

# DAM NATION

Improve the lives of millions of people, or preserve a unique ecosystem? Fred Pearce examines Africa's dam dilemma



**F**OUR is an unlucky number for lakes. Once the fourth largest in the world, the Aral Sea is now a shadow of its former self. As the then Soviet Union diverted the rivers that feed it to grow cotton, its shoreline retreated by more than 100 kilometres in places. Today, in the middle of the dried-up lake bed, lie two small hyper-saline lakes. All around, climates are more extreme, dust storms spread salt across the land, a rich fishery that once supported a fleet of trawlers has disappeared entirely – and millions of people left high and dry have been forced to move elsewhere.

What started happening in the Soviet Union half a century ago looks set to happen again, this time to Africa's fourth largest lake and the biggest desert lake in the world, Lake Turkana. European explorers nicknamed it the Jade Sea thanks to its turquoise waters, which stretch for 250 kilometres in northern Kenya. There are many reasons to protect it. But starting this year, Lake Turkana is timetabled to shrivel and die.

The problem is that the source of almost all of Lake Turkana's water is across Kenya's northern border in Ethiopia, from the river

Omo. Now Ethiopia plans to capture most of that flow to generate hydroelectricity and irrigate plantations of sugar and other thirsty crops. Kenya has barely raised a whimper about its larger neighbour, but researchers warn that what is about to happen is a hydrological, ecological and humanitarian catastrophe.

Lake Turkana takes its name from the people who live on the western shore. It is likely to lose at least half of its volume and could be reduced to two small, salty sumps. Five national parks will be wrecked and half





NIGEL PAVITT/GETTY

Kenya's Lake Turkana is fed by the river Omo, which is now being dammed (right)



NIGEL PAVITT/GETTY

So later this year, in a steep canyon 600 kilometres north of Lake Turkana, engineers will complete construction and begin capturing the Omo's flow behind Africa's tallest dam (see map, overleaf).

The 243-metre-tall Gilgel Gibe III dam is the latest and biggest in a series of five planned for the river. Over the next two or three years, a reservoir 150 kilometres long will fill behind the concrete barrier. The dam will capture almost two-thirds of the water from the Omo that would otherwise reach Lake Turkana. The remaining third is provided by tributaries such as the Mago, which enter the Omo downriver of the dam. This is disastrous news for the lake because about nine-tenths of its water comes from the Omo.

The water level in Lake Turkana depends on the balance between inflow from the Omo and evaporation from the lake's surface. The unrelenting Kenyan sun takes 2.5 metres a year from the lake's depth. Sean Avery, a Nairobi-based consultant with over 30 years' experience working with dam builders in Africa, has investigated the hydrology. He calculates that as the new reservoir fills, Lake Turkana's water level will drop by at least 2 metres.

That is not so bad. A decade ago, the dam's designers promised that, after the reservoir filled to capacity, the water released through its Chinese-built turbines would be as great as before. Eventually the lake would recover to its former level.

But that was then. Three years ago, with dam construction already well under way, the Ethiopian government suddenly announced big plans for the water after it leaves the dam. By regulating the river's flow, the dam allows

the development of downstream irrigation works that the government intends will capture much of its flow. First up – and already under construction – is the 175,000-hectare Kuraz sugar plantation, named after the homeland of the local Daasanach people that it will largely take over. And the government has also earmarked almost 300,000 hectares of the lower Omo valley for commercial agriculture.

This is a massive change to an unfenced landscape of bush, woodland and open cattle pasture. Now, as the fences go up and irrigation canals are dug, both wildlife and local tribes will lose out, with many people forcibly resettled. Almost half a million hectares will come under the plough and the Omo will be systematically emptied.

The Ethiopian government has never published an environmental assessment of the impact of the farms and their water abstractions. But Avery estimates that – depending on the pace of development, the efficiency of the irrigation and how much water returns to the river from field drainage – the Kuraz sugar project alone could permanently take at least 30 per cent of the river's flow. The other planned farms would increase the take to 50 per cent or more.

The Ethiopian government says the country cannot afford not to have the Gilgel Gibe III dam. And it comes as no surprise that the state-owned electric company and sugar corporation claim that the environmental impact of the dam will be minimal.

But the hydrology is inescapable. Lake Turkana currently loses 16 trillion litres of water to evaporation each year – enough to ➤

a million people face the loss of ecosystems that sustain their precarious existence in a remote corner of Africa.

It is clear why Ethiopia wants to harness its water. Parts of the country are dangerously dry. In the 1970s and 1980s, Ethiopia suffered catastrophic droughts that left hundreds of thousands of people dead. Yet much of its central highlands are as wet as Scotland, and the government wants to tap this water to improve the lives of its 96 million citizens. That means damming the Omo – it is a resource too valuable to be ignored.

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