

SCIENCE AND ENVIRONMENT FORTNIGHTLY

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# Down To Earth

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## DOUBLE STANDARDS

Saltmaking Agarias face eviction to protect the wild ass; two salt factories carry on despite allegations of pollution

**Pesticides nailed again**

**Fishworkers take to the streets**

**Nutritious and wholesome ragi**

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As the world celebrates yet another Environment Day, groups of marginalized people in some part of the globe or the other get evicted from their traditional land and livelihood. They are pushed to the brink of tragedy in the name of conservation so that animals can survive. Why does it have to be so? Man vs animal or, man vs nature.

People have to be placed at the centre if conservation has to make sense universally. What makes things even worse, is that these so-called protected zones allow commercial activities to go almost unchecked. On the eve of World Environment Day, RAVLEEN KAUR comes face to face with the twin predicament of the marginalized in the salt pans of Gujarat: protecting the endangered wild ass has become a ruse to evict Agaria salt-makers. At the same time, the state government has looked askance at pollution by units of two major industrial groups which threatens local livelihoods



# Scorching salt



PHOTOGRAPHS: AGNIMIRI BASU / CSE

The earth is cracked and the horizon bare. The deathly silence is broken by the occasional whirring of crude-oil pumps. Women, going about their daily life in bright mirror-work *lehangas*, add a dash of colour to an otherwise arid back-ground. This tough terrain has dominated 50-year-old Shantabhai Maganbhai Bamanian's life since he was 10. Shantabhai is an Agaria, a salt worker. The Rann of Kutch in Gujarat is his home to him and his family for eight months a year, from September to April. The remaining four months they spend in Kharagoda. Not just Shantabhai, the Rann of Kutch is home to more than 100,000 workers like him for eight months a year, who come from villages 30 to 40 kms away.

A 2006 report of a Union ministry of environment and forests-World Bank project, Biodiversity Conservation and Rural Livelihood Improvement, notes that nearly 60 per cent Agarias live below the poverty line. Their livelihood has been under threat ever since the Little Rann of Kutch (the Rann is divided into the Little Rann and the Great Rann) was notified as a wildlife sanctuary in 1973 to protect the wild ass. In 2006, the salt workers were served eviction notices.





The saltmaking Agarias do not understand why they are being asked to go, leaving behind an occupation they have been involved in for centuries. Where is the conflict, they ask. Even forest officials are unable to show any evidence of conflict. According to the forest department's own census, the population of wild asses has gone up beyond what is called "the safe level to achieve the objective of conservation." Despite such a success story forest officials are rigid when it comes to the marginalised Agarias: since the area has been declared a sanctuary there cannot be any human population there, say officials.

The Agarias' vulnerability stems from the fact that they have no land deeds. No survey has ever taken place in the Little Rann of Kutch since independence; it does not figure in government revenue records. Revenue department records in fact refer to the area as Survey Number Zero.

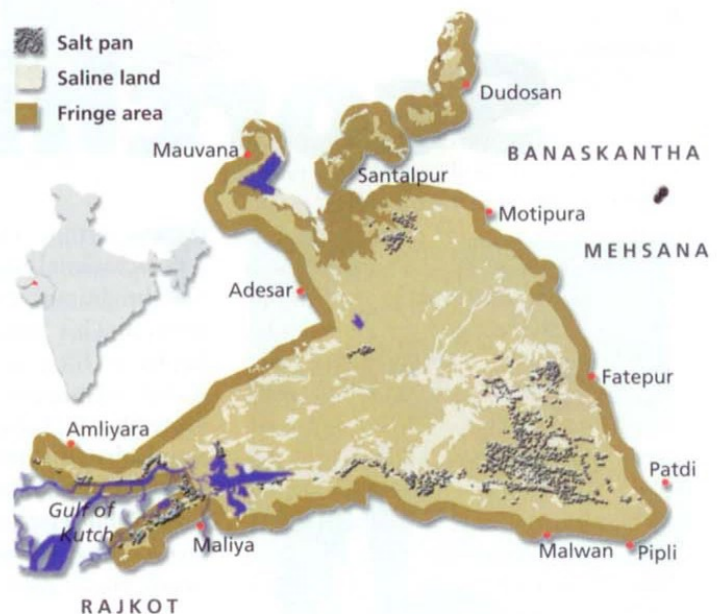
### In Survey Number Zero

During monsoon, water from the Arabian Sea floods the Rann converting it into a lake. In September, when the waters recede, it's time for Agarias from the 107 villages around the Little Rann to move in. Mud huts come up in Survey Number Zero, where Agarias stay till spring, making the Vadagara variety of salt—it has big crystals and is considered inferior to the powdered marine salt sold in most of urban India.

Vadagara is made from sub-soil brine. Agarias dig a 6-9 metre-deep well from where the brine is pumped out. This is

### Salt and wild asses

Agarias use 3 per cent of the Wild Ass Sanctuary



Source: GEER Foundation Report



## Native wisdom

"Engineers like me can't help marvel at the Agaria's skills," says Vinay Mahajan of the Ahmedabad-based independent research institute Sandarbh Development Studies. Mahajan has co-authored a paper, *Yet to be freed*, on the lives of Agarias.

In March-April, when the salt harvest is ready, dust laden winds can wreak havoc. The dust can make the salt yellowish, reducing its price. A trench-cum-bund is made around the *patas* to prevent this. The bund obstructs the wind while a trench traps the clay particles. "This system has evolved in the last 20-25 years," says Mahajan.

When tractors were introduced in the area in 1979, Agarias made a 25-km long embankment to prevent their salt from being washed away by rains. "People in the concerned area repair it without any engineering assistance. This is a nice social arrangement without any kind of conflict," says Mahajan. He talks of other forms of cooperation between the salt workers as well. In each salt pan, at least 10 workers are needed. All Agaria families help with labour. Contributory labour system has evolved over the years as it is impossible to get labour from outside.



Working with salt means a lifetime of blisters

then taken through channels to large flat pans. Getting these pans ready to receive the brine is tough work. Agarias stamp hard and level the earth with their bare feet. The pressure tightly packs the loose soil and ensures the brine does not seep back. "The initial layer of salt that is formed, once the brine evaporates, is scraped with heavy wooden rakes, locally known as *gantaras*. Some dry branches are thrown in, around which salt crystals form," says Shantabhai. Once the salt has been harvested it is sent to collection points. Here traders take over. These collection points are by the nearest railway station; in Shantabhai's case the salt harvest is despatched to Kharagoda railway station.

"The trader usually gives us a monthly advance of Rs 12,000 to Rs 14,000. This includes expenses for crude oil and

spare parts which go up to Rs 12,000. The rest of the money goes in buying food," says Mahesh Godhabhai Gohil, an Agaria. "We come to the Rann with an advance and leave the place in debt," says he.

Not just debts, Agarias also leave with scars and blisters on their hands. Uninterrupted exposure to the sun causes eye and skin problems. Stamping hard on the salt pans with bare feet leaves Agarias with blisters—it is only recently that some NGOs have started providing them with gumboots. Wounds take a long time to heal because they are constantly rubbed with salt.

## Low-profit activity

About 1 million tonnes of salt is produced in a year in the region. It is sent to UP, MP, Chhattisgarh and Nepal. For every 100 kg of salt, the trader gives Rs 15 to the Agaria—seven paise per kg. Traders sell the salt at Rs 45 to Rs 60 per 100 kg—they spend about Rs 35 on cartage and iodination.

Not just poor payment, declining groundwater has become a problem for the Agarias as well. "Salt pans were active upto April 2007. But this year, they had to be wound up in March because of very little groundwater. The average production from each pan was 1,000 tonnes about 10 years back. It is no more than 700 to 800 tonnes now," says Devibhai Dhamecha, naturalist and photographer, who also runs a tourist resort near the Little Rann.

"Making Vadagara salt is a low-profit activity. If electricity



Salt workers get just seven paise for each kg of salt

is provided inside the Little Rann, we will be able to compete with marine salt makers. Roads will also make our work profitable. But since the area has been declared a sanctuary no development work is possible here," says Ashok Bhai Patel, a trader from Kharagoda.

## The sanctuary imbroglio

According to a Gujarat forest department sponsored study conducted by the Gujarat Ecological Education and Research Foundation (GEER), *Ecological Study of the Wild Ass Sanctuary*, the total area leased out for salt pans in 1995 was 13,357 ha, about 3 per cent of the sanctuary.

The report notes that the area under salt production went up from 6,948 hectares (ha) in 1982-84 to 13,357 ha in 1995.

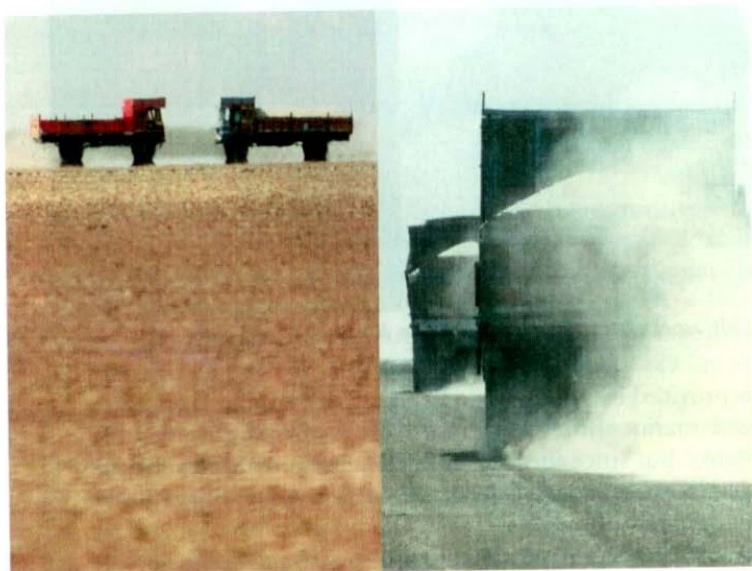


At the same time, the wild ass population also went up from 720 in a 1976 census to 3863 in 2004. The report says "a minimum population of about 2,500 wild asses in the area would be a safe level to achieve the objective of conservation."

"So where then is the conflict?" asks Harinmesh Pandya, secretary of Agaria Heetrakshak Manch (AHRM), a forum that fights for the rights of Agarias. "The animals can often be found drinking water from the Agaria tanks. Never has a salt worker harmed a wild ass," says he.

The forest department agrees there has been a healthy increase in the wild ass population of the area. It ascribes the rise in the number of wild asses to good rainfall in the past six years. "Wild ass mating gets disturbed by movement of salt trucks," says M A Chawda, Divisional Forest Officer of Dhrangadra. This is a classic case of speaking through the hat. Mating and breeding of wild asses begin in April and extends up to October. Trucks move into the area only in March and April when the salt harvest is ready. "The GEER report also suggests that there is no threat to wildlife from salt making. It only recommends the administration designate paths for trucks. It's a management problem, not an ecological one. Why punish Agarias if the government hasn't acted on this recommendation?" asks Vinay Mahajan of the Ahmedabad-based independent research institute, Sandarbh Development Studies.

What is indeed a cause for concern is that wild growth of weeds has reduced the food supply of the asses. Chawda claims that in 2007, more than 600 wild asses were found straying into revenue land. When villagers complain, the animals are pushed back into the sanctuary. Mahajan counters: "The animals are moving out as there is less food in the Rann now, because 10 per cent of the sanctuary is covered by the invasive *Prosopis Juliflora*. But the department does not want to address this problem it created. All it can do is evict Agarias."



**Truck movement in the Rann: a management problem not an ecological one**

The government clearly follows a dual policy: act tough with the poor and be soft towards the powerful. It wants the Agarias to vacate the three per cent sanctuary area used for salt production. On the other hand, proposals for an oil and gas pipeline, from Oil and Natural Gas Commission and Cairn

Energy, are now with the government for consideration. This pipeline, if approved, will pass through the Little Rann. The Narmada canal, which too will pass through the sanctuary, has already been given the go-ahead. The GEER report states while the positive impact of the canal will be increase in water availability for wildlife the downside is that it will restrict the free movement of animals. The army had also leased more than 17,000 ha from the government for artillery practice. "This went on till 1999 and habitat in these areas has degraded," the GEER report notes.

## **Forest department wants to evict Agarias though wild ass is not endangered by them**

### **A piece of paper**

The forest department often asserts that Agarias have no document to prove their claim over the Rann. But Pandya contends, "There is mention in documents of the colonial state of salt extraction in the Rann of Kutch." His organization has recently ferreted evidence from Mughal times that shows that salt-making in the Rann dates back to more than five centuries.

The government started making some moves to settle Agarias' land claims in 1997. Surendranagar's district collector issued a notice to Agarias to claim their entitlements in the sanctuary within two months. But the notice was sent in September when Agarias had left for the Rann, so they could not file claims. "The additional collector's office told us that it has received only 1,776 claims so far. But according to the Gujarat industries department report of 2006, more than 45,000 families are engaged in salt making in the sanctuary. How come only 1,776 claims were filed?" asks Pandya. "They said they came to each village and even issued notices to panchayats, but nobody came to our village," says Ambu Bhai Patel, a journalist in Patdi village. In December 2006, AHRM organized a meeting following which 4,800 Agarias filed their claims till June 2007. "We have also demanded that verification of rights be done through gram sabhas," Pandya says. Surendranagar's revenue settlement officer was supposed to submit his report on the claims in March 2008 when he was transferred. J G Hingarajiya, the new officer refused to take *Down To Earth's* call saying he was not on the said post.

The forest department on its part claims that it has tied up with the World Bank to make the Little Rann a National Biosphere Reserve. "The initiative would provide rural employment through biodiversity conservation. They would be given jobs as guides and drivers and women will be trained in tailoring," Chawda says. But Agarias do not want such welfare schemes. "Why should we take favours when we know how to earn a living from our own land?" Shantabhai asserts.

Despite a hard life, Agarias do not want to give up salt making. "Here we have our freedom. There is no crime and not many wordly troubles. We are on our own unlike a construction labourer and at the end of a hot day, we at least get our meals. When there will be no more brine we will have no option but move out. But why should we leave right now?" asks Mangabhai.



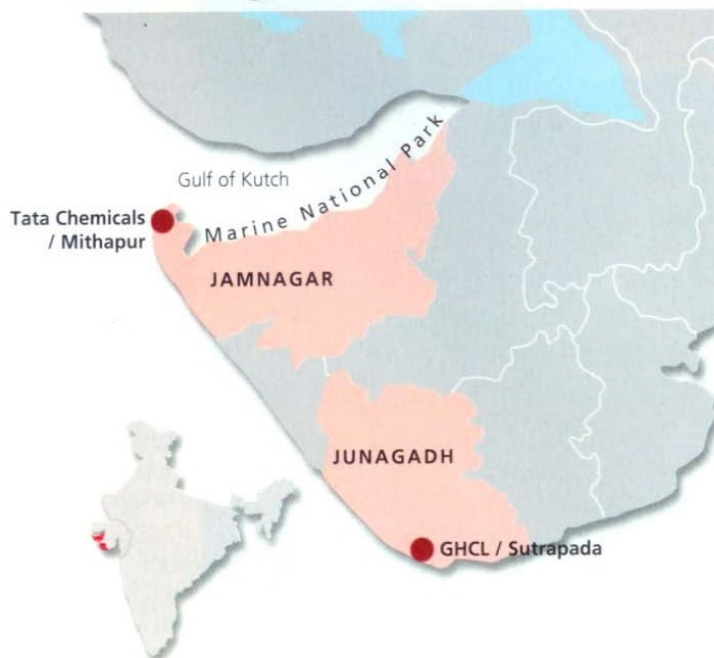
# Duplicity

Two salt-and-soda ash companies face allegations of environment destruction

**W**hile the Agarias wage a constant struggle with the forest department, the government has allegedly turned a blind eye to pollution by two soda ash-making units run by major industrial groups. At Mithapur in Jamnagar district's Okha taluka there are charges of pollution against a salt-and-soda ash unit run by Tata Chemicals Limited (TCL). The Dalmiya group-operated Gujarat Heavy Chemicals Limited (GHCL) unit in Junagadh district's Sutrapada taluka faces more serious allegations: it has refused to comply with a high court order for more than a year, after violating salt lease conditions for about 20 years.

GHCL occupies around 6,070 hectares (ha) in the taluka. The company, set up in 1988, was given a 20-year lease to operate salt pans in Kob, Chikhli, Zafrabad Port Victor and Bherai. The lease stipulated that GHCL maintain a "buffer strip between salt works and agricultural land" and construct a trench to obviate damage to agricultural land. Salt pan bunds have to be plastered with cement so that the brine does not percolate into nearby subsoil. The company has flouted all of these. Not only that, it has no intention of complying with government recommendations in the future. "Who reads all conditions while signing the agreement? If we obey every condition, we will not be able to run a business. In any case, these conditions are not technically feasible," T Malhotra, GHCL's general manager at Sutrapada, told *Down To Earth*.

## Offending factories

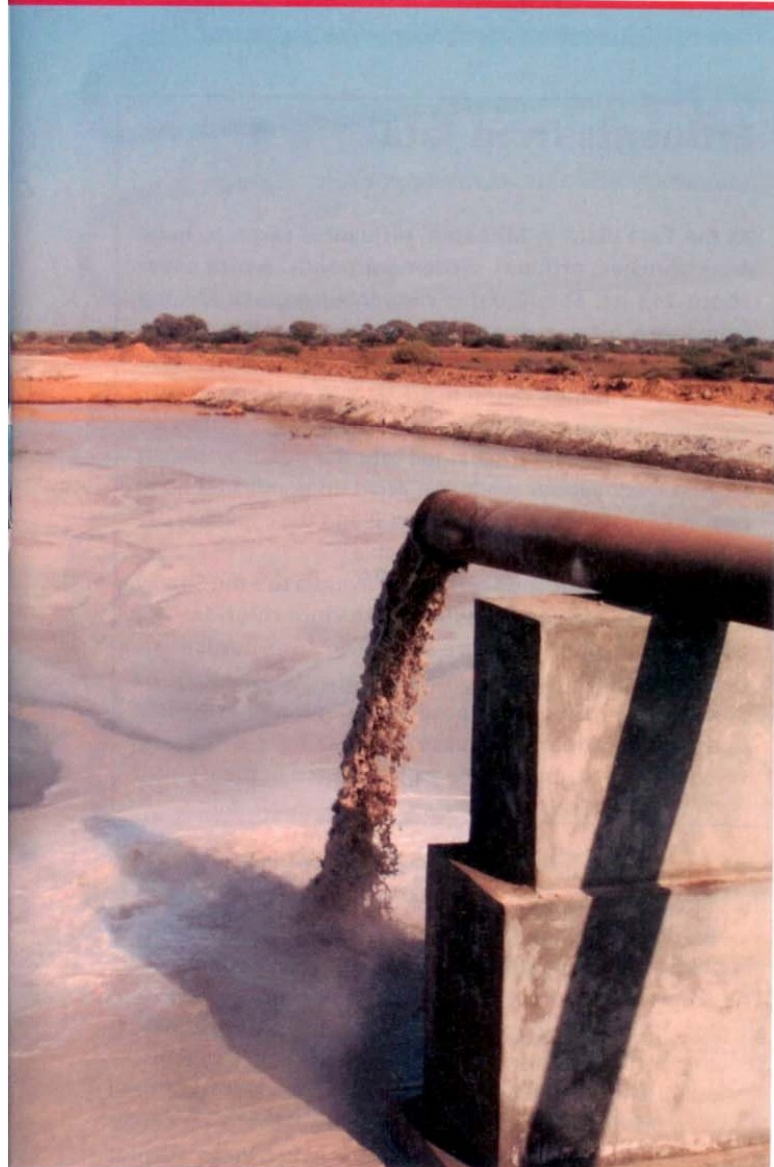


Effluents from GHCL pipeline has spread about a km into the sea

The people paid the price. In 2005 farmers of Kob complained of salinity in their agricultural lands. The Junagadh district collector decided not to renew GHCL's lease in that village. The company challenged the decision in the Gujarat High Court arguing that if the lease was cancelled, many people would lose their jobs. The court constituted a three-member-committee which testified that the salt pans did contribute to salinity of soil in Kob. "Saline water from the salt pans seeps out...and percolates to groundwater causing salination....this has adversely affected agricultural productivity...earlier, sugarcane, groundnut, wheat and even coconut groves were grown, now farmers have shifted to low-profit but salinity-tolerant rajko (a fodder crop) and bajra," the committee noted.

In July 2006, the court directed GHCL to close a few salt pans, construct cement bunds and trenches in others and deposit Rs 30 lakh with the district collector—for restoring the land and improving Kob's water quality. Junagadh's district collector Ashwani Kumar told *Down To Earth* that the company's lease expired in 2007 and has not been renewed. "GHCL has not deposited the money, and has not built the trenches. The company appealed to the high court, which reverted the matter to the collectorate. We have sent our report to the state government that the lease be renewed, but with conditions on





**The Tata Chemicals effluent settlement pond that has no concrete lining**

lines of the court's committee," Kumar said.

But people in Kob are apprehensive. Though the lease has not been renewed and operations suspended, the company has not vacated the land. Their fight is still on: "We did not let them make salt here last year. As a result, wheat production has improved by 25 per cent," says Mala Bhai Kala Gohil, Kob's former sarpanch. "We need a dam. The government acquires farm land for building dams all over the country, why can't it take back its own land from a company for building one here," said Dhayabhai Massad Darban, who worked with GHCL; he was sacked when he tried to organize the workers.

There are other charges against the plant as well. It's underground pipeline discharges effluents about a km from the shore into the sea. Fishers allege that as a result their catch has declined. "Sewad (sea plant) on which the fish feed, has stopped growing near the shore. So fishes have gone further inside. Earlier, we could get a good catch within 20 km of the shore but now have to go as far as 40 km. Our kerosene needs have therefore risen," says Veerchandbhai Jayaraj of the fish workers' union, Sagar Machhli Sehkari Mandali, Sutrapada.

There seems to be a conflict when it comes to the maximum permissible level of effluent that can be discharged in the marine environment by a soda ash plant. According to the

Minimum National Standards (MINAS), total suspended solids (TSS) of the effluent discharged in sea should not be more than 500 mg/l. But when the Ahmedabad based NGO Janpath got samples from GHCL's discharge point tested in 2006, it found TSS to be 964 mg/litre. V S Tyagarajan, GHCL's in-charge of salt works, however, says that according to Gujarat Pollution Control Board's (GPCB's) consent to the company the maximum permissible limit is 1,300 mg/l. GPCB's officials agree.

## **GHCL has so far been allowed to operate at relaxed standards**

Officials at the the board's regional office in Rajkot also say that the company has applied for renewal of consent and the limit will now conform to MINAS. Uptill now GPCB has allowed the company to discharge effluents in contravention to MINAS. Officials at the Central Pollution Control Board maintain that states cannot relax standards beyond central limits.

GHCL has polluted in other ways as well. "Limestone mining by the company has destroyed Rayan forests," says Parbat Balu Bhai Oza, secretary of Shramik Manav Kalyan Foundation, a Sutrapada NGO that has been campaigning against the GHCL plant for a long time. "Limestone holds potable water; limestone walls separate fields from sea, preventing salt water ingress. But due to mining, sea water is coming in and many have left farming. The use of dynamite for blasting the stone has led to breach of water table and to wells caving in nearby areas," Oza adds.

There is 1107 ha of forest in Sutrapada taluk. But the forest department officials are not sure if the land that is being mined falls under the department's jurisdiction.

"If the people or the government have so many problems with the factory in the area, we can pack up. But then thousands of local people employed with us will lose their livelihood," Malhotra says. GHCL claims it pays minimum wages to its labourers in the mines, but a random survey revealed they are paid only Rs 50 per day.

## **Salinity Ingress**

Data collected by the Gujarat government's Salinity Ingress Prevention Circle, Rajkot, shows salinity near the salt pans of Tata Chemicals (yellow) and GHCL (blue) have gone up, though there have been periods of decline

Wells (in villages)	TDS in May 1995 (mg/l)	TDS in May 2004 (mg/l)
Well no K-140, Vasai (Okhamandal)	2240	2370
K-144, Mojap (Okhamandal)	5360	6870
K-151, Ghadechi (Okhamandal)	2600	3400
K-156, Padli (Okhamandal)	3220	6620
Kob 195 (Una)	4329	6964
Sokhda 243 (Jafrabad)	513	1309
Sokhda 284	1367	1964
Chikhli 289 (Una)	5696	5714

TDS = Total dissolved solids



### Tata's unkept promises

TCL that occupies 14,568 ha is amongst India's largest producer of soda ash with a yearly output of 875,000 tonnes. "When the Tata factory came up, way back in 1939, people thought they would get employment and bring prosperity to the area. Instead we have suffered pollution," says D S Ker, who runs an NGO, Gramya Vikas Trust, in Dwarka. Salt leaking out of pans is a common sight in Mithapur. Eighteen of the 42 villages in Okha have captive salt pans of TCL. "Most fresh water tanks in the area have gone saline. Many farmers took a loan for digging wells in their fields, but since the water has become salty, they have difficulties paying back," Ker says. He adds: "Most salt pans do not have a concrete bund, so brine seeps into farmland. The channel along the pan meant to release rain water, also releases brine which seeps into agricultural land."

Many farmers were forced to sell their land. Sohnbai Modba in Padli village, just behind the Tata plant, sold off 6 ha in January to a middleman. "We used to grow bajra on this land. But brine from salt pans and chemical effluents penetrated the soil over the years, so much so last year we practically did not have any yield at all," she rues. "My son will have to work as a labourer in a town because the company does not employ us. But if you come here after six months, you will see

### Tata and GHCL salt pans lack concrete bund, leak brine into farms

my land with TCL," she says. Jagubhai Passaba of the same village talks of a trend that has intensified in the past 20 years. "People sell land because nothing grows on it. But from the brokers, it goes to the company," he says. TCL's corporate manager H Pota counters: "We do not need more land. We have bought only small patches in the past 20 years".

Padli's storm water drain discharges foul smelling water into the Arabian Sea. Pota says this does not come from TCL's plant. "The factory discharges effluents into the sea," he contends. But another Tata official says effluents are released into the drain when the plant's effluent settlement ponds overflow.

TCL's records reveals some irregularities. GPCB renewed its "consent to operate" to the company in May 2008—the company had not received the consent when *Down To Earth* met its officials on April 21. The last consent had expired on August 12, 2007. So for almost 10 months, the plant operated without permission. But GPCB's officials in Jamnagar defend the company. "They sought permission well in time. There was procedural delay for which TCL should not be blamed," says J K Patel, the board's regional officer at Jamnagar.

But the reason for the delay had been evident even before the consent was given. Files pertaining to Tata's consent application at GPCB's head office in Gandhinagar revealed that TCL was discharging effluents in the Marine National Park, the country's third biggest marine sanctuary. But the company managed to secure a permit citing a 1987 stay order from the Gujarat High Court on grounds that the unit had come up before the park was notified. A forest official, who does not wish to be identified, elaborated on the case: "At times pipes carrying brine pass through the national park break. When the department restricted them from discharging

### Effluents from Tata

At the Tata plant in Mithapur, effluent is taken to huge mud trenches, effluent-settlement ponds, which cover about 243 ha. The liquid is supposed to go to the sea from here after suspended solids in it settle down. According to the Consent to Operate given to the company in 2004, ponds marked S,T,U, V,W,X were in use, implying 18 ponds—A to R—have already been filled up with solids. Effluent discharged into the ponds was seen to emit thick vapour while the dried up ponds had huge biscuit-like chunks to its brim. GPCB and the company say this method is universally acceptable.

Most synthetic soda ash plants in India use the Solvay process, the effluent of which is calcium chloride. The chemical absorbs moisture and can cause permanent hardness and acidity in soil. In the soda ash plant of Solvay, New York, the byproduct is deposited in "waste beds", substantially increasing the salinity of nearby Onondaga Lake, among the most polluted in the US.

effluents in the park in 1986, TCL managed a stay order from the high court."

In 2003, the plant was shut for about a week when the pipelines broke and effluents leaked into the national park. The forest department said about 1,500 mangroves were affected. But GPCB exonerated the company with a warning to control pipeline leakage. "TCL did get a study conducted by the National Institute of Oceanography but that was a sponsored study, so one can hardly trust its credibility," the forest officer told *Down To Earth*. The matter is *sub-judice*, so we cannot comment," says a TCL official. "The entire Gulf of Kutch coast has been converted into a national park, so where does our factory discharge?" asks another.

### Water guzzlers

While walking along the channel that takes effluents to the sea, the *Down To Earth* correspondent noticed it was not sandy like normal beaches. Over the years it had become a hard patch of sediments shovelled out of the channel.

Villagers also complain that TCL has taken control of two tanks built by Baroda's erstwhile Gaekwad rulers: Bhimgaja and Meethikhari. "Earlier they used to take up to 19.2 million litres of water every day from wells in Gadhechi, Tupni and Vasai villages—three times the water requirement of entire Okha taluka—but have stopped taking water from Gadhechi and Tupni now," Ker says. "Okha gets its water supply from a dam on the Sani. If Bhimgaja and Meethikhari were not taken up by Tatas, we would not need the river's water," he says.

One by one villagers have lost everything: their source of water, their land and consequently their livelihood. Conservation has become a ruse to evict Agarias, but so far as allegations of widespread pollution and environment destruction against big companies is concerned, authorities have chosen not to be strict. Local communities face a dual threat: they are dispossessed in the name of conservation and then large companies destroy farms forcing them to migrate. ■