it also represents a major step towards economic and political co-ordination in Southern Africa.

The potential of the Zambesi at Kebrabasa has long been realised—the river's thrust is enough to generate 4,000 MW, equal to two giant coalburning power stations or two-and-a-half Karibas—and the Portuguese Ministry for Overseas Affairs spent the equivalent of £5m. just on investigating it.

But exploitation of this potential required an enormous amount of capital—the first two stages of the project are likely to call for £150m.—and it was out of the question unless a big customer could be found for hydro-electricity on a long-term basis, so that there would be an assured source of revenue to service the loans which would have to be raised.

Interestingly enough, the grandiose idea only became a practical project when Dr. Hennie van Eck, chairman of South Africa's Industrial Development Corporation and the most powerful industrialist in the Republic, got personally involved. Van Eck is a potent combination of visionary and practical businessman, and when he sets his heart on a venture it nearly always comes off.

Eye-catching

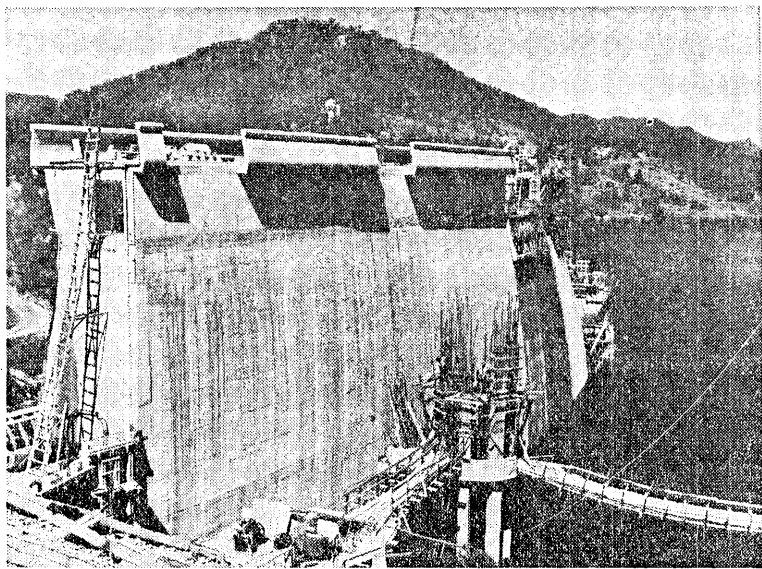
He saw Cabora Bassa as an eye-catching opportunity to strengthen the ties between South Africa and Mozambique—never very strong in the past because of the backwardness of Mozambique's economy, and South Africa's disdain for the Portuguese fear of South African economic imperialism. Stronger economic and political ties between the territories of Southern Africa are very much part of the Verwoerdian concept of a sort of looseknit Southern African confederation led by the Republic.

Through van Eck's intervention South Africa's Electricity Supply Commission was cajoled into a reluctant agreement to take an initial 680 MW of power from Cabora Bassa, rising to 1,470 MW. These figures include some power to be channelled to Lourenco Marques in Southern Mozambique—100 MW of the higher total.

The agreement is for 35 years. The exact price at which ESCOM will buy is still confidential, but it is known to be slightly more than the Commission now charges its consumers for supply of coal-generated power—three-farthings a unit.

Of course, coal costs have been rising steadily and are likely to continue doing so, the opportunities for holding down costs through going for ever-larger production units are decreasing, and water shortage is forcing ESCOM towards more costly water-conserving "dry" stations. This is the line of reasoning put forward to defend the agreement on economic grounds—but it ignores the inception of cheap nuclear power (South Africa is now planning its first atomic station near Cape Town).

It's no secret that ESCOM is



The Chicamba Real dam, 120 miles north of Vila Pery. This power and irrigation project is nearing completion.

also worried about reliance on electricity generated in a foreign territory with an uncertain political future, which would be transmitted over an 800-mile power line through much desolate country, with its 7,000 pylons an easy mark for sabotage-minded guerrillas.

So, not surprisingly, the Cabora supply has been calculated in such a way in relation to the Republic's planned capacity that should the supply fail for any reason, South Africa will have just enough local capacity to squeeze by.

ESCOM'S undertaking was the starting signal for the Portuguese to proceed with the scheme, because it assured them of the revenue to service the capital. However, there was a three-year delay after the start of negotiations between the South African and Portuguese Governments—the ESCOM agreement was only finally signed last month. In the interim the contract to build the dam—and arrange for the financing of it—provisionally awarded to the international Zamco consortium headed by the Anglo-American Corporation LTA, hung fire.

The reason for the delay are shrouded in mystery. One theory is that the Portuguese Government was unwilling to guarantee such a large amount of capital until it was sure in its own mind that it could win the war against the guerrillas in Mozambique, and keep the territory a permanent part of Portugal.

Exchange rate risk

A more likely suggestion is that the Portuguese insisted that both the Escom contract to buy power and the loans to raise capital for the project be denominated in the same currency to cover them against the exchange rate risk. This would be difficult because South Africa would naturally be unwilling to contract in anything but rands, whereas much of the capital would have to be raised in Europe or America, where loans would have to be denominated in dollars, pounds, deutschemarks or similar international currencies.

The Portuguese are also be-

lieved to be anxious for political reasons to involve American interests in the project. The Zamco consortium consisted of South African, French, German, Portuguese and Swedish companies, but no American concerns. The final contract will almost certainly be awarded to a new consortium including participants in Zamco, but also Morrison Knudsen of the U.S. and probably others.

Announcement of this is expected within weeks, and then the race will be on to get the dam, first hydro-electric station and the transmission line complete by 1975, when the first power is due to flow to South Africa. The dam site, 86 miles upriver from Tete, is isolated from existing transport routes. Most of the steel, cement, machinery and other equipment required will have to be shipped to Beira, railed to within 100 miles of the site, ferried across the Zambesi, and then trucked in over improvised roads.

A complete new town will have to be built to accommodate the 750 whites and 3,000 Africans expected to be employed on the first phase of the project.

The first phase involves cutting a diversion tunnel, building coffer dams, construction of the main wall, cutting out the first power station on the south bank, putting up a transmission hall downstream, and laying the high-voltage power transmission line to the Republic. The dam wall, 510 feet high but only 1,000 feet long, will create a lake stretching back 150 miles to Zumbo on the Zambian border (24,000 tribesmen will have to be moved and another Kariba-type operation Noah's Ark will be needed to save wild animals).

Phase two will involve a raising of the south bank power station's generating capacity from 1,200 to 2,000 MW and the building of additional power lines to serve areas other than South Africa (including possibly an aluminium smelter in Malawi, which has a good bauxite deposit but no cheap power).

Phase three—not planned in the immediate future—involves building a second power station on the north bank, and possibly construction of three dams in gorges downriver from the

Kebrabasa to regularise the flow of the Zambesi and allow navigation by barges with a draught of up to eight feet, able to carry loads of up to 1,000 tons apiece.

The Mozambiquans do not see the Cabora Bassa dam in isolation, but as the key to a much grander scheme to open up the whole area to industry and modern agriculture. With cheap power available, exploitation of rich mineral deposits known to exist will become possible. There is a large coalfield near Zumbo—Japan's Sumitomo Mining is already interested—and other minerals discovered include iron ore (some rich in titanium and vanadium), copper, manganese and fluorspar.

A Portuguese company, De Uramio, is interested in establishing a steel mill. Other industrial possibilities are an aluminium smelter, an electrolytic copper refinery, and factories to process agricultural produce.

New settlers

The wider scheme is expected to open up millions of acres of plantation and smallholder-type farming and put 200,000 acres under irrigation. With the prospect of large-scale forestry, cattle ranching and growing of crops such as maize, tobacco, kenaf, flax, cotton, vegetables, sugar, copra, rice and tropical fruits, the Portuguese talk excitedly of attracting perhaps as many as one million settlers to the area.

The authorities' starting plan for developing the infrastructure of the Zambesi delta—which comprises about one-quarter of Mozambique—envisages expenditure of £74m.

One is naturally inclined to be sceptical about the more visionary possibilities of the area, but it seems that the basic scheme itself—which outdoes Egypt's Aswan Dam venture in its size—is certainly going to come about. That, in itself, assures Mozambique of considerable development and seems to make certain closer ties between the territory and the dynamic South African economy.