

DEEP WATERS

As far as public protests go, Puducherry, formerly Pondicherry, has generally been a backwater. But the government's resolve to fast-track a deep-water port, upgrading the existing fair-weather port, has provoked a chorus of protests from citizens across the board—NGO members, fisherfolk, lawyers, politicians and farmers.

On March 27, 2007, the town saw its biggest protest in over two decades. A motley group of over 5,000 protestors marched from the old bus terminus to Raja Talkies in Anna Salai and burned photocopies of their ration cards. Later they courted arrest. For more than two hours the town came to a halt, with the protestors shouting: "Down with the new deep-water port. Let's not create another man-made tsunami."

The issue has united people from a cross-section of society because people have apprehensions that they will all be affected and that the deal is riddled with corrupt practices. Puducherry and nearby towns will be affected by atmospheric pollution—from a big increase in vehicular traffic and the fugitive dust anticipated from the coal and iron ore that the new port will handle. Villages along the coast will be affected in a number of ways: first, land acquisition for the project at way below market prices will uproot many people; second, the livelihoods of people of the predominantly fishing hamlets in the area will be destroyed by a number of factors, pre-eminently erosion of beaches and destruction of mangroves; third, there are broader concerns about widespread ecological damage and the feasibility of the project, especially given the manner in which the contracts for the project was awarded.

The Puducherry deep-water port is slated to have a combined handling capacity of 20 million tonnes of cargo a year. The existing fair-weather port handles approximately 0.1 million tonnes. The new port will be developed in four phases and will include a container terminal, general cargo berth, coal

berth, iron ore berth and a cruise liner berth and will cost over Rs 2,000 crore. The government has selected Pondicherry Port Limited (PPL), a consortium consisting of two private developers, Subhash Projects and Marketing Limited (SPML) and Om Metals Limited (OML), none of which reportedly has experience in developing ports, for the project (see box: *Big game players*).

Puducherry residents allege that the port is only a front for grabbing precious coastal land for real estate development. Pondicherry Citizen's Action Network (Pondy CAN) is organising the opposition. It is part of an organisation, the Puducherry Peoples Protection Committee, comprising 22 NGOs. Pondy CAN president Probir Banerjee, a civil engineer, says the state government has ignored established procedures in awarding the contract to the consortium. "How else would you expect a contractor who has no experience in port construction or management to get a Rs 2,043.24-crore project, when other competent consultants also applied for the same project?" he asks. "What is shocking is that the agreements between the government and the promoters look more like a gift deed. The gift in this case is precious coastal land," he says.

Agriculture effect

For people of Thengathittu village the new port spells displacement. Villagers claim about 42 hectares (ha) of land, including prime agricultural plots, will be acquired by the government at Rs 15 per sq ft while the market rate is Rs 5,000.

Thengathittu, with a population of 5,000, consists primarily of government employees and small entrepreneurs. It also has a small population of 220 farmers who cultivate around 50 ha, mainly growing vegetables for the market. Perumuil, a farmer in the village says his 4-ha plot is being acquired. "Last year I grew 4,800 kg of bottle gourd, how does the government justify paying me Rs 15 per sq ft?" he asks.

Puducherry's plans for a new port have prompted unprecedented protests. Allegations of a huge land grab facilitated by procedural violations and disregard for environmental fallouts, along with suspicions that it is just a facade for real estate development, are stoking a controversy. The larger context of coastal development, tagged to the misfiring Sethusamudram project, has generated more concern. ARNAB PRATIM DUTTA and SUJIT KUMAR SINGH investigate



PHOTOGRAPHS: ARNAB PRATIM DUTTA / CSE

Bhaskaran, municipal councillor of Thengathittu, says villagers grow onions on about 6 ha. "Thengathittu's onion seeds are export quality. They fetch almost Rs 5,000 per kg. How can we let this land go to those who wants to build villas, malls and commercial complexes?" he asks. S Kalliappan, convenor, Thengathittu Anti-Land Acquisition Committee, says villagers will fight, now that they know of the consequences of the new port and land acquisition, which they didn't before February. "Our main motive is to educate the people of Thengathittu and neighbouring areas, like Veerampatnam, about the battle against the port and corruption in the government," he says.

Fishing fears

Veerampatnam is a fishing village south of a breakwater wall where sand has accumulated. It comprises about 1,800 families. A Kangaian is the chairman of the Veerampatnam Fishing Panchayat. He says around 400 families in the village will be affected by land acquisition. While he does not know the exact extent of land involved, he has a rough estimate: "From the beach to the town hall." He says 75 per cent of families in his village are below the poverty line, earning less than Rs 2,000 a month. Without proper compensation they will be reduced to penury. "The government has only announced land acquisition but they have remained silent about the compensation," he says.

"Once the project is allowed we will lose the

beach where we keep our boats. We are people who can work only in the sea," says K Armugam, a fishing boat worker. K Paul, a fisherman, is worried about the damage the ships can do to their boats. "The boats cost anything between Rs 2.5 lakh and Rs 15 lakh. Will the government compensate us if they are damaged?" he asks. The government currently pays Rs 10,000-15,000 as compensation when a boat is damaged in the sea.

Till March 30, 2007, A Mani of Vaithikuppam village had no idea what a port can do to his village. Vaithikuppam lost its beaches to a commercial harbour completed in 1989. However, it was only when a Pondy CAN delegation visited his village and made a presentation on the destruction it caused did he realise the impact a port 10 times bigger would have on his village. Mani says five boats have crashed against the seawall the government built to protect the town from erosion in 2003-04. It was necessitated, in the first place, by the construction of the harbour. "Because of the seawall, only a small stretch of the beach has been left open for boats. At night fishermen find it hard to navigate on this stretch," he says.

Big picture

The environment impact assessment (EIA) prepared by global environmental advisers Halcrow, consultants to the developers, does not address these concerns. It says that "as long as the port construction and operations are carried out in accordance with a sound management plan, the effects of the port development on fisherman should not be significant", though it admits 9,871 fishermen are active in the area and there will be substantial risk to fisherfolk's livelihoods. Over 40,000 people will be affected. On the flip side, the detailed project report says at full envisaged capacity a total of 1,500 people will be directly employed by the port. R Mangayarselvan, founder of the Liberation Tigers of Fishing Folk, also says 10,000 fishermen will be affected. His worry is that 30-40 big vessels coming into the port a day may drive fish away from the coast. "We also need to assess the effect the port will have on fisherfolk in Tamil Nadu," he adds.

Land will be acquired for fraction of market price. Farmers will take a big hit



UNDUE PROCESS

Puducherry port defies ecology, economics

On October 18, 2004, the Puducherry government issued an advertisement inviting consultants to undertake a feasibility study for the construction of a new port. The advertisement read: “The notice is issued only to elicit an EOI (expression of interest) in undertaking a feasibility study for Pondicherry Port development and does not constitute a binding commitment from the government of Puducherry to any or all firms in the subsequent selection process.”

Down To Earth has examined the process of awarding the project through documents in its possession. Tendering procedures seemed to have been followed more in the breach than their observance. This was, perhaps, unsurprising, given the cavalier manner in which established environmental regulations were dumped and the land acquisition process handled.

Coast unclear

Port development is not constrained by the coastal regulation zone (CRZ) notification of 1991, amended in 2001. So any development activity can be camouflaged under that rubric. Among other things, CRZ rules prohibit any form of land reclamation for commercial activity including developing housing and commercial complexes, shopping malls, hotels and multi-plexes. In Puducherry, the promoters calls these “permitted activity”, essential to make the project financially viable. The concession agreement says “permitted activity means all activities that is permissible within the site and shall include development of land for residential, commercial, recreation, tourism purposes and any allied or incidental activities”. The EIA report says that an entertainment/recreational centre and three and four star hotels are planned as part of the port project. The detailed project report says a hotel, offering facilities for water sports, and villas and apartments could be developed (see box: *Developers’ defence*).

The CRZ notification says changes of landscape should be prohibited. The National Institute of Port Management (NIPM), Mamalapuram, which was appointed by the Pondicherry government on August 4, 2005, as a consultant for port development, submitted a report that disagreed with the detailed project report about whether “permitted activities” could actually be allowed under CRZ rules. The report said: “As this area is coming under the CRZ, the proposed development activity which falls within 500 metres of restricted zone may not be possible on environmental considerations.” CRZs are classified into four categories. The three documents relevant to the development of the port—the EIA, the detailed project report and the concession agreement—do not mention the category to which the port project relates. The EIA also failed to provide data relating to the location of leisure development, the height of planned buildings and distances

OCTOBER 18, 2004

Advertisement in a major business daily inviting consultants to undertake a feasibility study

JANUARY 19, 2005

Government shortlists consultants to prepare feasibility report. SPML not selected

FEBRUARY 8, 2005

Government gets SPML proposal for developing port, request for time with port minister Valsaraj for presentation

JANUARY 21, 2006

Cabinet clears, lieutenant-governor signs detailed project report

SAME DAY

Circular sent to relevant departments announcing finalisation of project details

SAME DAY

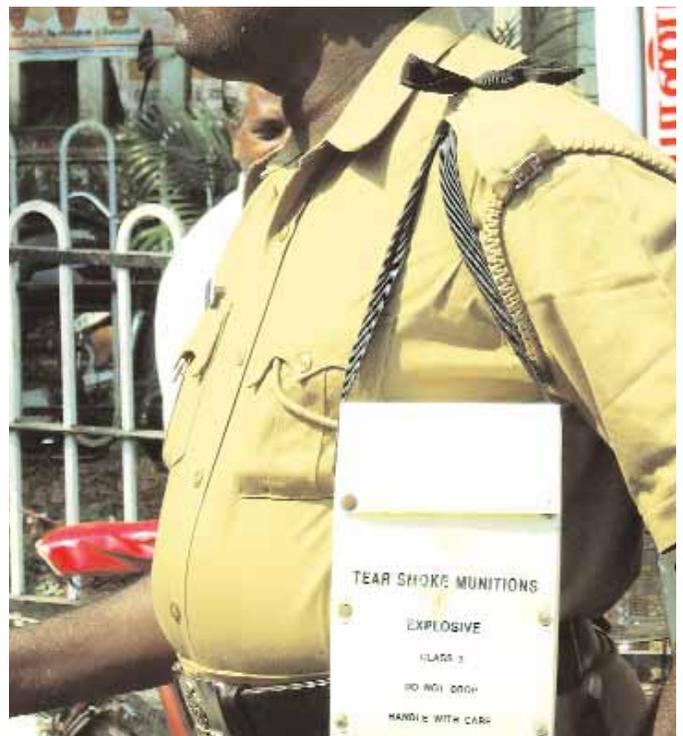
Government signs concession agreement with consortium, named Pondicherry Port Ltd that day

from the sea for the planned structures. The phrase “permitted activity” also raises questions about double standards. “In 1999, the government had planned an assembly hall and also laid the foundation stone. But when it came to know the hall would have violated CRZ regulations, the idea was dropped. However, the government has not objected to the developer’s proposal to build 50-m-high buildings that are against CRZ regulations also,” says former tourism minister K Laxminarayanan, the Cascade MLA from the Pondicherry Makkal Congress.

Prime land

A total of around 160 ha will be required to set up the new port. Of that, 62 ha belonging to the old port has already been handed over to the consortium consisting of the land of the walled port area to the immediate south of the town, land to the south of the Aryankuppam estuary and another swathe of land that includes the existing quay, breakwater and lighthouse. Another 43 ha is being acquired from private landholders: land from Thengathittu and a small islet in the Aryankuppam estuary will be part of this. Another 55-odd ha will be reclaimed from the sea. The Puducherry government has offered this land to the developers for peanuts. The concession agreement says the old port area and acquired land (105 ha) have been leased out for 5 paise per sq ft per year. The reclaimed land will be leased out for Rs 1,000 a year.

No smoke without fire?



MARCH 11, 2005

Makes presentation to Valsaraj and chief secretary C S Khairwal

MAY 11, 2005

Port director S C Sundaresan shunted out for pointing to lapses in selection process

JUNE 3, 2005

SPML offered project to develop deep-water port in Puducherry

AUGUST 3, 2005

SPML makes Om Metals consortium partner for port project

AUGUST 4, 2005

Puducherry government makes NIPM consultant on port development

NOVEMBER 2005

New port director tells law department that NIPM report finds port project unviable

FEBRUARY 2006

Petition seeking cancellation of port project filed in Madras High Court

AUGUST 10, 2007

Court okays project, says MoEF clearance is must and forbids real estate activities

FEBRUARY 1, 2007

Old port assets handed over to developers

FEBRUARY 14, 2007

Public hearing called, but adjourned because of procedural anomalies

FEBRUARY 20, 2007

MoEF receives EIA from promoters

MARCH 24, 2007

Chief minister Rangasamy promises expert committee to evaluate project

According to Laxminarayanan, the port deal is actually a land scam. "The rate for the leased land is atrocious. Similar leases have been given to industrial estates around Puducherry, but the rents are as high as Rs 10 to Rs 20 per sq ft," he says. The municipal councillor of Thengathittu, Bhaskaran, opposes the government despite being a member of the ruling Congress, in particular the plans to acquire land from his village. "The government is offering people of Thengathittu Rs 15 per sq ft of land while the market rate is as high as Rs 5,000 per sq ft," he says. "Even if the government pays the village the existing rates they will be unwilling to part with their land."

A number of questions have been asked about the real motive of the developers. Is it truly a port development project, or as civil society groups allege, a systematic plan to grab land for real estate development? The way the phased project has been rejigged gives these questions greater significance. While the detailed project report says the cruise liner dock and associated leisure activities will be part of the third phase, between 2010-11, in the EIA report the consortium has brought this forward to the first phase, to be concluded by 2009.

Public uninvited

Given the controversial circumstances, it should come as no surprise that the government almost tried to bypass the public hearing, which is mandatory under the centre's EIA notification. There was no central clearance before the assets of the old port were handed over, either. Two weeks after that, on February 14, 2007, the government set up a hearing. Reports said a group of 200 villagers from Thengathittu had gone to attend the meeting. When the police stopped them from attending it, violence broke out. Some villagers, including an MLA, managed to get into the meeting hall after people gathered outside demanded that if the authorities would not allow the villagers to attend the hearing, government representatives would have to listen to grievances outside. Once inside, they shouted they had been illegally prevented from voicing their concerns. Amidst the confusion, the hearing was adjourned.

On March 24, a delegation of Puducherry citizens met chief minister N Rangasami. It included Thengathittu villagers, members of Pondy CAN and the Puducherry Peoples Protection Committee, and fisherfolk groups. The chief minister assured them port assets would be taken back, land would not be acquired from Thengathittu and an expert committee would be set up. None of these promises have been kept.

According to Senthil Babu of Pondicherry Science Forum, the government had just made a show of taking back port land, later handing it back to the developers. "The promises were only made by the government to pacify citizens ahead of the March 27 rally. On March 24, 2007, the developers vacated

Developers' defence

Halcrow, consultants to Pondicherry Port Limited, could not give a detailed response to *Down To Earth's* questionnaire pleading time constraints, but it did clearly say the environment impact assessment (EIA) it prepared "was in accordance with ToR (terms of reference) given to us by the client".

As far as the EIA goes, Subhash Projects and Marketing Limited (SPML) said Halcrow had prepared a rapid study "taking into consideration all relevant aspects". "However we are again conducting a fresh 2 season EIA study by National Environmental Engineering Research Institute (NEERI). The present assignment will be in continuation of rapid EIA study...", a company spokesperson said.

With respect to coastal regulation zone rules and "permitted activity", as opposed to local fears about real estate development, SPML said: "Permitted activities are to provide certain necessary infrastructure facilities for passengers, shipping crew, port staff and other personnel as part of the port development and operation. These are the fundamental facilities that will need to be created at the port premises. These are in line with the norms of Government of India in the development of minor ports. ... PPL do not intend to utilise the proposed land for any real estate activities except for the permitted activities described above. As per the CRZ notification, necessary consents are available for the port to develop such basic facilities as part of its infrastructure. These will again be subject to clearance from the concerned authorities including MoEF. ... The allegations of real estate activities are misdirected interpretation of such infrastructure facilities and are totally baseless."

the port land but on March 29 they were back again."

A senior government official said a circular was prepared by the government on March 27 to take back the land but lieutenant-governor Mukut Mithi has not signed it yet.

Tender mercies

After the advertisement for the feasibility study for the port was issued, 27 firms applied, of which four, D S Constructions, Apollo Infrastructure Projects, Larson and Toubro and Ipco Menang, also sent proposals to develop the port. On January 19, 2005, the government shortlisted D S Constructions and Apollo to prepare the feasibility study. Meanwhile, SPML, which had not even been shortlisted for the feasibility study, reconfirmed its interest in developing the port in a letter received by the chief secretary's office on February 8, 2005, and signed by Rumneek Bawa, who had been the chief execu-

Big game players

Subhash Projects and Marketing Limited (SPML) says it is a Rs 400-crore company with its registered office in Delhi, corporate office in Kolkata and branch offices in Bangalore, Mumbai, Jaipur, Bhopal, Patna and Guwahati. It claims 25 years of expertise in turnkey projects, but its website has no reference to port development work. SPML is a 9001:2000 certified engineering company with work in water management; power generation, transmission and distribution; environmental engineering; infrastructure development; and engineering consultancy.

Om Metals Limited is an ISO: 9002 company with its registered office in Jaipur. It specialises in hydro-mechanical equipment for dams and has interests in amusement parks, automobiles and real estate. Its turnover in 2001 was Rs 48 crore.

Halcrow is one of the largest multi-disciplinary consultancies providing services on water systems; transportation; built environments and environmental projects; and urban and regional planning. It is a £250-million company based in London and offices in 70 countries. Halcrow prepared the EIA and DPR for the port for an undisclosed fee.

tive officer (CEO) of D S Constructions till January 19, 2005, when it was shortlisted. As CEO of SPML, Bawa sought time with port minister Valsaraj and chief secretary C S Khairwal to make a presentation.

Apart from Bawa's change of loyalties (he has since moved on), two things revealed by the letter stand out. First, SPML had expressed its interest in developing the port in a letter dated October 6, 2004, that is, even before the advertisement for the feasibility study had been published. Second, despite not having been shortlisted it had been asked to make a presentation as a consultant, in which the company had taken no interest, leading to the reconfirmation of its interest as a developer.

On March 11, 2005, SPML made the presentation to Valsaraj and Khairwal and in a letter dated June 3, 2005, the office of the chief secretary offered SPML the project of developing Pondicherry Port. The letter also said: "This offer is based upon the fact that in your presentation you have mentioned various port development projects undertaken by your associates." What was overlooked was that SPML had no experience in developing ports till then. It was asked to submit a detailed project report.

The director of ports, S C Sundaresan, had, in fact, written to Puducherry's law department on April 5, 2005, pointing out the need to follow prescribed procedures. On May 11, 2005, he was shunted out.

On August 3, 2005, SPML requested permission from the Puducherry government to allow OML as a partner. Like SPML, OML had no expertise in developing ports. Significantly, as the SPML letter stated, it *did* specialise in constructing shopping malls and amusement parks.

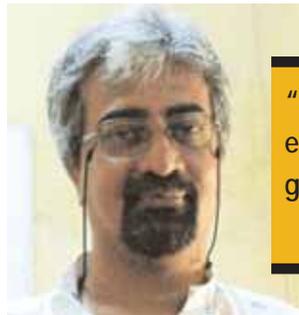
Not viable

NIPM analysed the consortium's detailed project report and in November 2005 submitted its report. Summarising the NIPM findings, the new port director, B Ramakumar, wrote that the port would be financially unviable: "NIPM after conducting a

financial analysis have stated that the project is not at all financially sound even assuming that the government would provide the necessary infrastructure indicated and grant all the concessions listed out by the developers."

NIPM analysed the detailed project report for the port and found it depended on too many variables. While the port was mainly supposed to handle bulk cargo—coal, petroleum, oil and lubricant products, crude oil, iron ore pellets, iron and steel, and cement—it would also have to rely heavily on cargo diverted from neighbouring ports—Enore, Tuticorin, Chennai, Cochin and New Mangalore. The NIPM report concluded that "no proper estimation of individual traffic to Pondicherry Port has been done". It further said: "In short, the traffic forecast has not been carried out methodically nor the proper analysis has been made to estimate the possible/probable traffic through the port."

Karaikal Port, being developed by the Puducherry government, will also cut into the profits of Pondicherry Port. It will handle 4 million tonnes of cargo in the first phase of its development, which will begin in 2009. Though the Pondicherry Port developers wanted this project stalled, the Karaikal port was in an advanced stage and dropping it was not possible.



"How could a company with no experience in port development get such a big project?"

—PROBIR BANERJEE

All in a day's work

Even though NIPM had strongly recommended that the project be shelved, the Puducherry government decided to sign an agreement with SPML. On January 21, 2006, the cabinet cleared the detailed project report for the Pondicherry Port, which was also cleared on that day by the lieutenant governor. Again on the same day, a circular was sent by the undersecretary for ports to all government departments concerned, and SPML and OML announcing this order. The Puducherry government and the consortium also entered a concession agreement through which a legal framework was created to proceed with the project, making January 21 an exceptionally busy day for all concerned. Through the agreement, the consortium renamed itself Pondicherry Port Limited (PPL).

Utmost stealth

The selection of the promoters for the port had almost gone unnoticed, but C H Balamohan had tracked the process. In February 2006, as the honorary president of the Confederation of Pondicherry State Government Association, he had filed a case in the Madras High Court against violation of procedures in the selection. Balamohan had been trying to extract information since December 2005 when he filed an application under the Right to Information Act, 2005, with the department of ports. The one-page reply was less than satisfactory.

On January 13, 2006, he wrote to Mithi, apprising him about the facts but this letter went unanswered. In February, he filed a writ petition in the high court seeking an order to stop the development of the port. Balamohan says that till the court case was filed, the government was not divulging information to the public. In his petition, he sought an order quashing the concession agreement and cancelling a circular of January 24, 2006, handing over port assets to the developer. In an order dated August 10, 2006, the court did not find any mala fides in awarding the project to PPL but directed the Puducherry government to ensure all clearances from the centre including those from the Union ministry for environment and forests (MOEF) on the environmental impact assessment and coastal zone regulations, before development could begin. The court also barred PPL from pursuing real estate development as part of the port project.

Balamohan alleges that the government has not followed the court order. On February 1, 2007, the assets of the old port were handed over to promoters. "On February 18, 2007, the promoters demolished a wall on the port premises, though they were not supposed to take up any activity before a public hearing and without consent from centre," Balamohan says. The demolition prompted a violent demonstration outside the port on February 20. Balamohan appealed the high court order in the Supreme Court in April 2007.

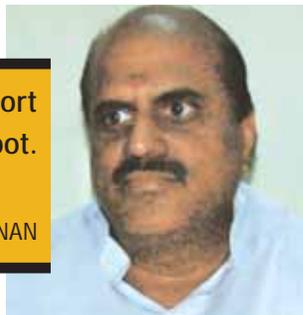
Sweet deal

Citizens are focussing on how Puducherry will gain. According to the concession agreement, the Puducherry government will get 2.6 per cent of the gross profit from port operation. This is the only revenue that the port will generate for the government for 50 years after it commences operations. Moreover, PPL has been given a full tax holiday. Tourism and related activity will be exempted from entertainment and luxury taxes. On the termination of the lease, the Puducherry government will have to buy back the assets at prevalent market rates.

Facilitation is, however, the exclusive responsibility of the government, which will acquire and transfer land to PPL, in

"Land leased out to build port went for 5 paise a square foot. That is atrocious"

—LAXMINARAYANAN



addition to building a four-lane highway and a railhead up to the port, and providing water and power. Road construction will entail a new cycle of land acquisition and displacement—and a fresh EIA—that is not even in the frame as of now.

Bishwajyoti Deshmukh, another Pody CAN member, says many clauses of the concession agreement read like a gift deed. "The government needs to tell us what returns it will get. The agreement only talks about what the government is going to invest but not what Puducherry will get in return," he says.



HIGH-IMPACT ZONE

No proper assessment of damage by port

The deep-water Pondicherry Port is slated to be constructed in four phases over eight years. The EIA report has proposed a roadmap. Phase 1 will involve the construction of the deep-water port, a breakwater and container berths with a capacity of 540,000 TEU (twenty-foot container equivalent), one general cargo berth with a capacity of 600,000 tonnes and a cruise liner terminal. Phase 2 will involve construction of facilities for bulk cargo like coal and iron ore. Phase 3 will include facilities for liquid substances like molasses and edible oils. Phase 4 will involve construction of a third container berth, upgrading container capacity to 900,000 TEU. The EIA report was submitted to MOEF on February 20, 2007.

Not getting the drift

Considering the location of the port, its size, expected traffic mobility and littoral drift (coastal sand movement), it is clear that environmental impact will be cumulative. The EIA report has failed to assess these, only discussing issues that are project-specific and, therefore, coming up with superficial ameliorative measures (see box: *No real basis?*). It also seems to follow a rapid assessment rather than a comprehensive one.

There are many significant issues—littoral drift, traffic forecast, breakwater impact, marine ecology and financial viability—that have not been properly addressed in the EIA report. Halcrow has indicated in a number of instances that further studies have to be carried out in greater detail. That follows from the fact that the report has relied on data from existing government reports rather than on-the-spot investigations. As noted earlier, people have not been given a hearing.

One of the most important of grey areas is the issue of littoral drift. Any construction in this region that obstructs the movement of sand along the coast will lead to erosion of beaches north of the obstruction and formation of beaches to the south. This problem was witnessed in Puducherry when a breakwater was built to protect the commercial harbour completed in 1989. The city is located north of both the current breakwater and the site for the port. The EIA report is completely silent on the possible impact on Puducherry town. Obviously, the lessons offered by nearby Chennai have not been learnt. A large quantity of sand has been deposited to the south of Chennai port where a breakwater was built while there has been heavy erosion to the north.

Three organisations have computed different sets of values for the net sediment transport in the littoral drift along the east coast. While commenting on the detailed project report, NIPM said the consultants had estimated the net sediment transport

as 0.75-1.3 million cubic metres (cu m) per year while the National Institute of Ocean Technology (NIOT), Chennai, assessed it at 0.4 million cu m and the Rail India Technological and Economic Services at 6 million cu m.

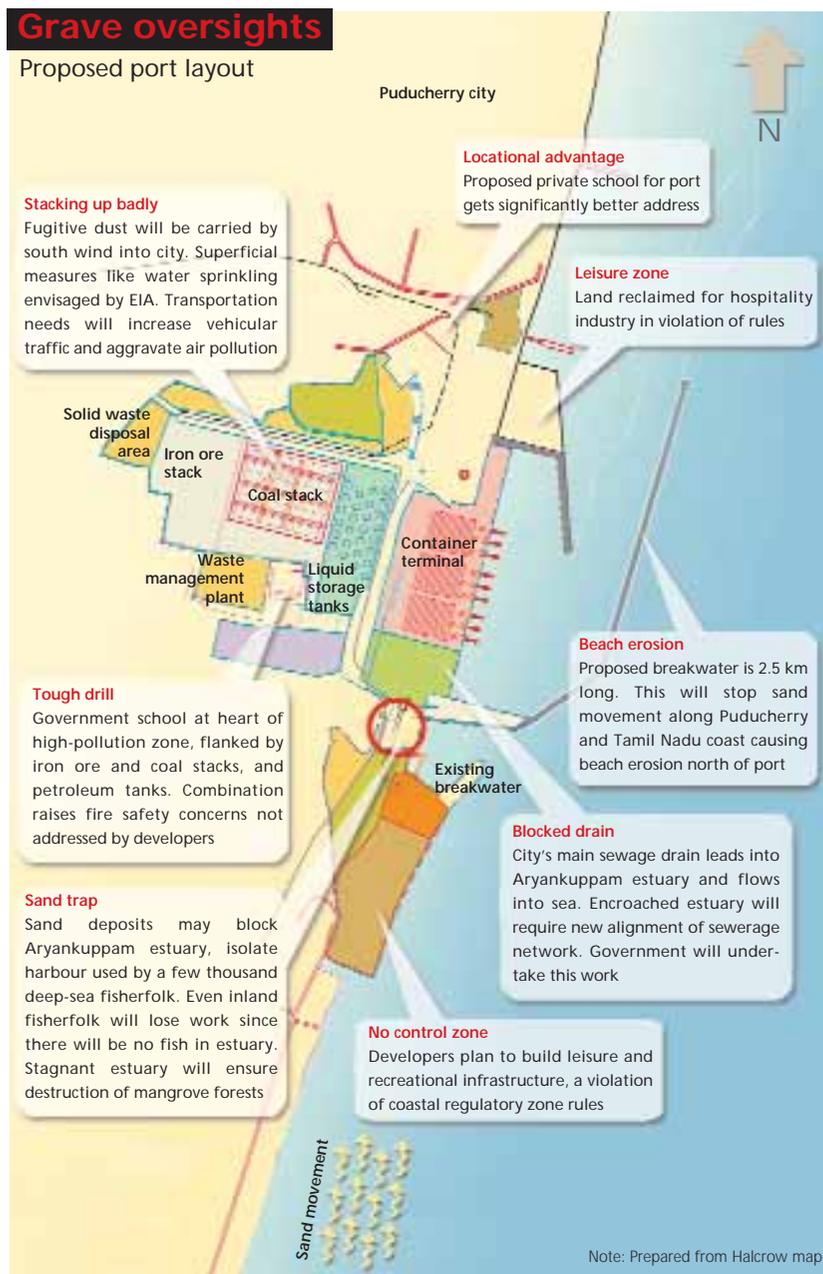
Given the erratic nature of the data available, a detailed study of sand movement is very important. The EIA report notes in a cursory manner that the site is very sensitive because the entire east coast is influenced by coastal sand movement and a comprehensive understanding of the characteristics of sand or sediment is vital before the impact of port design can be assessed.

At one point, the EIA also says the construction of the breakwater and the dredging (called capital dredging) necessary to build the port will destabilise sand movements resulting in the formation of beaches at the southern side and ero-

sion on the northern side. It later contradicts itself, saying: "It is anticipated that the proposed development of the new port (will) not cause the current situation to worsen." Further, it remains silent about erosion in Tamil Nadu and Auroville.

Dredging forms a significant cost of port operations. With little information on littoral drift, it is not possible to estimate the actual cost. The EIA says PPL will undertake dredging of a sand trap adjacent to the southern groyne, a wall built to check coastal erosion, to the extent required, while the rest will be handled by the government.

Moreover, the report also indicates that there will be significant long-shore sand movement in this area. Any new developments on the coast will undoubtedly have an impact on this. It is certain that a fairly high amount of dredging will be necessary later for maintenance.



Airy assessment

An MOEF notification dated January 25, 1988, categorises Puducherry as an air pollution control area. In spite of this, the government is pushing for a project involving handling 8 million tones of dry coal and iron ore near the city. Almost 75 per cent of the cargo will be transported by truck. This will lead to 850,000 trips up and down per year. Puducherry's air quality, in other words, is in for a pounding.

Puducherry is also vulnerable to cyclones and high winds. These will carry fine coal and iron particles into



the city from open storage sites. Anticipating this, NIPM adviser C Venkatachalam had suggested covered storage yards for coal and iron ore at a meeting with Khairwal on August 31, 2005.

The EIA report, however, says that due to a favourable wind direction, noise and dust should not be a significant issue. It claims pollutants from the port will move towards the sea and not affect inhabited areas. Meteorological data collected by the old Pondicherry port casts matters in a different light. It says during the southwest monsoon, March-September, the wind blows predominantly from the south. If this data is reliable, then the wind will carry fugitive dust from pre-construction and post-construction operations and dust generated during coal and iron handling and port activities into Puducherry town, which is north of the new port site.

The northeast monsoons are stronger than the southwest monsoons, starting in October. Early on, the wind blows in from the coast, changes to a northerly direction in December and gradually decreases in force during January-February. If this is the case, between October and November the wind will blow towards Thengathittu, Veerampatnam and adjoining areas, increasing pollution there. From December to February, the wind will once more blow towards the town.

The EIA makes a critical error in downplaying the fact that Puducherry town will experience increased pollution from port operations for at least 9 to 10 months a year. Devi Prasad,

(Clockwise from below): Mangrove forests in Aryankuppam estuary threatened; onion field in Thengathittu—farmers could lose big export earnings; S Anandan of Vaithikuppam hit a seawall built by government to stop beach erosion



dean of the department of Ecology and Environment Sciences, University of Pondicherry, rubbishes the argument that the wind direction will blow pollutants towards the sea. “If the wind does not blow in from the sea, no one can live in Puducherry,” he says.

Mangrove manoeuvre

Puducherry has only 35 ha of mangroves, most of it along the backwater of the Aryankuppam river. Considering the small stretch, the EIA says mangroves are dying, sparse and stunted and have no value. The port consortium wants to convert this forest into a recreational facility which will have, among other things, hotels, business centres and shopping malls. What the EIA fails to comprehend is the fact the mangroves play a crucial role in backwater ecosystems. A paper by K R Saravanan—‘A Study on the diversity and management of Pondicherry mangroves’—of the Department of Ecology and Environment Sciences, University of Pondicherry, says 80 different species of fauna are found in these mangroves. It also reports that over 12 mangrove-associated species of flora and seven true mangrove species exist around the backwater. This study, funded by the Puducherry government’s department of science and technology, finds no mention in the EIA.

According to Prasad, the backwater mangroves possess unique biodiversity. “There has been very little study in the

area except for listing species. Any development work that affects the mangroves must be done only after a thorough investigation of this ecosystem,” he says.

Understanding the importance of mangroves, Thengathittu has set up the Mangrove Development Society. One of its members, M Sylvamanikandan, says they are working with NGOs to plant more mangroves along the estuary, but the new port may scuttle their plans. “In 2005, Thengathittu had mangrove cover over 7.5 ha. In two years we increased this by 2.5 ha. Many of our villagers are dependent on these mangroves and they have to be protected at all costs,” he adds.

Saravanan’s study also says maintenance dredging at the existing commercial harbour is an impediment to the growth and regeneration of existing mangroves in the mouth of the Aryankuppam backwaters. The mouth, being narrow, experiences frequent sand accretion, necessitating regular dredging. The dredged sand is dumped in the mangrove patches, destroying plants and other organisms over time, the study adds.

The EIA is also silent about the impact of the port on the Aryankuppam estuary. The 2.5-km breakwater which will be constructed to the north of the estuary will have a significant effect on the river system. Chennai experienced this when its port blocked off the mouth of the Cooum river. Littoral drift moves south to north for most part of the year on the east coast. When an artificial barrier like the breakwater of the Chennai port stops this sand movement, sediments pile up on the south face. The mouth of the Cooum, which is located on the southern side of the breakwater, remains blocked, except during the monsoons. This will be repeated in Puducherry. The deep-water port will be situated to the north of the Aryankuppam estuary and trap sand moving north thereby blocking the mouth of the Aryankuppam river. This will stop high-tide incursion into the estuary, which brings in fish and nutrients for the mangroves, and may lead to mangrove destruction.

Vanishing beaches

The construction—about two decades ago—of the commercial harbour and breakwaters south of the city where the Aryankuppam meets the sea was the beginning of the end for the beaches that dotted the coast of Puducherry and Tamil Nadu. The new port promises to finish the job comprehensively. Two long breakwaters were built at the mouth of the estuary. They have blocked coastal currents and the natural littoral drift. Along the east coast—on which Puducherry is located—from February to November the sand moves south to north, reversing direction between November and January. The breakwaters have interfered with coastal currents, causing heavy erosion in the beaches north of the breakwater and creation of a huge beach south of the breakwaters due to sand accumulation.

The Puducherry government has dumped rocks along the shoreline to deal with this erosion and threat to the coastline, and protect buildings along the coast. But these measures have not helped. On the contrary, they have intensified erosion north of the breakwaters. As of now, sand erosion has affected about 25 km of the coast and severely damaged a 7-km stretch.

Gone in a week: A building in Thantirayankuppam loses out



PHOTOGRAPHS: JEAN CLAUD

The erosion is moving northwards at the rate of 350 m a year, says Aurofilio Schiavina, chief executive officer of Kraft and Associates, a water management consultancy firm.

Schiavina was one of the first to sound the alarm. “By 2002-03, the beaches of Puducherry were eroded. The effect of this erosion can be seen 7-8 km north of Puducherry on the coast of Tamil Nadu,” Schiavina says. Auroville and Kottakuppam, in Tamil Nadu, have now been affected, he adds. “When the littoral drift is stopped abruptly by an artificial construction such as a breakwater it first affects the sandbars or underwater sand dunes, which are built by waves and currents that push the sand into mounds. These sandbars form the first shield against sea erosion and once the movement of the sand stops they get washed away. Then gradually even the beaches disappear,” Schiavina says.

No scientific study

According to Rauf Ali, ecologist and trustee of The Foundation for Ecological Research Advocacy and Learning, a Puducherry-based non-profit organisation, sandbars located some 30 metres off the coast of Auroville have all been eroded. “After the sandbars disappeared slowly the beach of Auroville started receding,” he says.

Ali castigates the government for not carrying out a scientific study before constructing the breakwaters. “The commercial harbour was built at a cost of Rs 25 crore and now the government is spending Rs 40 crore to control beach erosion,” he says. Tamil Nadu and Pondicherry now have to be fortified behind a wall of rocks. The fortification of Puducherry with a stone wall began in 2002-2003 on NIO’s advice, with a budget of Rs 40 crore. It was completed by 2004.

Thantirayankuppam, a village in Kottakuppam circle of Villapuram district in Tamil Nadu, epitomises the effects of coastal erosion. In September 2005, the village lost its 200-metre stretch of beach. Between August and October, a row of houses collapsed as the sea breached their foundations.

Bad solutions

A professor of French at the French Institute in Puducherry, Jean Claud, has photographed beaches since erosion began. According to him, after a stone wall was built covering neighbouring Naddukuppam village and Sothanaikuppam was completed in 2005 the erosion started in Thantirayankuppam.

Srinivasan, a *panchayat* member of the village, says one child has been killed in a building collapse. Even the *panchayat* building was not spared. “In November 2005 the villagers put sandbags to stop further erosion, but they lasted for a night,” he says. According to Srinivasan, in June 2006, the village built a wall of coconut stumps, but it lasted under a month. The government is building a groyne to conserve beaches.

Ali says these are nowhere near being the most effective of solutions, simply because building a groyne sets off a process that entails building more of them. “Since the groyne stops the movement of sand, like a breakwater it aggravates the erosion problem in a different part of the beach,” he says.

BLUEPRINT BLUES

Sethusamudram ghost in Puducherry machine

The major problem with the Puducherry port project is the ad hoc manner of its conception—evidenced by the short-circuiting of inconvenient procedural requirements, the cursory manner in which the EIA was carried out, the reluctance to engage with the public about its pros and cons. But that is, in turn, embedded in a larger problem that has to do not so much with the details in which the devil resides but in an overall plan for coastal development that is flawed.

At the centre of this plan is the Sethusamudram behemoth, which envisages cutting a channel between India and Sri Lanka by dredging the Palk Strait to cut travel time for ships. The Sethusamudram project aims to dredge the shallow northern part of the Palk Strait and Adam’s Bridge, an underwater ridge, which makes the channel un-navigable. The idea is to provide a shorter route connecting the east and west coasts of India by obviating the necessity of circumnavigating Sri Lanka. Integral to this plan is the development of a series of ports along both the coasts. Like other new ports, Puducherry will be dependent on the Sethusamudram project, a fact admitted by Valsaraj.

Same problems

That’s not very good news, because Sethusamudram has been dogged by precisely the same kind of problems as the deep-water port in Puducherry: tendering controversies and questions of viability and environmental assessment, pre-eminently (see ‘Short circuit’, *Down To Earth*, March 15, 2006). What’s worse is that the channel doesn’t seem to be going anywhere.

A public sector company, the Dredging Corporation of India (DCI), which has been commissioned to dredge the area, has not been spectacularly successful. The work on the first section of the straits is near completion but just over 2 per cent of the work has been completed on Adam’s Bridge, where 35-km stretch has to be dredged to remove approximately 48 million cu m of silt. Till April 19, 2007, DCI had managed to remove only about 1 million cu m of silt. So the end-2008 deadline looks distinctly dodgy. The work on the second section of the Palk Strait is yet to begin. Frequent breakdown of equipment has been a major stumbling block.

R Ramesh, who has been studying the project since its inception, says another important reason for the slow progress is that the agencies concerned did not undertake the kind of research on sub-surface geology that was necessary. “The EIA prepared by the National Environmental Engineering Research Institute does not talk about the subsurface strata, which is a major hurdle for the development of the canal,” he says.

And that is of a piece, other experts point out, with the spadework for the whole project. From the economics to the engineering, the ecological fallout to the livelihood impact, shoddy research casts a cloud on its future and effectiveness. ■

