

– CONTESTED GOOD CITY STORIES FROM A NORTH CHENNAI LITTORAL

LINDSAY BREMNER, NITYANAND JAYARAMAN AND KAREN COELHO

Abstract

This article investigates the wilful destruction of Ennore Creek, a littoral wetland system in north Chennai, Tamil Nadu, by a series of shifting statist good city imaginaries expressed in plans, research reports, environmental impact assessments, government orders and court judgements. We show that these media built a powerful scaffold of legally sanctioned and scientifically backed good city narratives that reformulated the creek as a sacrificial zone for sustainable development, economic growth and logistical urbanism. Framed through the analytic of the littoral, we interrogate these developmentalist narratives and the technologies they used to contain or dispossess the fluid materiality of the creek. We then develop the idea of amphibious activism to describe the actions of backwater fishers to care for and resist the further degradation of their life world. We suggest that their activism expresses what Michel Foucault called a practice of liberty. It could not free them from the sets of relations in which they were embedded, but it enabled them to imagine and enact another way of life within them.

Introduction

Since the 1960s, Ennore Creek, a littoral wetland system in north Chennai, Tamil Nadu, has emerged as a sacrificial zone for good city imaginaries of sustainable development, economic growth and logistical urbanism. The creek is the backwater of the Kosasthalaiyar River where it meets the Bay of Bengal. It extends northwards as a tidal channel that meanders behind coastal sand dunes, eventually connecting with Pulicat Lake. The channel is brackish and flanked by mangroves, mudflats, salt marshes and tidal flood plains. Six villages—Kathivakkam, Ennore, Puzhudhivakkam, Athipattu, Kattupalli and Kalanji—line its banks.¹ These wetlands were the habitat of hundreds of species—oysters, mussels, barnacles, fish, crabs, shrimps, mangroves and marsh grasses—and until recently supported the livelihoods of tens of thousands of people who moved seasonally between land- and water-based occupations such as fishing, salt production, livestock rearing and agriculture (Raman, 2020).

This fluidscape (Appadurai and Breckenridge, 2009; Lahiri Dutt, 2014; Mukherjee and Ghosh, 2020; Mukherjee *et al.*, 2023) has been almost erased since the 1960s, when the wetlands were cast as an abstract zone of promise for carbon-fuelled economic growth (Gidwani and Maringanti, 2016; Singh *et al.*, 2017; Kumar, 2022). They have been encroached upon by a state-sponsored complex of coal-fired power plants, oil refineries and ports. Thousands of livelihoods in fishing, prawn collection and salt panning have been lost, and species that inhabited the wetlands have been reduced or disappeared (Singh *et al.*, 2017; Raman, 2020). The actions (and facilitative inaction) that effected these outcomes were not those of rogue capitalists or shady informal operators. Instead, they were enacted by various agencies and departments of the State of Tamil Nadu and the Government of India in the name of good city futures.

In this article we investigate how plans, research reports, environmental impact assessments, government orders and court judgements built a powerful scaffold of

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¹ See *The Story of Ennore* (<https://storyofennore.wordpress.com/about/ennore-creek/>), accessed 2 November 2024.

legally sanctioned and scientifically backed good city stories to reformulate Ennore Creek as a site of thermal power generation and logistical infrastructure. We frame the argument through the analytic of the littoral, as we elaborate below. We bear in mind that official texts have significant material effects, as demonstrated by scholars of development as discourse as far back as the 1990s (Pigg, 1993; 1997; Ferguson, 1994; Li, 1999). Yet the relationship between official texts and the conditions they purport to present, prescribe or regulate is neither direct nor straightforward (Ferguson, 1994; Bhan, 2013). Plans, policies and regulations do not necessarily perform as planned. They are ‘mutated inevitably at the moment of their realization, via their interaction with material, cultural, social economic, and political processes in place’ (Kaika, 2005: 5). Yet even when they fail in their stated aims, development narratives unleash powerful effects, including new terms, techniques and technologies around which the battles for a better life are waged.

The article is one of several outputs of a collaboration formed in response to a British Academy call for interdisciplinary research projects exploring the question ‘What makes a good city?’ The collaboration was between academic scholars and the fishers and activists who had long campaigned for the protection and restoration of the Ennore wetlands.² The phrase ‘good city’ had immediate appeal to us for the disruptive decolonial potential that it held to expose inequalities and injustices.³ For what was at stake in Ennore was contested, multiscalar and riddled with asymmetric power relations. We used the phrase ‘the good city’ as a rhetorical trope (Wachsmuth, 2014) to underscore the normative values informing development narratives and resistance to them. Ennore Creek and the perspectives of creek fishers provided an unparalleled vantage point from which to assess how competing good city narratives played out in a dynamic littoral zone, the affordances and resistances the littoral offered to them, and the alternative good city stories that littoral people told.

In the article, we deploy the analytic of the littoral to interrogate the state’s developmentalist narratives and resistance to them, contributing to the literature on littoral development regimes and local contingencies (Anand *et al.*, 2022; Raveendranathan and Roszko, 2022; Dewan and Nustad, 2024). The littoral—meaning seashore—is an ‘interface between worlds’ (von Hardenberg, 2021: 108). It is the dynamic coastal zone shared by land and sea, fresh water and salt water and also, on the east coast of India, where seasonally flowing rivers of water and silt meet oceanic currents, tides and waves (D’Souza, 2006; Pearson, 2006; Kumar, 2014; Parrinello and Kondolf, 2021). The Kosasthalaiyar River is one such river. It is a relatively short river (just 136 kms long) that only flows between November and February each year, when it carries monsoonal run-off and sediment towards the Bay of Bengal. There it deposits along its course in Ennore Creek and at its mouth, where it is pushed by currents and waves northwards from March to October and southwards from November to February, with a net gain in a northerly direction. Without human interference, this littoral drift gives rise to shifting beaches, sand bars and shoals that emerge and disappear with the rhythms of the seasons and tides. These dynamics produce an alluvial waterscape of flow, flux and change which Bhattacharyya, writing on Calcutta, calls ‘liquid land’ (2018: 1) or

2 These included the Save Ennore Creek Campaign (SECC), which was launched in 2014 by Chennai-based activists of the Vettiver Collective, an informal voluntary group that mobilizes solidarity for social justice struggles. The campaign mobilized science-, law-, arts- and media-based solidarity to amplify the voices and demands of the Ennore fishers. In 2020, #StopAdaniSaveChennai and #StopAdaniSavePulicat were launched as hashtag campaigns by activist groups including the Vettiver Collective and the youth-led Chennai Climate Action Group in response to the announcement of a statutory environmental public hearing for the establishment of the Adani Kattupalli Port. The hashtags took on lives of their own as political leaders, media personalities and other opinion-makers used them to denounce the environmentally destructive project.

3 The phrase translated elegantly into Tamil as *nalla nagaram* (நல்ல நகரம்) and has found widespread purchase amongst Chennai activists since we introduced it. For example, it was formulated as a Good City Art Show in December 2023 and a Good City Artists’ Residency in August 2024. See Instagram: @thegoodcity__, @vettiver.collective, @ccagofficial.

‘fluid geography’ (2021: 148). She posited (after King, 2019) that the restless fungibility of the littoral (Pearson, 2006) suggests ways of thinking beyond binary terms.

The material and cultural in-betweenness of the littoral associates it with the liminal (meaning something in-between) or interstitial condition; a threshold (McKay, 2008; King, 2019; Mukherjee *et al.*, 2023). Hydrologists refer to the littoral as an ‘interphase’ between coastal saline regions and inland freshwater ones (Ismail *et al.*, 2017: 7), and environmental historians have borrowed the idea of the ‘ecotone’ (a space where two distinct ecological zones mix) from natural scientists to understand the multiple ambiguous registers of social, political and ecological meanings that littorals register (Bhattacharyya, 2018). Liminality is also associated with amphibiousness (Pearson, 2006; Wakefield, 2022). Moorthy (2010: 77) referred to the littoral as an ‘amphibious symbiosis ... of land and sea’, and Indian Ocean scholar Michael Pearson (2006) wrote that for littoral people, quintessentially fisherfolk, life is amphibious, lived part on shore and part on or in the water, merging land-based and oceanic epistemologies and cosmologies.⁴ Such features of being neither one thing nor another, queer, are often treated as culturally problematic, even taboo, and viewed as sources of fear, risk and danger to be avoided or repressed (McKay, 2008). It is not surprising that fishers are amongst the lowest of castes in India and that fishing villages are spaces apart. Fishers inhabit a liminal zone between land and sea, and confront a steady dismantling of their territorial rights, cultural identities and fishing livelihoods (Subramanian, 2009).

In *Empire and Ecology in the Bengal Delta*, Bhattacharyya (2018: 23) gave an account of how the marshlands and estuaries of the Bengal Delta were folded into colonial and postcolonial legal and economic history through ‘technologies of property’. This term refers to the legal and engineering technologies (maps, laws, drains, pumps, embankments, dams, etc.) that were used to separate land from water in the delta to produce fixed, dry land for the staging of property claims. Key to these manoeuvres was an imaginary of wetlands as unproductive wastelands, and their placing under government management. These technologies inaugurated a slow process of forgetting the marshes, resulting in ‘collective amnesia’ (*ibid.*: 5) about the fluid foundations of the city of Calcutta. In similar vein, Coelho (2018: 22), writing about Chennai, argued that ‘urbanization processes have classically proceeded through authoritatively asserting categories of land and water on these reluctant interfaces, ... reinforcing the boundaries with signboards, concrete, projects, and finance’. Knapp (2024: 438), however, advanced an understanding of property claims in littoral zones as more ‘slippery’ than the fluid/fixed binary allows, while Dewan and Nustad (2024) argued that capitalist development processes take advantage of the fluidity and liminality of the littoral, but in ways that change its material properties and disrupt the existing economic, affective, ecological and spiritual relations within it.

Taking its cue from these arguments, the article examines the vocabularies of terrain and water that the State of Tamil Nadu and the Government of India used to build a powerful scaffold of legally sanctioned and scientifically compelling good city stories to authorize and justify the industrialization of the water-soaked Ennore littoral. We trace the vocabularies used in maps, plans, research reports, environmental impact assessments, government orders and court judgements to erase and forget (Bhattacharyya, 2018), ignore and dispossess (Dewan and Nustad, 2024; Jayaraman *et al.*, 2024), and to fix, fill and fortify (D’Souza, 2006; Coelho, 2022) the Ennore littoral in the name of sustainable development, economic growth and globalization. However, instead of treating the littoral and its people as inert backdrops to this hubris, we pay attention to how the materiality and fluidity of the littoral answered back, and develop

4 See the *Science of the Seas* feed by Nityanand Jayaraman (<https://science.thewire.in/science-of-the-seas/>), accessed 10 November 2024.

the idea of ‘amphibious activism’ to describe how the backwater fishers fought to reclaim the alluvial landscape as their memory-saturated life world.

What follows is an analysis of three sets of official documents that authorized the industrialization of the Ennore littoral and the resistance it evoked, using the analytic of the littoral to challenge the statist, landist good city claims. The documents are either in the public domain or were obtained under the Right to Information Act (Government of India, 2005) by activists of the Save Ennore Creek Campaign (SECC) and shared with us. The three stories trace, respectively, proposals to develop a petrochemical park, a power plant and a port.

The first story, titled *Erasing and forgetting*, examines the attempt in the 1990s by the Tamil Nadu Industrial Development Corporation (TIDCO) to rebrand and develop Ennore as a ‘Petrochemical Park’ through the manipulation of coastal zone regulations and maps. The documents we examine for this story are the 1996 Coastal Zone Management Plan for Tamil Nadu (Directorate of Town and Country Planning, 1996), two coastal zone management maps, and a court judgement.⁵ The second story, *Ignoring and dispossessing*, is about thermal power plant infrastructure and its residues, as told in three environmental impact assessments produced for the North Madras (later Chennai) Thermal Power Station Stage 2 (National Thermal Power Corporation Ltd, 1995; Tamil Nadu Electricity Board, 1988; 1992) and a counter report written by the Joint Experts Committee for Assessing the Damages by Fly Ash in the Ennore Backwaters (Joint Experts Committee, 2022). The third story, *Fixing, filling and fortifying*, is a story of port infrastructure, where we focus on the Draft Comprehensive EIA/EMP Report for the Revised Master Plan Development of Kattupalli Port (L&T Infra Engineering, 2020a; 2020b; 2020c).

In addition to analysing the developmentalist narratives in the official documents, we discuss the resistance of Ennore’s fishers and activists to the violence of the respective development projects. We develop the idea of ‘amphibious activism’ to describe their struggle and suggest that it offers a counter spatio-temporal imaginary to that of the developmentalist state, and a way of inhabiting a polluted littoral otherwise.

Erasing and forgetting

In 1991, under the provisions of the Environment (Protection) Act (Government of India, 1986), the Government of India issued its first Coastal Regulation Zone Notification (CRZN) (Government of India, 1991). The CRZN was promulgated at the time of the publication of the United Nation’s Brundtland Report, which introduced the idea of sustainable development into international policy discourse (Brundtland Commission, 1987). The CRZN aimed to regulate development along India’s coast and to protect fragile ecosystems and the livelihoods of littoral people. It demarcated the littoral into four zones (CRZ 1 to 4) based on their fragility and the level of development present, and established rules as to what could and could not be built in each of them (Kukreti, 2019). The 1991 CRZN was superseded in 2011 and again in 2019 and had been modified a total of 35 times by 2021, mostly conceding to pressure from development projects. Far from protecting India’s littoral, the CRZN, through exceptions, amendments and non-enforcement, transformed it into a contested frontier of development and urbanization (Sundar and Baviskar, 2008; Sharma, 2011; Kumar, 2022).

Under the 1991 CRZN, coastal states were required to draw up Coastal Zone Management Plans (CZMPs) and maps for their jurisdictions. In June 1996, the Tamil Nadu Directorate of Town and Country Planning published a CZMP that included 30 maps (Directorate of Town and Country Planning, 1996). Map number 2 (Figure 1a)⁶

5 M/S. Ramgopal Estates Pvt Ltd vs The State of Tamil Nadu, 2 March 2007.

6 The map in Figure 1a shows the section of the CZMP for Tamil Nadu covering the Ennore wetlands and a portion of Kattupalli Island (Directorate of Town and Country Planning, 1996). It was obtained by Jesu Rathinam, Convenor of the Coastal Action Network, under India’s Right to Information Act (Government of India, 2005) and shared with SEEC.

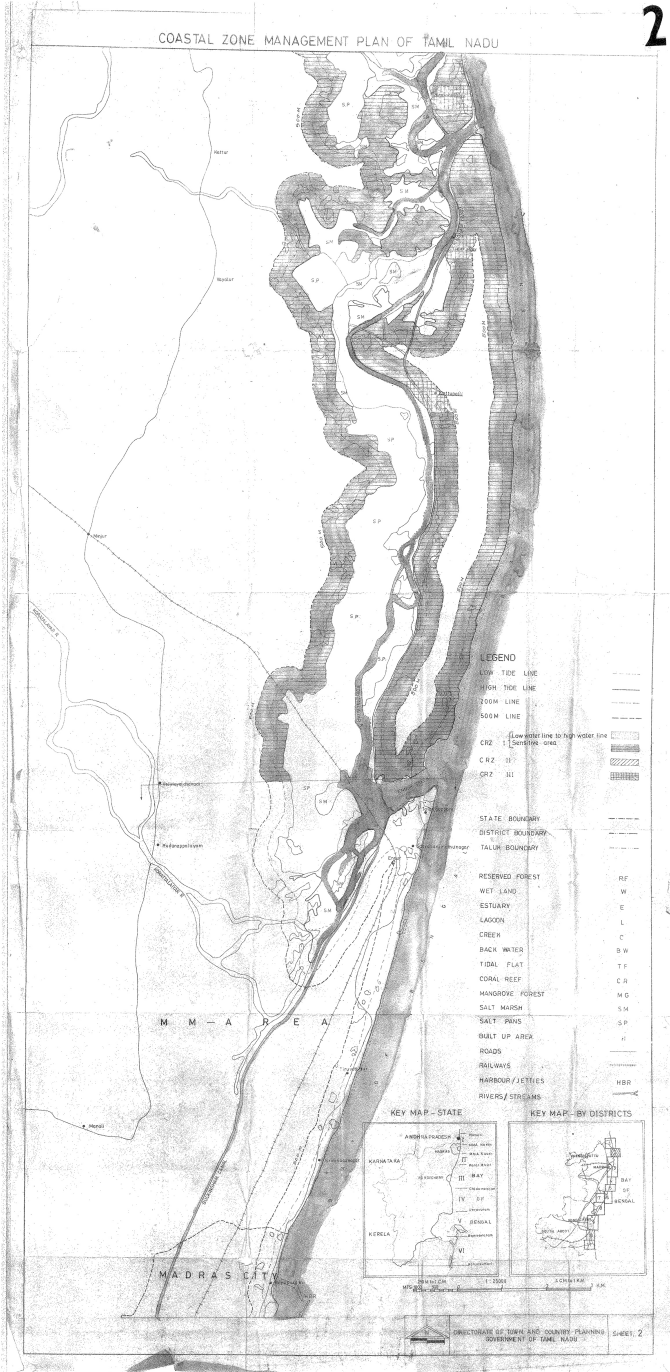
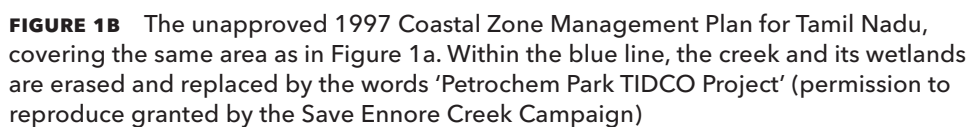


FIGURE 1A Sheet No. 2 of the 1996 Coastal Zone Management Plan for Tamil Nadu, covering the Ennore wetlands and a portion of Kattupalli Island. The map designates the entire stretch as ecologically sensitive (CRZ 1A) and bans all development within it (permission to reproduce granted by the Save Ennore Creek Campaign)



covered the Ennore wetlands and a portion of Kattupalli Island, all of which was designated as an ecologically sensitive zone (CRZ 1A), meaning that all development within it was banned. Yet in March 1997, the Government of Tamil Nadu issued a government order (GO) sanctioning the State Industries Promotion Corporation of Tamil Nadu (SIPCOT) to acquire land in four villages adjoining Ennore Creek to establish a 'Petrochemical Park'.⁷ Once acquired by SIPCOT, the land was to be allocated to building a new coal port (Ennore Port, later renamed Kamarajar Port) and to various other projects at the behest of TIDCO and private enterprise. The GO stated that the Directorate of Town and Country Planning had sent a new CZMP map incorporating this proposal to the Union Ministry of Environment and Forests (today the Union Ministry of Environment, Forests and Climate Change) for its approval (Figure 1b).⁸ The map, which was never approved by the Ministry, erased the creek, the wetlands and the tidal backwaters and replaced them with a cartographic tabula rasa called the Petrochem Park TIDCO Project.⁹ This move, which was clearly in violation of the 1991 CRZN and Tamil Nadu's own 1996 CRZ demarcations, sought to annul the 1996 CZMP on the grounds that the new proposal provided a more 'practical, realistic' approach to coastal development:¹⁰ by forgetting that it was littoral at all.

The Petrochemical Park proposal was challenged in the Madras High Court by both landowners, who filed 36 petitions between 1998 and 2000, and civil society activists from the Ennore Pulicat Environmental Protection Forum (EPEPF), who brought a Public Interest Litigation against it in 2006. In March 2007, the Madras High Court assembled all these cases together and disposed of them in a single judgement, to which we now turn.¹¹ The court judgement was framed within the wider discourse of sustainable development, articulated thus:

What is desirable is a sustainable development, by being resilient, but not rigid; organic, but not static; liberal, but not strict; wider, but not narrow, as to both eco-friendly environment and prosperous industrial development, that are to be worked out harmoniously, to meet the challenges in global economic competition and in order to meet the ends of socio-economic justice.¹²

Against this objective, the judge reviewed the findings of a committee set up by citizen groups which the EPEPF presented as part of its case.¹³ The committee had found that the Ennore Port development and the proposed Petrochemical Park violated several laws, notifications and directives of the State and the Supreme Court, and had already caused permanent damage to the coastal ecology through loss of habitat and biodiversity. It had violated human rights by damaging fishing livelihoods and compromising fishers' rights to shelter, work, food security, water and common property resources. The judgement quoted the committee thus: 'the proposed Petrochemical Park will at one blow sound the death knell for the entire ecosystem and the livelihoods of nearly 3 lakh people'. The committee called for a moratorium on any further industrial development on the coast between Ennore and Pulicat Lake.¹⁴ Having spent nearly four pages listing the legal violations and dire predictions of socio-environmental damage in the

7 Government of Tamil Nadu, GO.Ms.No.85, 21 March 1997.

8 The map in Figure 1b presents the unapproved CZMP for Tamil Nadu, covering the same stretch as in Figure 1a (Government of Tamil Nadu, GO.Ms.No.85, 21 March 1997). It was obtained by Pooja Kuma from SEEC under India's Right to Information Act (Government of India, 2005) and shared with the group.

9 Government of Tamil Nadu, GO.Ms.No.85, 21 March 1997: 2. Both the 1996 and 1997 maps disappeared from view until they were unearthed by activists through right-to-information requests in 2016 and 2017 (Jayaraman *et al.*, 2024).

10 *ibid.*: 3.

11 *M/S. Ramgopal Estates vs State of Tamil Nadu*.

12 *ibid.*: 3.

13 *ibid.*: 15-19.

14 *ibid.*: 16.

committee's report, the judgement abruptly pivoted to observe that the committee's findings reflected the impacts of two existing projects, the North Chennai Thermal Power Plant and the Ennore Port, but not the Petrochemical Park, and that therefore, the only option for the petitioners was to approach the appropriate authorities under the relevant acts to seek directives against the first two. The judge then summarily dismissed the committee's case.

Next, the judge went on to review an opposing report by the National Environmental Engineering Research Institute (NEERI), an expert body of the central government, which justified the establishment of the Petrochemical Park alongside appropriate regulatory measures.¹⁵ The NEERI report advocated for the project in paradigmatic developmentalist terms, portraying a small, scantily inhabited, underdeveloped coastal area that would benefit economically and infrastructurally from the project, with negligible environmental impacts. It claimed there were only four small villages in the area inhabited mostly by fishermen, who would be taken care of under resettlement packages for which sites had already been identified. A socio-economic survey was marshalled to claim that living conditions and amenities were poor in the villages and that there was scope for improving the quality of life of the people in the region. The court's judgement reproduced detailed technical notes from the NEERI report to establish the Petrochemical Park's environmental credentials, asking rhetorically whether 'we should forget that, when our country is emerging as one of the major powers in the global arena ... is it reasonable to postpone such a major project like the Petrochemical Park?'¹⁶

The judgement is revealing in its vehement advocacy of a good city vision that, while purporting to harmoniously balance the environment and the economy, set them against one another and tipped the balance towards economic development and growth. It illuminates the assumptions, rationales and values of statist storytelling that leans on the authority of science and technical expertise. The judgement quoted long passages from the NEERI technical report, taking its words as authoritative evidence, while at the same time dismissing on a technicality the findings of the non-official, albeit well-respected, committee backing the petitioners' claims. The judgement hinged on a misplaced faith in state systems and agencies like the Environmental Clearance and Pollution Control Boards to address the environmental consequences of the proposed Petrochemical Park. The regulatory failure of these agencies was subsequently confirmed by a committee appointed by the National Green Tribunal in 2021 (Joint Experts Committee, 2022). The Madras High Court placed the right to a clean environment—which had been read into the constitutional right to life by a judgement of the Supreme Court—on a par with an invented 'right to development' to legitimize its judgement.¹⁷ It concluded by likening the Petrochemical Park to a marooned ship now released from its stasis:

The magnificent project chalked out in the year 1997, initiated in action in 1998, got marooned due to legal cyclone and baffled the economy of the State extensively. Due to the unhappy state of affairs in which the impugned project has got stranded, we are afraid that, not only the estimated cost escalated due to passage of time, but the related economic growth and social development also got deeply imbedded in the mire of litigations ... Now the curtain has been lifted; hurdles have been removed ... May the 'Petrochemical Park'—not a mere painted ship hanging on the wall, but the one got delivered out of the mire of litigations—perform its voyage for a 'Sustainable Development'. May the State of

15 *ibid.*: 19–30.

16 *ibid.*: 28.

17 N.D. Jayal vs Union of India 9 SCC 362, 2004; M/S. Ramgopal Estates vs State of Tamil Nadu: 28.

Tamil Nadu become the Top among the States, and this Great India grow into a Major Power, in the global arena, in the very near future.¹⁸

The dramatic oceanic imagery in this concluding remark, which describes the Petrochemical Park as a ship ‘marooned’ by a legal cyclone, ‘stranded’ and ‘mired’ in litigation but now setting sail unencumbered, reveals a deep-seated aversion to and negativity concerning the littoral and its liminal logics. Just as it had been erased on the 1997 map, so the littoral, represented in the EPEPF’s report as an ecotone supporting multiple webs of life, was dismissed from the court’s judgement on a technicality.

But the littoral is not so easily erased or dismissed.

Despite the judgement’s glorious vision of a future unencumbered by the socio-material life of the littoral, the land acquisition for the Petrochemical Park was never realized, and the Park did not materialize as envisaged. However, emboldened by the judgement of the High Court, the Government of Tamil Nadu launched a spree of industrial projects between 2007 and 2014. It parcelled out portions of the wetlands and ecologically sensitive sand dunes on Kattupalli Island for coal and iron ore stack yards, two thermal power plants, a polymer park, and a shipbuilding yard-cum-port (Figure 2).

In 2017, Kamarajar Port began to reclaim a portion of the mangrove coastline for port-related facilities by dumping dredged sea sand into it, without a licence to do so from the Government of India’s Ministry of Environment, Forests and Climate Change (Jayaraman *et al.*, 2024). It erected a sign on the watery site that read: ‘This land belongs to Kamarajar Port Limited. Trespassers will be prosecuted’. These actions drew the attention of Ennore’s fishers and the SECC who, in January 2018, mobilized fishing boats and men, women and children to stage a *neer satyagraham*: a demonstration in water (*neer*) to underscore the truth (*satyagraham*) (Figure 3). Standing waist-deep in water at one of the locations identified for port expansion, the fishers declared ‘this is water, not land’, and the slogan, ‘the river is our life’ (*aaru dhan uyiru*) resounded around the event. In staging the demonstration, the fishers mobilized and celebrated their amphibious way of life and refuted the blindness of official narratives. The demonstration revealed indisputably what the 1997 map chose to forget—that the area designated for the port expansion was, in fact, four feet of standing water. Augmented by high-profile visits to Ennore by actor-politician Kamal Hasaan and Member of Parliament Kanimozhi, the demonstration brought a halt to the expansion work in the wetlands. In February 2021, in a case filed by a local fisherman, the National Green Tribunal (Southern Zone) ruled that the 1996 CZMP map was the only approved map, and that the fraudulent 1997 map had no legal status.¹⁹

This story contrasts the binary technologies of property used by the Government of Tamil Nadu to exert its authority over the littoral commons (comprising maps, regulations, the law, science and technical expertise) with what we call the amphibious activism of littoral dwellers, who mobilized their bodies, boats and culture against it. We will take up the idea of amphibious activism introduced here in the sections that follow. The *neer satyagraham* exposed the myth of the tabula rasa contained in the 1997 map and mapped the littoral fluidscape back into visibility in public and legal fora, successfully bringing the illegal encroachment on the wetlands to a halt.

Ignoring and dispossessing

A key instrument used by the Governments of India and Tamil Nadu to justify the industrialization of Ennore came in the form of environmental impact assessments (EIAs). These documents are required to gain environmental clearance for a project and to reassure the authorities that measures are in place to keep environmental harms within

18 M/S. Ramgopal Estates vs State of Tamil Nadu: 48.

19 Mahendran and Others vs Union of India, 2021, OA.No.241 of 2017.

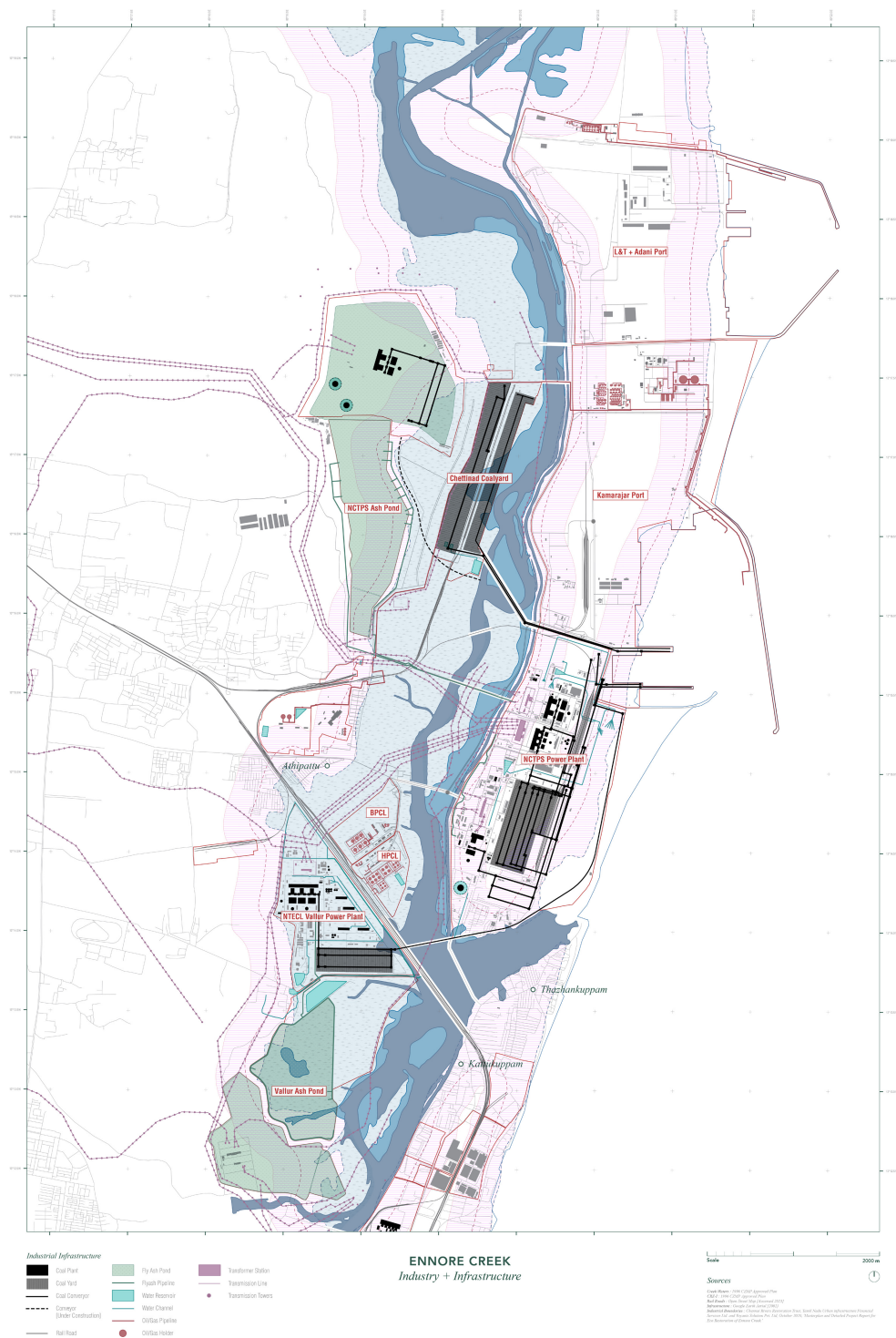


FIGURE 2 Map showing the extent of industrial infrastructure at Ennore in 2022 (source: map by John Cook for the ‘Reimagining the Good City from Ennore Creek’ project; reproduced with permission)



FIGURE 3 The *neer satyagraham* organized by Ennore fishers and the Save Ennore Creek Campaign on 3 January 2018 underscored that the area designated by the Government of Tamil Nadu for the expansion of Kamarajar Port was, in fact, four feet of standing water (source: photo by Steevez Rodriguez, January 2018; reproduced with permission)

prescribed norms.²⁰ The first EIA notification in India was promulgated in 1994 under the Environmental (Protection) Act (Government of India, 1986; 1994). It made environmental clearance mandatory for any projects listed in its Schedule 1, which included power plants. In this story, we discuss three EIAs produced for the North Chennai Thermal Power Station (NCTPS) Stage 2²¹ by the Tamil Nadu Electricity Board (1988; 1992) and National Thermal Power Corporation Ltd (1995). The EIAs advocate for NCTPS Stage 2 on the grounds of Tamil Nadu's 'chronic power shortages' as a result of its 'rapid industrial and agricultural development' over the previous decade (Tamil Nadu Electricity Board, 1988: 2). They reveal a project growing in size and ambition: two 210 MW units in 1988 followed by a 500 MW unit in 1992 and two 525 MW Units in 1995. The project was finally commissioned in 2014 and 2015 as two 600 MW units on a site described as a 'flat stretch of barren land' (*ibid.*: 5) to the north of NCTPS Stage 1, again deploying the narratives of dryness and emptiness referred to in the previous section.

The EIAs describe the processes involved in coal-fired power generation in detail. This is a highly industrialized enterprise that re-routes, crushes, burns, pressurizes and chemically and physically alters and discards coal and water in vast quantities. The two 525

20 EIAs originated in the National Environment Policy Act of the USA (Government of the United States of America, 1969). They were soon adopted in many countries around the world and were institutionalized in global policy discourse in 1992 within Principle 17 of the Rio Declaration (United Nations General Assembly, 1992).

21 NCTPS Stage 1 had been commissioned in 1994.

MW units proposed in the 1995 EIA would require 3.6 million tons of coal per annum and each would require 60,000 m³/hr of water (National Thermal Power Corporation Ltd, 1995: 2.3.1). Coal for the power plant was to be shipped from the Talcher coal fields in Odisha to Ennore Port (now Kamarajar Port), positioning it as a node in the 'archipelago of coal-fired power plants and industrial ports' transforming India's littoral into an engine of carbon-fuelled economic growth (Kumar, 2022: 1853). Once delivered, the coal would be crushed to a fine powder and burnt in a furnace to produce steam under extremely high pressure which would drive the turbines whose kinetic energy would be transformed into electrical energy. After burning, a proportion of the coal dust would remain in the furnace as fly ash or bottom ash.²² These residues would be pumped in a slurry through elevated pipes to an ash disposal pond 5.2 km away. The ash pond was to be surrounded by a 7-metre-high dyke and covered in a blanket of water to hold it in place (National Thermal Power Corporation Ltd, 1995: 2.6.1–2.7.1). Water was required in this process, not only to be turned into steam, but also to be used as coolant water, cleaning water and slurry water. It would be drawn from the port basin and, depending on its use, dosed with chlorine, alum, hydrochloric acid or sodium hydroxide or demineralized through reverse osmosis (*ibid.*: 2.3.1). After use, this chemically and thermally altered water was to be released into the Ennore backwaters.

The 1988 and 1992 EIAs stated with confidence that the effluents from the thermal power plant would not contain any harmful pollutants or have any harmful effect on aquatic life. However, the 1995 EIA found that water discharged by NCTPS Stage 1 into the creek, through the same channel proposed for Stage 2, had high levels of conductivity, dissolved solids and chloride, and was unsafe for domestic use (National Thermal Power Corporation Ltd, 1995: 3.7).²³ Furthermore, Indian law stipulates that coolant water released from power stations should not exceed 5° C above receiving water temperatures. The 1988 and 1992 NCTPS Stage 2 EIAs were confident that this could be achieved, and that there would be no adverse effects on marine flora and fauna at or close to the power plant's outlet. The 1995 EIA was more circumspect, stating that 'It is not techno-economically viable to design a once-through type coolant water system with a temperature rise of 5° C', proposing instead to run the coolant water through cooling towers and then recirculate it (*ibid.*: 2.4.1). The towers did not materialize, and coolant water from the plant was and still is released into the mouth of Ennore Creek. Prawn pickers, whom we interviewed there, said: 'If you get into such water, your whole body gets scalded. Your body gets itchy. You can see many scars on our legs, it's the impact of this water. It's the hot water. Fish, prawns, [they] all die'.²⁴

In the 1995 EIA, the hydrological processes involved in thermal electricity generation are illustrated in an extraordinary drawing called the Water Balance Diagram (Figure 4). It is a vast and complex circuit diagram of rectangles, lines and arrows representing sites of water usage (coal stack yard, condenser, ash dyke), types of water (clear, coolant, oil water) technologies (oil-water separator, cooling water pump, ash handling plant) and the relations between them. It treats water as an abstract entity which it modifies and channels through various technologies and processes, emptying it of any material properties not useful to its purposes and adding others that are (Arabindoo, 2021). Its usefulness exhausted, the resulting techno-water is discharged back into the littoral life world (represented merely by the words 'sea', 'water body', or 'Ennore Creek' in the diagram), whose materiality it changes. Dewan and Nustad (2024: 389) refer to this as 'fluid dispossession', meaning the ways in which technological value-extracting processes ignore the complex and dynamic relational assemblages that make up fluidscapes and how techno-water's materiality disrupts the webs of life that fluidscapes sustain.

22 On average, 30–45% of coal burned in Indian power plants remains as residual ash (Shah and Narayan, 2020: 4).

23 The EIA is in the public domain and a copy is available at the offices of the Tamil Nadu Pollution Control Board.

24 Interview with a prawn picker at the Mahda Temple, Puzhuthivakkam, 6 April 2023.

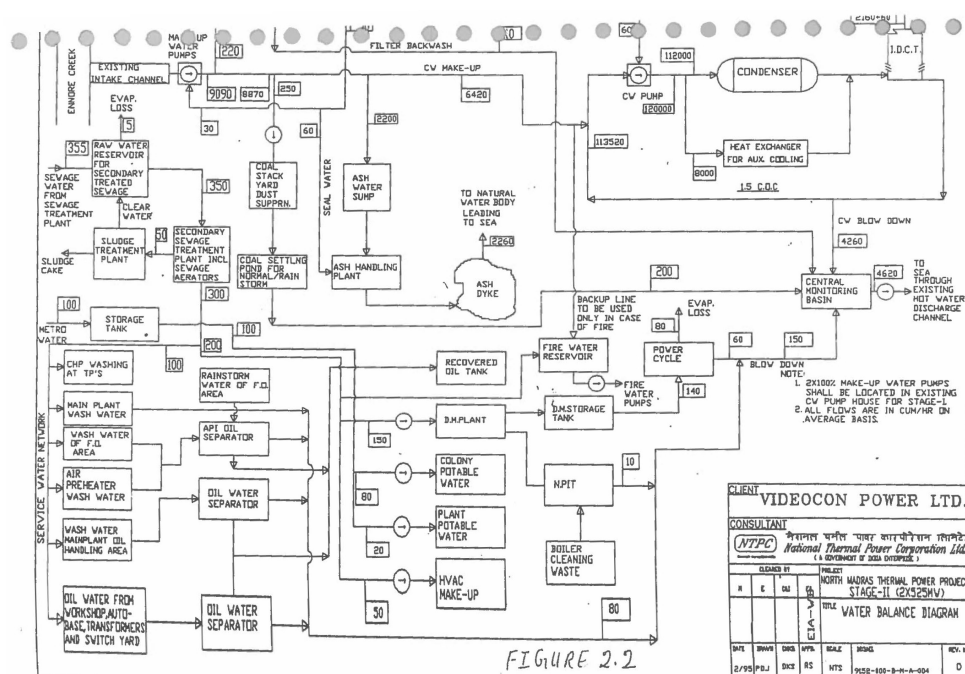


FIGURE 4 Water Balance Diagram in the Environmental Impact Assessment report for the NCTPS Stage 2. The diagram shows the hydrological processes involved in thermal electricity generation (source: National Thermal Power Corporation Ltd, 1995: 34)

The lines in the diagram, despite appearing to be firm and reliable, are uncertain and leaky. For, as Anand (2017) demonstrated in his study of Mumbai's water supply network, infrastructure is neither fixed nor stable; rather, it is a dynamic, glitchy assemblage requiring continuous maintenance and repair. The mitigation plans spelled out in the NCTPS Stage 2 EIAs failed to acknowledge the likelihood of infrastructural failure in the face of the materiality and liveliness of the littoral. For salt, sand, brackish water, currents, tides and flows all present challenges to infrastructure, causing it to corrode, crack, leak, seep, collapse or break down unless constantly monitored and maintained. Of particular consequence at Ennore was the failure of the strategies for coal ash disposal (Shah and Narayan, 2020).

In November 2021, responding to a case filed by an Ennore fisher, the National Green Tribunal (Southern Zone) appointed a Joint Experts Committee to assess the damage caused by fly ash to the Ennore backwaters. Its report (Joint Experts Committee, 2022) told a very different story about what had transpired over the intervening years to the one assured by the EIAs for NCTPS Stage 2. The Joint Experts Committee report presented a litany of failures in the handling of coal ash: the quantity of unaccounted-for coal ash was under-reported; the unlined ash pond had contaminated groundwater and no mechanism had been installed to prevent aerial emissions from it; the location of the ash pond had altered natural drainage patterns; the macro drain for storm water run-off from the ash pond appeared to be a major conduit for ash into the backwaters; ash had spilled through cracks, as evidenced by the corrosive deterioration of the elevated pipelines, spreading across 3.51 km² of the wetlands and smothering the Buckingham Canal, the Kosasthalaiyar River and the Ennore backwaters; and it had built up on the creek bed, reducing the tidal ebbs and flows on which the creek ecologies

and life forms depended and contaminating the sediments and benthic life, that is, the organisms living at the lowest level of the water above the sediment.

For the backwater fishers of Ennore, the sediment—called *seru* in Tamil, which is their word for healthy river sediment—is life. They know it through their bodies: the way it feels underfoot, its texture, colour, smell and depth. If the creek's sediment changes, life changes. The sediment is deposited each year by the monsoon rains that course down the Kosasthalaiyar River, or it is brought in from the ocean by the tides. Some of it settles in the bed of the creek, where it sustains many marine species such as prawns, crabs and oysters. As the creek bed slowly became smothered by ash (as well as sewage sludge, dredge spoils and construction debris), the material composition of the sediments changed, and with it the webs of life that they sustained (Govindan, 2021). The quantity and quality of fish in the creek and their ability to reproduce was compromised; toxic heavy metals bioaccumulated in the bodies of prawns and crabs; new multispecies ecologies emerged—crabs resided amongst colonies of an invasive species of mussels; mudskippers, not seen for years, returned; and saplings of a tree considered sacred along the Coromandel Coast (*Salvadora persica* or *ugha* in Tamil), which had all but disappeared, were found growing in the fly ash ponds (Vencatesan, 2022).

Some fishers accepted employment contracts, often in the very industries that had dispossessed them of their fluid commons. Others developed artful, collaborative ways to continue caring for the creek's toxic sediments (Haraway, 2016). They did so by becoming cartographers and activists. In order to negotiate with the different levels of power within which they were now enmeshed, they threw the language of maps back at the authorities and won a number of court battles to remove fly ash or dredged spoil from the creek.²⁵ In solidarity with the SECC activists, they engaged in citizens' science by sampling and testing water and sediments for toxic substances. They brought litigations, attended public hearings, organized demonstrations, toxic tours and food festivals, made music videos, wrote blogs²⁶ and mounted exhibitions to draw public attention to the ongoing trauma of living with infrastructural detritus and toxicity and the state's indifference to it (Coelho, 2022; Hecht, 2023).

While the installation of power generation infrastructure at Ennore chose to ignore the complex and dynamic relational assemblages in which it was embedded and into which it discharged its effluents, it altered and degraded them. The creek and its wetlands were transformed into a toxic soup; thousands of livelihoods in fishing, prawn collection and salt panning were lost and the species that inhabited the creek were either reduced in number or totally erased (Singh *et al.*, 2017; Raman, 2020). However, refusing to abandon their fluid commons and way of life, Ennore's fishers and the activists who support them evolved new modes of amphibious activism. These not only involved moving between land and water; they also moved between statist technologies such as maps, science, right-to-information (RTI) and the law, and more cultural, affective modes of expression such as toxic tours, art exhibitions, music videos and protest, acting to care for the creek and its sediments and resist its further degradation.

Fixing, filling and fortifying

The third good city story behind the transmogrification of the Ennore littoral is the story of port infrastructure. It began with the building of Ennore Port (now Kamarajar Port) in 1999 as a coal delivery port. In 2013, the Larsen & Toubro (L&T) port and shipbuilding complex was built at Kattupalli, just north of Kamarajar Port. Then, in 2015, Narendra Modi's government launched *Sagarmala*, a port-building and -expansion programme.²⁷ *Sagarmala* (meaning garland linking the sea) was designed to harness

25 See, for example, W.P.No.30237 of 2018 and W.M.P.No.35289 of 2018.

26 See *The Story of Ennore* (<https://storyofennore.wordpress.com/about/ennore-creek/>), accessed 2 November 2024.

27 See *Sagarmala* (<https://shipmin.gov.in/division/sagarmala>), accessed 20 April 2024.

India's 7,500-km coastline and its strategic location along international maritime routes as an engine of economic growth (Gupta, 2022; Kumar, 2022). It was the maritime equivalent of three other flagship programmes of Modi: *Make in India*, the *National Industrial Corridor Development Programme*, and *Bharatmala Pariyojna*, which together would connect the country from end to end via expressway corridors and rail, inland waterways linking ports, special economic zones (SEZs), industrial clusters, and Smart City manufacturing nodes (AECOM India Pvt Ltd, 2016: 1.1).²⁸ Together, these four programmes constituted Modi's 'Big Push' neoliberal economic strategy to tie India into global economic circuits and supply chains through the development of large-scale logistical infrastructure (Kumar, 2022; Pradhan *et al.*, 2022).

This model of linking global capital and the state through logistical infrastructure is characterized by Arboleda (2020) and Danyluk (2021), among others, as logistical or supply chain urbanism, a mode of capitalist accumulation that revolves around connectivity, continuity and speed. *Sagarmala* appeared on Ennore's shores in 2016, when the Government of Tamil Nadu approved a deal by Adani Ports and Special Economic Zone (APSEZ) Ltd to acquire the L&T port at Kattupalli as part of its ambition to 'build a network of ports across the Indian coastline and to further expand APSEZ's footprint across the south-east coast' (Manoj, 2016). Once the deal was approved, Adani Kattupalli Port Pvt Ltd (AKPPL) immediately set about obtaining further approval to expand the port, citing competition with Krishnapatnam Port in the neighbouring state of Andhra Pradesh as its motivation for doing so (*Times of India*, 2016). Environmental clearance was required to advance this ambition. In this section, therefore, we examine the Draft Comprehensive EIA/EMP Report for the Revised Master Plan Development of Kattupalli Port (L&T Infra Engineering, 2020a, 2020b, 2020c), which justified the port expansion and explained away its projected impact on the Kattupalli littoral (Figure 5).

To justify the project, the EIA directly invoked *Sagarmala* and cited the government's support for 'logistics-intensive' industries (L&T Infra Engineering, 2020a: 1.7). It projected increases in container traffic and the export of automobiles from Chennai's auto manufacturing sector as well as increased demand for petroleum, coal and POL products in north Chennai. To meet this projected demand, it proposed to expand Kattupalli Port eighteen-fold, from an area of 136.28 ha to a massive area of 2472.85 ha, of which 796.15 ha would be reclaimed from the sea and 349 ha from the wetlands (*ibid.*: 1.9). The use of hectares as the measurement of the proposed port's extent is conceptually significant. It translates a dynamic, voluminous, littoral into fixed, measurable, two-dimensional units of property. Furthermore, the littoral ecotone, described in the report as 'sea, intertidal area, sandy area/beach, abandoned salt pans, and land with/without scrub and sparse vegetation', was portrayed as worthless *poromboke*, waiting to be transformed into a value-producing asset (*ibid.*: 2.5). Thus reimagined and measured, the littoral—'an environment of flux and change par excellence' (Manderson and van Rijswijk, 2015: 174)—was transformed into the site of a multi-purpose cargo port to enable the flow of commodities between land and sea.

To sustain these transactions against the vagaries of littoral currents, shifting sand and shoals, the port's masterplan proposed three new breakwaters reaching 12.1 km in length to enclose a new port basin accommodating five berths (L&T Infra Engineering, 2020a: 1.9). The port basin and its approach channel would be dredged (*ibid.*: 10.3), and the wetlands within the port boundary would be filled to a height of 5 m above sea level, requiring an estimated 138 million m³ of fill (*ibid.*: 1.10). This is a staggering quantity: if it were stacked onto an area the size of a football field (60 x 100 m), it would reach the stratosphere! According to the 'masterplan', 85 million m³ of the fill would be supplied by spoil dredged from the port basin and approach channel,

28 See *Make in India* (<https://www.makeinindia.com/>); *National Industrial Corridor Development Programme* (<https://www.nicdc.in/index.php>); and *Bharatmala Pariyojna* (<https://morth.nic.in/bharatmala>); all accessed 20 April 2024.

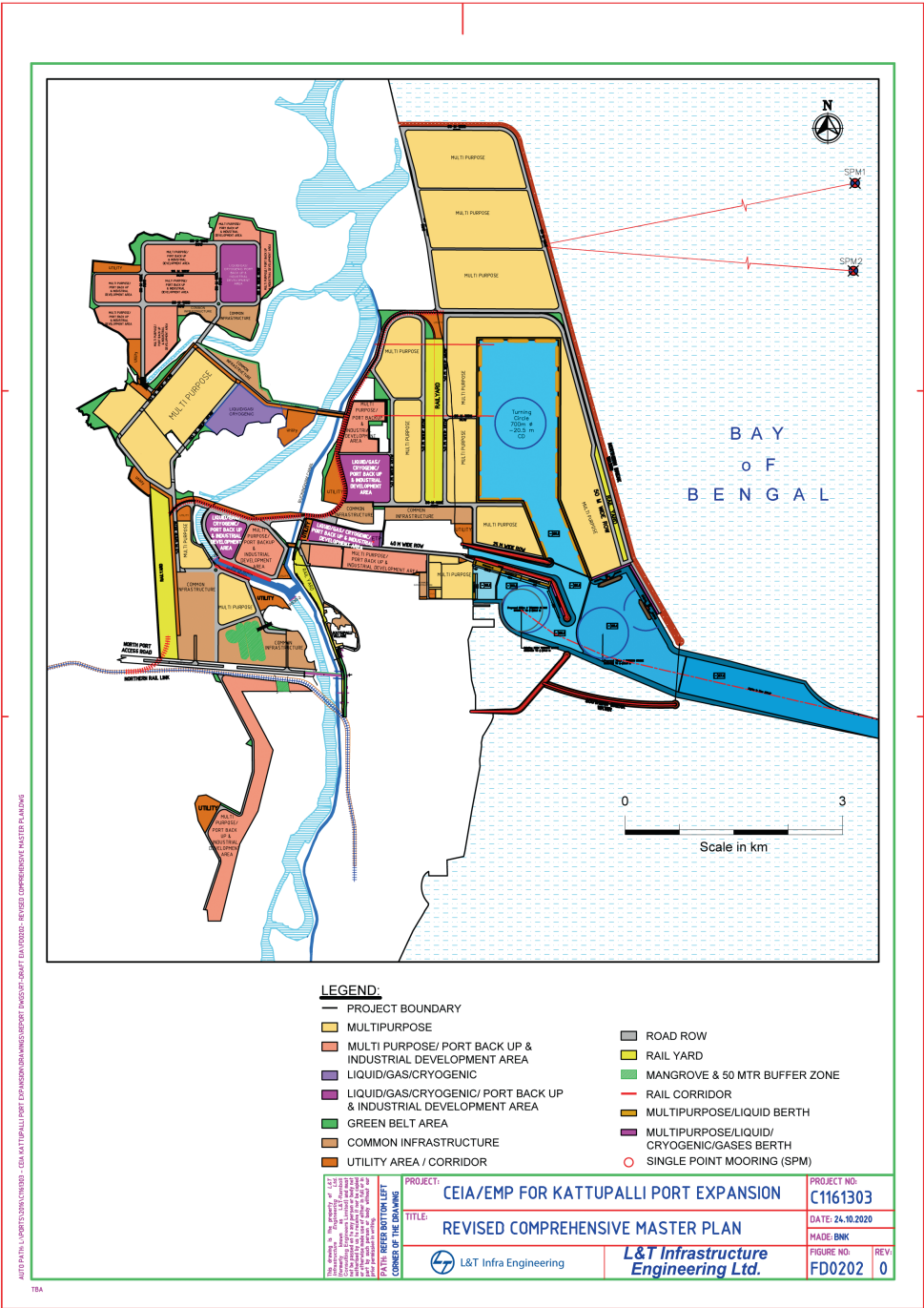


FIGURE 5 Masterplan for the expansion of Kattupalli Port, showing the extent of the proposal and its impact on the coastal littoral, sand dunes, wetlands and Kattupalli Island (source: L&T Infra Engineering, 2020a: 2.94)

while the rest would be sourced from Satyavedu in Andhra Pradesh, 65 km from the port site, and Walajah and Karadipudur in Tamil Nadu, 140 and 80 km away, respectively (*ibid.*: 2.67). This transactional approach to alluvium views it as inert matter that can be removed from one place and set down in another, ignoring the long histories that sediments carry, their varied density and mineral composition, and the fact that they sustain living ecologies. The EIA acknowledged that dredging and reclamation would disturb the marine ecology, but argued that this would be localized and temporary and that nature would adapt. It remained silent concerning the likelihood that this would fuel the violent political economy of sand mining in Tamil Nadu and its documented destruction of riparian ecologies (Jeyaranjan, 2019).

The L&T Infra Engineering EIA is extensive. Its three volumes total nearly 2,000 pages and claim authority through their technical weight, quite literally. They assemble surveys of various sorts, bar graphs, maps, figures, more than 250 computer-generated images, and over 200 tables in the first volume alone. They baldly compile these data with little attempt to position them as evidence or to bring them into relation with one another. This mode of compilation without interpretive or normative commentary represents the rhetoric of the whole. Of particular significance for this rhetoric is the use of computer-generated models and simulations that fix dynamic phenomena in saturated colours to deliver messages that underscore the no-nonsense clarity of their scientific assertions (Helmreich, 2023). However, models and simulations are not representations of real phenomena (Bottazzi, 2013; Varenne, 2013). They are simplified, abstract descriptions in which only one or two variables are formulated, and necessarily disregard the particularities and relationalities of place, ecology and hydro-sociality to make their truth claims (Varenne, 2013).

One of the dynamic phenomena that the EIA modelled was the littoral drift between Ennore and Pulicat Lake and the impact of the proposed port on it. To do this, historical shoreline changes effected by both Kamarajar Port and Kattupalli Port were tracked through satellite images. They showed the ongoing accretion of the shoreline south of both ports and the erosion to their north through littoral drift. A model was built to simulate the shoreline evolution between Ennore and Pulicat for one, five, ten and 15 years after the port's construction. This simulation predicted shoreline erosion of 16 m per year up to 4 km north of the new port. After 15 years, total erosion would be in the order of 240 m, based on the 2018 baseline (L&T Infra Engineering 2020a: 4.10–4.17). To manage these shoreline changes, the EIA proposed that three groynes, each of 100 to 150 m in length and spaced 1 km apart, be built north of the port's northern breakwater, and that the first kilometre beyond the port be nourished with dredged spoil biannually. It acknowledged, however, that these measures would only push the erosion of the shoreline further north and that shoreline erosion in the order of 48 m would occur up to a distance of 4 km north of the groyne field over the 15 years (*ibid.*: 4.20). The EIA found this extent of erosion acceptable on the basis that it would not impact Pulicat Lake, as it lay 7 km north of the region subject to erosion.

The stories presented in EIAs are addressed to a narrow audience, usually only expert members of Environmental Clearance Appraisal Committees, or perhaps court-appointed experts as well. They are not meant to be read closely; nor are the numbers and charts they contain meant to represent the truth on the ground or to reveal the real-life implications of the projects they assess. Yet that is exactly how activists of the Stop Adani Save Pulicat Campaign (SASPC) used L&T Infra Engineering's EIA from 2019 onwards. They mobilized elements of the EIA's story to feed counter-stories as part of a social media campaign. They showed that the erosion induced by the port's groyne field would breach the narrow barrier island at Kattupalli, causing Pulicat Lake to merge with the Bay of Bengal. This would negatively impact the lake's ecosystem, forcing the evacuation of fishing villages and exposing areas deep in the hinterland to the dynamics of the littoral in ways that could not be foreseen.

The SASPC also mounted a children's art campaign which was amplified by youth groups and covered by the mainstream media. The exhibition conveyed a visually evocative narrative of disastrous erosion and the threats posed by the port to human and avian life (Aves, 2020). All this built on a prior year-long campaign that included natural heritage tours to Pulicat and gastro-activism through a Pulicat Seafood Festival to spotlight the lake as an ecological cornucopia and a source of livelihoods that were threatened by the port. In the lead-up to the 2021 State Assembly elections, local communities reached out to political parties. The intensity of opposition to the port, including from the then Chief Ministerial candidate and current Tamil Nadu Chief Minister, M.K. Stalin, forced the government to call off the statutory public hearing scheduled for 21 January 2021. The hearing was a requirement for granting environmental clearance to the project, and although a fresh date was announced in 2023, it was withdrawn again due to public opposition (Das, 2023).

The EIA for the Revised Master Plan Development of Kattupalli Port was an epic technological narrative that made the claim that Kattupalli's littoral dynamics could be controlled through science and engineering in order to materialize the good city of frictionless commodity flows promised by logistical urbanism. Using surveys, satellite data and computer models, it argued that dredging, filling and fortifying the littoral would result in little, or at least manageable, environmental consequences. This conclusion was countered by activists who, thanks to their intimacy with the littoral, were able to mount a counter-interpretation of the EIA's own data and suggest that the dynamics of the littoral would confound the engineering put in place to contain them, with potentially disastrous consequences.

Conclusion

The three stories we have presented in this article reveal that the wilful destruction of Ennore Creek was effected through a series of shifting statist good city imaginaries—from sustainable development and fossil-fuelled economic growth in the 1990s to logistical urbanism in the 2000s. These modes of capital accumulation cumulatively dispossessed the creek's people of their web of life by invisibilizing, leaking, smothering, neglecting and engineering away anything other than that which was useful to their purposes. Industrialization altered the material properties of the creek and ignored the complex and dynamic relational assemblages in which its communities were embedded.

Ennore is not alone in this regard. In 2020, there were 1,670 million tons of ash in ash ponds in India, covering a total of 400 km² (Shah and Narayan, 2020). We suggest that these ponds are a powerful expression of the country's contemporary social contract, sedimenting violent and toxic residues in littoral environments and bodies. Yet we also argue that the littoral cannot be so easily recruited and disregarded, because its fluid materiality and fungibility resist containment within any imaginary. Ennore Creek became a staging ground for resistance by backwater fishers who mobilized their bodies, science, cartography, litigation and wider solidarities in an amphibious form of activism to care for their contaminated life world.

We conclude by suggesting that the fishers' struggle offers a spatio-temporal imaginary and a way of inhabiting a polluted littoral otherwise. First, the fishers' resistance to the violence of development had what we would call a littoral effect on official narratives. It unfixed them and made them porous to other ways of knowing, by revealing that maps, engineering and science are less fixed or cohesive and far more fluid than the authorities made them out to be. Second, it revealed that resisting official narratives and practices is not a binary struggle of 'us' versus the State. Rather, it is an amphibious practice of working within dominant epistemic systems such as cartography, science and the law and outside of them through cultural practice, solidarity and protest, to point beyond fixed epistemic, spatial and temporal frameworks. Finally, the fishers revealed that living in a polluted

littoral was a matter of what Michel Foucault (1994: 245) called a 'practice of liberty'. While it could not free them from the set of relations in which they were embedded, it enabled them to imagine and express another way of life within them. The fishers revealed a littoral imaginary of a place shared between land and sea; a place that they did not just know, but loved and cared for. They wove lived storylines of conviviality and loss between people, spirits, deities, fish, sediment, salt, tides and seasons, respecting the commensurability of all forms of life, including that of the littoral itself.

Lindsay Bremner, University of Westminster, London, UK, l.bremner@westminster.ac.uk

Nityanand Jayaraman, University of Waikato, Hamilton, New Zealand, nityjayaraman@gmail.com

Karen Coelho, Madras Institute of Development Studies, Chennai, India / University of Waikato, Hamilton, New Zealand, karen.coelho@gmail.com

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