

1.2 mn hectares of fertile land turns saline in coastal Gujarat, over 1.33 mn people suffer

The villagers in Saurashtra pride themselves on their hospitality. No visitor to this western corner of the country is allowed to return without having a cup of tea and home-made snacks. But the times are changing, and serving tea has become a problem in many of Saurashtra's villages - not because the villagers are any less hospitable but because tea cannot be made with the saline water available in the area as it spoils the milk.

Coastal Gujarat is grappling with a man-made environmental disaster: 1.2 million hectares of fertile land stretching for 1,059 km between Bhavnagar and Lakhpat has turned saline, affecting over 1.33 million people in 779 villages. The area between Una and Madhavpur is the worst affected, with salinity ingress reaching 10 km inland and affecting 120 villages in the Junagadh and Amreli districts.

The residents of the area had never dreamt that such a fate would befall them. In the 1960s, Gujarati poets had been inspired to write poems on this lush area, calling it "Lili Nager" (green creeper). The area was dotted with prosperous fruit plantations and fields of sugarcane and groundnut. But now, for miles on end, not a blade of grass grows and the reassuring beat of diesel pumps has been replaced by a deathly silence.

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Prosperous farmers have been forced to leave their fields and become menial labourers in nearby areas. Laments Baval Sidi, whose four acres of land in Miyani village of Junagadh district was blighted by saline water: "My land is useless. No one wants to buy it and I have been reduced to a labourer."

Ironically, coastal Saurashtra's fertility contributed in no small measure to this distressing state of affairs. In the zeal to usher in a green revolution in this fertile tract, the state Government in the mid-1960s liberally granted loans to farmers to install irrigation pumps. Soon an astonishing 90 per cent of the fields had diesel pumps. The withdrawal of groundwater increased five-fold. Crops like sugarcane - which require large amounts of water - flourished and sugar factories sprang up in places like Talala.

But the revolution upset the delicate balance of nature. Rainfall used to replenish the water table and thereby keep sea water at bay. But the massive withdrawals of water led to a steep drop in the water table, and sea water seeped in. In 1974, Mangrol's water table was 22 feet below the surface; today it is 40 feet and the wells on the coast have become brackish. Worse, many farmers realised too late that the water had turned brackish and continued to use it for irrigating their fields, ruining the top soil.

Environmentalists like Lavkumar Khacher had sounded warnings of disaster over a decade ago, but his was a voice in the wilderness. Khacher says today with some bitterness: "When we warned people, they laughed at us and dismissed us as idealistic dreamers."

Consecutive droughts from 1972 to 1974 led to the water table falling further, and the sea water flowed in. Wells in villages like Adri, Sutrapada, Dhamlej, Antroli and Shil registered a staggering salt content of 10,000 parts per million (ppm). Water becomes undrinkable after 600 ppm and unfit for irrigation after 2,000 ppm. Sea water has a salt content of 30,000 to 40,000 ppm. Predictably, crop yields plummeted.

In the area between Una and Madhavpur, the mango yield fell from 40 tonnes per acre in the early 1970s to 20 tonnes, coconut from 20,000 nuts to 8,000 per acre, bananas from 19 to 10 tonnes, sugarcane from 110 to 55 tonnes and bajra from 2,800 kg to 1,400 kg. Farmer Kana Barad of Badalpara village in Junagadh district ruefully examines the sickly-looking jowar in his fields and voices a common local sentiment: "Only God can help us now."

Land prices have fallen dramatically, when there are buyers at all. Prices in the mid-1960s used to range up to Rs 25,000 or more per acre. but now most land goes begging. "There are no buyers," says farmer Naga Narain, whose two acres lie barren in the hot sun.

Some cultivation is still possible in many places because the farmers depend on the rains to provide one rain-fed crop a year. Many farmers have also switched to crops like cotton and groundnut as these need 80 per cent less water than sugarcane, bananas and other fruits. But even one crop a year is often not possible, because the monsoons fail, as happened this year. Some, like Laka Rana Vala, pay a heavy price when this happens. Vala had sown 370 kg of wheat, resting his hopes on the monsoon. Today, he is a broken man, and his torn clothes and gaunt cheek-bones tell the tale of a pauper even though he owns 10 acres of land.

Polarama Barad talks nostalgically of the time his parents in Adri used to grow fruits on their six-acre farm. "It was very profitable," he recalls but now. the field is used to grow only one crop of rain-fed groundnut. And it speaks volumes that among the 'happiest' farmers in the area today is Varjang Barad, who owns two acres in the same village. His groundnut crop fetched him Rs 4,000, enabling him to make a profit of Rs 1,000. "It is ridiculous to think that I can be happy with earning such a small amount in a whole year, but 90 per cent of the farmers lost, everything they sowed," he says.

Construction at Medha Creek

Driven by poverty, most of the Adri villagers desperately want to sell their cattle but refrain from doing so for fear that they will end up in the slaughterhouse. Says Barad: "Bullocks have been the mainstay of our lives. If they have to die, let them die in our courtyards." Many farmers have begun migrating in search of work. But others, like Kanabhai Haridas. refuse to consider that option: "We were born here and we will die here. How can we leave our land behind? All these years it gave us so much." Haridas sold his family jewellery last year for Rs 5,000 as there was nothing to eat.

Awakening to persistent complaints from villagers in Saurashtra, the state Government appointed a committee in 1974 under the then chief secretary H.K.L. Capoor to go into the complaints. The report unequivocally stated the only solution was to artificially recharge the subsoil with water. The catch: it would cost a staggering Rs 65 crore just to reclaim the 160 km stretch of land between Una and Madhavpur. So the report was shelved. But as the salinity problem got worse, another committee was appointed in 1978 under Capoor's successor, K. Shivraj. This committee recommended bunds on rivers,

artificial recharging of the subsoil with water, massive afforestation and other measures - and the cost had escalated to a whopping Rs 800 crore. The Government finally started moving in a small way - a Rs 36 crore plan was drawn up, with Rs 24 crore coming from the World Bank alone.

A spate of construction is now under way in the area for erecting 150 checkdams, two tidal regulators (to prevent sea water from entering dry rivers during high tide), and bunds across rivers to facilitate water storage, while an afforestation drive is on along the coast. The most ambitious project is the Rs 6.27-crore Medha Creek project - a concrete bund to prevent the sea from Hooding flat land. When completed in 1990, it will also help store 1,340 million cubic feet of fresh water, thereby recharging the water table and irrigating over 10,000 acres of land in Junagadh and Jamnagar districts.

However, all this is confined to the 160 km belt. The rest of the coastal area still cries out for attention. But a senior state government official offered little hope: "Finances do not permit us to even think of what we can start doing in the other areas," he said. Officials are also sceptical about how the Government is going to get the Rs 800 crore it needs for further conservation work, and the fact that this is the first time in the country that such a multi-disciplinary effort is under way makes the going even tougher.

But the limited effort already made has started showing results. The Irrigation Department - which has been closely monitoring salinity levels in 1,500 wells - indicated that 15,000 of the one lakh acres affected by salinity had improved, and farmers had started cultivating them. Salinity levels in wells near bunds or tidal regulators had dropped, and wells in 35 villages had become potable again. But with the failure of the monsoon, salinity levels had once again shown an increase last month. Says J.F. Mistry, irrigation secretary: "Our projects can only be successful if there is enough rain. We cannot fight nature."

The situation is likely to get worse in the coming months as none of the checkdams now hold water, making sea water ingress inevitable. And since the rock strata all along the Saurashtra coast are of miliolite limestone - full of cavities and very porous - water easily flows in. But 10 km ahead, the formation ceases and non-porous rock checks sea water ingress. And a checkdam in Visenvel village in Junagadh district wards off sea water while stopping the river water from flowing into the sea. Tarmohammed Daud, who lives near the checkdam, says his wheat crop is now flourishing. "If more such dams come up thousands of farmers will be freed from the curse of salinity," he says.

Rather late in the day, the Government has also decided not to permit any more well energisation in the coastal zone, and the land development bank and commercial banks have been restrained from advancing loans for buying motors. But this is hardly enough. Capoor and Shivraj had called for water legislation to prevent farmers from drawing excess water. "It is impossible to tell a farmer that he should use water sparsely as that would stunt his profits," laments geologist Anil Bhatnagar. "The legislation will ensure that water becomes fit for irrigation purposes, but if the farmers start withdrawing too much we will have the old problem again on our hands."

Water legislation is one solution, but as Chief Minister Amarsinh Chaudhary pointed out "it will be politically impossible." The multi-dimensional plan for all of coastal Gujarat

seems equally unlikely because of the state government's shortage of funds. Said Chaudhary: "We may need about Rs 1,000 crore to control salinity for which we will have to ask the World Bank for loans. And we do not know whether such a huge loan will be possible." And there is no third solution in sight at the moment. In that situation, the thousands of farmers in Saurashtra may be fated to see only mirages of fresh water.