Logistical Worlds

Infrastructure, Software, Labour

No. 2   Kolkata

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'BUY CHEAP, SELL DEAR'

Brett Neilson & Ned Rossiter

Moving through the Burrabazar district along Kolkata's Strand the immediate buzz of hustling and trade obscures the crumbling warehouses that line the thoroughfare. According to a popular saying, 'Everything is available in Burrabazar'. This ethos of ready supply, at least for those who are prepared to haggle (and almost everyone is), comes with an infrastructural and informational layer. 'Everyone wants to buy cheap and sell dear', writes Clifford Geertz in a classic article on the bazaar economy from the 1970s. 'In the bazaar information is poor, scarce, maldistributed, inefficiently communicated, and intensely valued'. What are the material conduits that support this game of information procurement and coveting and what are the historical and political conditions that have allowed it to flourish?

That the root-covered warehouses set back from the Strand look like structures straight out of Victorian England provides a clue. Planetary urbanism is a phenomenon that predates the 21st century. The origins of Kolkata in the Dutch and British 'factories' of the 17th century mean the city was logistical from the start. Kolkata began as a series of fortified warehouses run by company-states whose activities established both the uneven legal and commercial geographies of modern empire and the first forms of the joint stock company. This did not occur on a blank slate. That company man Robert Clive assumed a position in the Mughal hierarchy as part of the diwani that granted the British territorial or tax-collecting rights in Bengal, Bihar and Orissa in 1765 reminds us that colonialism inserted itself into established patterns of political and economic organization. Similarly, we might speculate that the logistical form of the warehouse was a colonial invention, which was only fully exported back to the metropole when the Calico Acts of 1690–1721 sought to bolster British industry by forbidding the sale of Indian cottons.

The Strand warehouses are an altogether later affair. With names like Fairley, Canning and Clive, they were built in the late 19th century. In 1870, the Calcutta Port Trust was established as an institution of the British Raj under the leadership of nine commissioners. They set about transforming the thin strip of land between Strand Road and the Hooghly River, building jetties and warehouses to accommodate the port's increasing turnover. Once a crucial juncture in the triangular trade of opium to China and then a funnel for human traffic in 'coolies', the Kolkata port was the foremost in India until the time of independence. As other contributions to this pamphlet show, declarations of the port's decline have been matched by its persistence and bounce-back. Today the port encompasses two separate dock agglomerations (at Kidderpore in the city's central west and at Haldia, 125 kilometres to the southwest of Kolkata) and is an important station within India's Act East plans as well as Chinese visions of a new silk road.

Our research in India follows on the heels of an investigation of the establishment of a concession in the Greek port of Piraeus by Cosco Pacific – a subsidiary of the Chinese state-owned enterprise Cosco Group. The staging of a research platform in Kolkata and its hinterlands offered a way of studying logistical operations at a crucial chokepoint connecting Indian transport corridors to routes that extend eastwards to China. We focused not only on the Hooghly warehouses, Kidderpore and Haldia but also on the 'floating town' of Siliguri in the north of West Bengal. Siliguri is situated just to the north of the so-called 'chicken's neck', a narrow strip of Indian territory that runs between Bangladesh and Nepal, connecting the country's northeast to its main geo-body. A site of human trafficking, electronics contraband, military build-up, tea plantations, resource extraction and ecological catastrophe, the town is a crucial crossroads in the hinterlands of Kolkata port.

Logistics produces space and time according to imperatives of capital and connection. What becomes clear in the Indian case is how this production proceeds at the disjunction between software economies, material infrastructure and hard labour. We conducted an experiment by recording numbers from containers sitting in Haldia docks and feeding them into container tracking sites on the internet. For those containers that registered in the system, we found their seaward passage to and from Haldia was evident, but as soon as they travelled in Indian national space their motion

disappeared from the screen. This physical movement beyond informational inscription became apparent when we asked a manager about the port's terminal operating system. He didn't know. One of his offsiders eventually told us they use a Tata out-of-the box solution, MACH (Marine Container Handling System). Then the manager showed us a port manifest, printed out but accompanied by a page scribbled with his own handwriting, to which he referred in citing the vessels that would come and go. Information is scarce and is conversely intensely valued.

In Kidderpore, as in Haldia, much of the commodity traffic is bulk rather than containerised. Workers who take on the backbreaking work of transporting goods from vessels to the docks are paid by the weight they move rather than by volume. This arrangement seemingly flouts the global dictates of the container revolution, which was based on a logic of modularization that made volume rather than weight the object of measure in the shipping and stevedoring industries. Besides the gleaming India of technology parks and software firms, these technologies of transport continue and are made possible by contract labour regimes and trade unions whose power derives from political party affiliations rather than the ability to strike.

There is something more at stake here than what Ernst Bloch called the 'synchronicity of the nonsynchronous' – the potentially explosive spatial coexistence in the same time-period of historically heterogeneous practices and social formations. Nor can this situation be explained by standard narratives of the jugaad economy, according to which work arounds and makeshift innovations allow a leapfrogging over industrial exploitation and a direct transition to digital capitalism. What becomes evident is the extractive element of logistical operations – their ability to generate value by organizing the exploitation of nature and social cooperation in ways not directly attributable to the fraction of capital that benefits from this extraction. It is like the financial logic of the derivative, which creates value by speculating on underlying assets that are never themselves transacted. Life and labour become the raw materials on which the logistical edifice is built, but over which this same edifice seems to float or glide – assets that are expendable or exploitable precisely because they do not register on the screens or in the processors where value comes to be measured.

The same dynamic is evident in a much more literal sense as one crosses the bridge over the Mahananda river

on the way to Siliguri from Bagdogra airport. Massive amounts of sand have been removed by informal miners from the riverbed, creating a spectacular vista of devastation. The degradation of the ecology in cities like Delhi and Kolkata manifests in Siliguri as high levels of airborne particle mass set loose by sand and stone extraction economies. With the water retaining capacity of the river severely diminished, inhabitants are no longer able to fill wells and are displaced from modes of life and trade. The geological foundations of the city and high-rise buildings are made vulnerable as the water table drops. A conflict zone emerges not so much among the many ethnicities comingling in this cosmopolitan town of transit labour, but rather because of the uneven distribution of land ownership and rights. The construction of the Asian highway is a chief structural and economic force in this regard. Perceived as a contributing factor to the dearth of investment in public and social infrastructure in the logistical city of Siliguri, the new silk road between China and India benefits high-level investors and prompts splendid visions of political-economic futurity for government policy makers. The trickle down rewards for local populations are harder to discern.

Yet the organization of power is not reducible to such unilinear structural dynamics, even if their force is undeniable. More often a term attributed to the unequal distribution of and access to data in the global South within ICT for development discourses, we might instead consider the practice of maldistributed information as a strategy of subordinating control to the vagaries of logistical economies not always accountable within software regimes of calculation and measure. In forging a political theory within a logistical worldview, the technical serves as a base from which political struggle can ensue. This does not disqualify non-computational modes of organization such as the party or union. Clearly, in a country like India, such structures remain highly significant to the organization of labour and political life. We might also consider how the technics of governance and the circulation of things not beholden to traditional institutional forms or, for that matter, computational technologies of control signal a surplus of logistical power beyond capture.

Take our earlier reference to the port manifest at Haldia, which bears some similarity to the case we found in Piraeus port during our research in Athens. The passage of trans-shipment containers from the Cosco concession on Piers 2 and 3 to Pier 1, still managed in 2013–14 by the Piraeus Port Authority (OLP), was not tracked by the respective terminal

operating systems (TOS) software developed by South Korean and US companies. There we noted how the use of paperwork reintroduced a technical form of media not accountable to inspection in the ways digital event logs are in TOS. As with the paperwork at Piraeus, the scribbled page accompanying the port manifest used in Haldia reclaims a pre-digital media of governance in which the inventory of goods and productivity of labour are not beholden to real-time systems of search and calculation. It is in this sense that the technical ushers in a horizon of the political not usually acknowledged for its constitutive power. Together with colonial era infrastructural forms such as the warehouse and the materiality of labour and ecology in Siliguri's sand mining, economies of scarcity are complemented with media and storage infrastructures whose historical cultures and technical properties refuse any straightforward translation into the spatial and temporal parameters of digital media of logistics.

The diversification of logistical media in this geographic section of global supply chains is accompanied by variegated temporal patterns: geological, social, technical, institutional, financial and cultural. One could go on. For all this multiplication, logistical systems remain operative, albeit in ways not found in the promotional literature of shipping lines, distribution centres, telecommunication and software firms, and supply chain management companies. Logistics, in other words, exceeds the formal dimensions of production and distribution. Modes of capital accumulation enter the many and diverse tributaries of informal systems of economy and labour. As a result, the 'capitalist world system' is composed of modes of value production that draw on seemingly pre-capitalist systems of governance and social relation. These systems are not simply forms of social or economic activity that are prior to or not yet subdued by capital. They are also continuously produced from within capital, through its prospecting initiatives and through resistance to its logic.

These hinterlands of capital accumulation register how logistics is a core driver of what we might term variegated capitalism. The transition from formal, computational governance of supply chains to informal practices off the grid also signals how the inner workings of logistical systems elude inspection. Whether human or machine, logistical knowledge evades those not immanent to the situation of operation. These forms of evasion are not fully captured by the prevalent metaphor of the black box, which describes an opaque space of knowledge into which all our paranoias and fantasies can be

projected. Nor can the immanent knowledge of logistics be collapsed into the nodes and links of a decentralised network or levelled onto the single surface of a flat ontology, which, in providing an even playing field for objects, forgets both subjects and the ways in which the social relation of capital is mediated 'by things'.

Ultimately, the maldistribution and intense valuing of information is not a phenomenon restricted to the bazaar economy or to the economic and political spaces of the global South. We do well to remember this in the context of current hypes surrounding big data, the internet of things or predictive analytics. Hoarding and haggling are central to these phenomena and practices too, providing the contours of concealment and access that make contemporary data and logistical economies fungible and productive. Between the Strand and the Hooghly, there is a world. But not only here is the desire to 'buy cheap and sell dear' mediated by the extractive operations of capital. Tracing these operations from scenarios of hard physical labour through the circuits of contemporary information exchange, from vistas of anthropocenic disaster through to mundane economies of transport and trade, registers how infrastructure, software and labour make logistical worlds.

Images: Ned Rossiter

KOLKATA PORT: CHALLENGES OF GEOPOLITICS AND GLOBALIZATION

Subhir Baumik

Before Calcutta (now Kolkata) became an 'Imperial city' it had, according to Captain Alexander Hamilton in 1710, 'docks for repairing and fitting ships' bottoms'. Most likely Armenian traders used these docks to trade with 'China to the East and Persia to the West' many decades before Job Charnock founded the city, clubbing together the three swampy villages of Kalikata, Sutanuti and Gobindapur. It is from Calcutta that the British, according to Geoffrey Moorhouse in 1971, created 'an empire at which they looked with incredulous elation'. After Calcutta had emerged as the leading port of Britain's Indian empire and as its capital, its importance grew several fold when the Suez Canal opened in 1869. The river Hooghly made navigation difficult, as it continues to do today, but the huge returns from trade never failed to entice the freebooter and the brave. A Dutch fleet of seven ships even negotiated the channel without pilots (as ships entering Calcutta rarely did) in 1759 – two years after the battle of Plassey – in a futile bid to stop the English from using Calcutta port 'as an entrepot' to create the financial sinews of one of the greatest empires the world has ever seen.

Muslim League stalwart, H. S. Suhrawardy, the mastermind of the Great Calcutta Killings of 1946, could not imagine an East Pakistan without Calcutta. India's current Prime Minister, Narendra Modi, has designated Calcutta as the 'starting point' of his 'Act East' policy for connecting India to South-east and East Asia. Calcutta's port, a site of geo-morphological complexity, lies 232 km inland from the sea, but its multi-modal linkages to a huge hinterland in India and its neighbourhood has ensured its survival as a riverine port in an era of globalization characterized by giant container-driven shipping. The changing geopolitics of Asia, marked by China's sharp rise and India's emergence, has led to the renewed importance of the Calcutta port system, even as questions have been raised about its future due to having a poor draught

and the high cost of operations, particularly because of the expense of dredging the Hooghly channel. The Kolkata Port Trust (KoPT), which handles Calcutta and Haldia docks that comprise the complex port system, seems to be aware of its geopolitical and geo-economic importance. R.P.S Kahlon, until recently the KoPT chairman, said in a message posted on its official website:

> The process of churning a new and expansive trading hub, on a port-centric customer base with matching logistics and competitive facilities and/tariff structure, while harnessing its riverine potentials, is one of the defining challenges the port faces in the years ahead. *The "Look East Policy" of the country, the proposed Trans-Asian Railway corridor, opening of India-China road and proximity to Lhasa will all contribute to making Kolkata the hub port of the region.* (italics mine)

Indian policy makers may worry about China's maritime encirclement by a 'string of pearls' (by China-constructed ports like Gwadar in Pakistan, Hambantota in Sri Lanka, Kyauk Pyu in Myanmar and possibly Sonadia in Bangladesh), but the KoPT chairman is looking at a China-India road with extensions to Tibet as possible options to augment the future business of the port. In fact, India's considerable diplomatic leverage in Nepal and Bhutan owes much to Kolkata port being the official port of the two countries. With all its economic muscle, China cannot provide a port to service Nepal and Bhutan and this significantly adds to India's ability to influence these Himalayan nations.

The Chinese, for their part, have identified the Kunming-Kolkata (K2K) corridor, now popularly known as the proposed BCIM (Bangladesh-China-India-Myanmar) corridor, as one of the six economic corridors to be developed under President Xi Jinping's Maritime Silk Route and 'One Belt One Road' (OBOR) initiatives. In May 2015 Chinese Vice-Premier Zhang Gaoli listed six economic corridors: (1) China-Mongolia-Russia (2) China-Central and Western Asia (3) China-Indo-China Peninsula (4) China-Pakistan (5) Bangladesh-China-India-Myanmar and the (6) New Eurasian Land Bridge. All of these corridors aim to enhance Asia-Europe connectivity, attracting billions of dollars in Chinese investment to stimulate trade.

The BCIM corridor, which aims to connect Calcutta (Kolkata) to Kunming in Yunnan province, is one of China's largest priorities. India is not showing the same level of

enthusiasm and commitment. But by getting India to pair up Kunming and Calcutta (Kolkata) as sister cities during Prime Minister Modi's Beijing visit, China has made its intentions clear. Its limited east coast has compelled China to develop multiple land-to-sea accesses into the Indian Ocean through both the Bay of Bengal and the Arabian sea in order to avoid the Malacca Straits (most Chinese security analysts see this as a 'chokepoint'). Besides Kyauk Pyu in Myanmar and possibly Sonadia in Bangladesh, Kolkata could serve as the third land-to-sea access in the Bay of Bengal for China. But that could only be the case if India sheds its inhibitions and operationalizes the BCIM corridor.

This seems to be China's long-term perspective – use Calcutta as the third opening into the Bay of Bengal – and this is a prospect mutely highlighted in the KoPT chairman's message in June 2014. The Kunming-Kolkata corridor will not only rejuvenate the economies of south-west China, northern Myanmar, Bangladesh, east and northeast India, but will also connect to the proposed Amritsar-Kolkata growth corridor in India. Calcutta is thus the only Indian city that can connect a trans-regional corridor with an important Indian domestic growth corridor and the port system of the city will sustain a unique convergence of regionalization and globalization. It is no wonder, therefore, that during the 2014 K2K Forum in Kunming it was decided to, 'develop several initiatives for greater connectivity between Kolkata and Kunming, with the BCIM economic corridor in mind'.

But even if the Kolkata-Kunming corridor does not materialize soon, Calcutta will remain the 'starting point' of India's 'Look East' policy and its port system will be crucial for India's multi-modal connectivity to nations further east. After signing the coastal shipping agreement with Bangladesh during Modi's Dhaka visit in June 2015, India seems to have taken the first steps in that direction. Since Bangladesh and India will now bypass Asian hub ports like Singapore and Colombo and move cargo to their own ports directly, the Calcutta port system, soon to include a deep sea harbour at Sagar island, will be crucial to connect to India's neighbours further east.

SAGAR: THE FUTURE OF CALCUTTA PORT SYSTEM

Despite its locational advantage, the Calcutta port has struggled to survive. Draught in the Bhagirathi, the branch of Ganges flowing into West Bengal, has continued over

Image: Carolin Philipp

the years due to siltation. So much so that grants from the central government for dredging are seen as critical for the operability of the Calcutta port. At Kolkata the draft is never above 5 metres. At Haldia, it is around 6.5 metres. Calcutta and Haldia can accommodate Panamax ships (those that are capable of traversing the Panama canal fully loaded) – but only by reducing their cargo by half or more than half in other Indian ports or at the mouth of the river (from there the cargo is transported by smaller vessels). As a result, Calcutta port's cargo volume has dropped from the historic peak of 57.32 million tonnes (MT) in 2007–08 to 39.88 MT in 2012–13. Through some local marketing moves and technological upgrades the handling volume may increase slightly in the future, but not significantly. According to Atin K. Sen, large numbers of exporters and importers who want to use Calcutta port for its splendid location are troubled by the rising costs of docking there, which leads them to being less competitive.

Huge volumes of silt brought down the Ganges are deposited in its lower course and adversely impacts the Calcutta-Haldia port system. The development of the Haldia docks further down the river in the 1970s did provide some relief to Calcutta's British-era Kidderpore docks, but now the draught has also begun to drop at Haldia. This has necessitated the development of a deep-sea port at Sagar (draught: 9 metres) or a coastal port further down the delta at Tajpur (draught: 12 metres). Dredging has become key to the survival of the Calcutta-Haldia dock systems and the Indian government, which owns the port, has to put in INR 3–4 billion a year for dredging the Bhagirathi to keep its channels navigable. According to a newspaper article in 2013 the real beneficiary in this situation is the state-owned Dredging Corporation of India for whom Calcutta port is its largest customer.

Since the new Indian government, headed by Prime Minister Narendra Modi, is considering phasing out most subsidies as a matter of policy, the dredging subsidy is likely to be reduced. As Sanjoy Sen, former Chairman of the Eastern India Shippers Association, said in mid–2015 the concept of using funds saved from slashing the dredging subsidy for setting up a new deep sea port off Calcutta has been mooted by many since the late 1990s. In May 2013 the Indian government approved the setting up of a new deep sea port at Sagar Islands in the Bay of Bengal near the confluence of the Bhagirathi and the sea. West Bengal's new Trinamool government is all for the Sagar Islands port but is also pushing for a coastal port down the delta at Tajpur because it offers better draught and will take

less funds to construct. These ports, though, may take five to seven years to be operational given the slow pace of implementing infrastructure projects in India.

In neighbouring Bangladesh, for similar reasons, the government is going ahead with the construction of a deep sea port off Chittagong. Earlier, Sonadia was chosen as the location and China had agreed to fund it. But now Matarbarhi has been chosen and Japan has agreed to finance the project. Many suspect Indian and US lobbying behind Dhaka's change of mind. A global tender for the Matarbarhi port project has been slightly delayed but Bangladesh says the project is on course. Like Chittagong, Calcutta is a traditional port and experts say its handling volume cannot be improved merely by port modernization. Only a deep sea component, promising substantial draught capable of handling large modern container-carrying vessels, can ensure the future survival and success of the Calcutta-Haldia port system.

The Indian government has already committed INR 12,000 crores to the Sagar deep sea project. But Delhi has made it clear it would not fund the Sagar deep sea port if West Bengal government wants to go for the new coastal port at Tajpur. The Bengal government has said Tajpur promises better draught and would entail one-third the cost of developing the Sagar deep sea port (INR 4.23 billion against Sagar's INR 12 billion). The Indian shipping ministry considers two ports so close to each other would not be viable in view of current volume of trade. The key to the whole exercise is balance phased cutbacks of the dredging subsidy for Calcutta-Haldia port to ensure funds for the timely implementation of either Tajpur or Sagar deep sea project. Since the Modi government is keen to revamp internal water transport in India, dredging the Ganges can never be totally eliminated.

Calcutta's old riverine port is being revived as a port system with a deep sea and/or an additional deep draught coastal component to provide multiple options. While the heavier container ships can dock at the deep sea port or at Tajpur, the lighter ships can dock at Haldia and still smaller vessels at Calcutta. When the deep sea port and/or Tajpur are complete, the KoPT can convert the Calcutta docks specifically for barges. Bigger ships will then only dock at Haldia and Sagar/Tajpur, but Calcutta docks will be available for inland water transport and light barges from neighbouring countries like Bangladesh.

WAREHOUSE AND TRANSPORT FACILITIES IN THE PORT OF CALCUTTA, 1870–1950

Kaustubh Mani Sengupta

By the mid-nineteenth century the massive increase of trade in the port of Calcutta demanded more storage space in and around the port complex. Between the 1850s and 1880s the trade in jute, cotton and tea increased significantly. Calcutta was also the main centre for imports of cotton goods. From here they were distributed throughout the hinterland that comprised the provinces of Assam, Bengal, parts of northern India and central India. In the 1870s export trade of tea also increased exponentially. The Calcutta Port Trust was officially established in 1870. It made rapid advances in building additional jetties and in streamlining dock logistics and cargo handling. The Port Commissioners decided to build a tea warehouse on the Strand bank to accommodate this increased volume of trade. However, initially the Bengal Chamber of Commerce criticized this step because it believed that the occupation of land on the Strand would interfere with private enterprises.

Even amongst turmoil about the location of the warehouse, the Commissioners went ahead with planning and development associated with the building of the warehouse. In 1876 they asked all the mercantile firms involved in tea trade to report back to the Commissioners about designs for a suitable building. Twenty-two firms responded positively to the scheme. A sub-committee was formed to look after the construction of the warehouse. The sub-committee met on three occasions to discuss the building-plans, the mode of working and the rate of charges for using the warehouse to store tea. A circular was issued with the proposed scale of charges and Commissioners asked firms whether they would be interested in the trade if those charges were levied in the warehouse. According to the Commissioners' Report of 1877, the tea-brokers were adverse to the scheme, as they had been from the outset, but the firms were predominantly keen on the project. After various contestations and negotiations the

tea warehouse at Armenian Ghat on the Strand Bank was completed and made available from 1887.

Other warehouses were soon proposed. In February 1882 construction of the first block of warehouses at No. 1 jetty commenced. Another block was sanctioned by the government in 1882 at No. 3 jetty, which was entrusted to Messrs. S.C. Mitter and Company. Before giving the go-ahead for these projects, however, the government expressed doubts about them. The British Indian Association and the Municipality feared that the new warehouses would depreciate the value of privately-owned resting sheds for goods in the city. The Commissioners tried to assuage both parties, saying 'that the new warehouses were intended to supplement and relieve the existing jetty sheds, and that there was no intention to rent them out for business unconnected with the landing or shipment of goods through the jetties'. In a sense, they were talking to the private-owners of the sheds. The Association and the Municipality both had members, or members acquainted with people, with business interests in these sheds at this point of time. In the opinion of the Port Commissioners, regular importers or exporters would find it convenient 'to rent a certain space in the new warehouses for the storage of their goods pending dispatch or shipment instead of keeping them in the ordinary jetty sheds where examination and assortment of the goods was rendered difficult in consequence of the goods of different firms being mixed together'. The Commissioners contended that this use of warehouses 'was a legitimate one and was in accordance with the practice in all large ports'.

The Municipal Commissioners of the town objected to the building of an elevated structure on the Strand Bank. They said that in 1852 when the government acquired the land on the Strand for public utility it was decided that no imposing structure would be built on that stretch. The present Lieutenant Governor of Bengal, however, supported the project saying that he thought a warehouse was a necessary structure for the advancement of trade and was not antithetical to the use of that piece of land for the good of the general public. These objections and negotiations reveal the difficulties associated with the initial phases of design and construction of warehouses in the port of Calcutta. Issues regarding private property, proper use of land, trade charges, backing from mercantile firms and the views of the Port Commissioners about modern port facilities jostled with each other during the development of the warehouses.
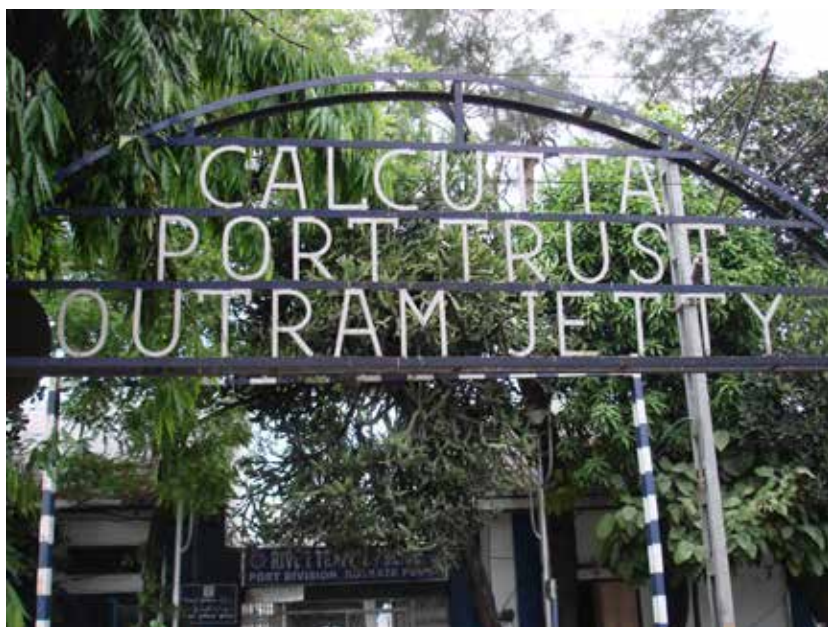
In subsequent years the trading activities at the port continued to increase, especially during World War 1 and its aftermath. The need for warehouse space was acutely felt in these years. The port commissioners maintained pressure on the government for adequate funds. In 1895 the average daily weight of imported goods was approximately 1000 tonnes, of which 300 tonnes were stored at the warehouses, the rest being transported elsewhere. In particularly busy times almost 600 tonnes were transported. In fact, a decade later, in 1906, the Secretary of the Bengal Chamber of Commerce said that the increase of trade meant there was hardly any space at the jetties for imported goods. He noted that new jetties and a modern crane system were being constructed at the port, but those were not enough; new warehouses were needed. At that time a new tea warehouse was being built at Garden Reach which would open up approximately 15,000 square feet of space at the jetties for import trade. The Secretary wanted port authorities to construct a new warehouse for import trade on the Strand Road frontage. The shortage of space in tea warehouses was a recurrent situation in the first half of the twentieth century as well. After independence the new government also faced this problem. An Ad Hoc Committee was established in 1950 to look into the matter of tea trade. It vnoted that the Port Commissioners of Calcutta were constructing a four storey permanent tea warehouse, with floor-space of 140,000 square feet, along with a tea transit shed of 20,000 square feet. Issues of storage space and the volume of trade have shaped the development of the port complex in Calcutta throughout history. Exigencies of trade, global warfare, domestic demand and pressure from mercantile firms have combined to mould the space of the port of Calcutta.

Inside the warehouses, a major concern was the proper measurement of the weight of goods. Often disputes arose regarding the method of weighing. For instance, in 1901 the Indian Tea Association sent a letter to the Commissioners of the port urging them to approach the government and ask them to instruct the English Customs Department to accept the weight of tea as being that ascertained by Calcutta port authorities in their warehouses. The Port Commission agreed to this proposal and urged the government to look into the matter. In the letter they provided a detailed description of the weighing process and argued that there was little chance of error and that English revenues would not be negatively affected if they accepted the weight as measured in Calcutta. The process described was as follows:

> The tea having being bulked in the patent machine which the Commissioners have erected, passes by gravity into the weigh hopper. From this hopper the required contents of each chest is weighed and discharged by gravity into the chest, the tare of which has been ascertained by separate weightment. The loose tea is then compressed into the chest by hydraulic power and the chest is closed and the gross weight taken, which is checked by the already ascertained tare and the weight of the tea put on to the chest.

The concern with weight and measures was persistent over the decades. In 1950 the Ad Hoc Committee examined the projects associated with the tea trade and noted that in the tea warehouse only 10 per cent of the product, randomly chosen, was inspected. This did not ensure the quality of the tea or the security of the packaging. They suggested the need for 100 per cent inspection but for that additional warehouse space was needed to allow these inspections to occur, as well as the appropriate packaging and handling of tea chests.

TRANSPORT

The Port Trust initiated a large-scale infrastructural development in the 1870s. One of the major areas of interest was to create adequate transport facilities so goods could be moved to and from the dock area. Railways played a crucial role in connecting Calcutta with other parts of the province and country. Calcutta was served by the East India Railway, the Bengal-Nagpur Railways and the Eastern Bengal Railways. The development of the railways was crucial in facilitating the activities of the port. Major items like rice, coal and jute were transported from the port to other parts of the subcontinent via the railways. In the immediate vicinity of the port, however, proper roads and carriers were not adequate to handle large bulk cargo. To solve this problem the Port Trust started constructing the Strand Road and Bank, as well as a tramway. The tramway work progressed rapidly using materials imported from England.

In their report of 1877 the Port Commissioners mentioned that the Trust had been able to obtain the burning ghat site (cremation ground) and section no. 17 of the new road between Ahiritolla and Ruth Ghats, enabling them to complete the work of tramway as far as the Armenian Ghat – a long stretch along the river. Trains ran daily bringing

cargo from the Eastern Railway to the godowns on the inland vessel wharves. The development of the tramways was directly linked to the significant increase in the handling of net cargo at the port. The successive stages of the tramway construction shows the gradual extension of port activities and the way crucial links were established between the docks and the city, and in turn with the hinterland. Various plans were proposed, some were followed while negotiations about others led to changes and alterations. For instance, the Commissioners noted in 1877 that, 'the traffic passes over the municipal line of railway from Sealdah to Bagh Bazar; but this is only a temporary arrangement, the Commissioners having … undertaken to construct a bridge across the entrance to the Chitpore Canal, and so carry their line of tramway direct into the Eastern Bengal Railway goods terminus at Chitpore'.

To use the municipal line the port authorities had to enter into an agreement with the Town Commissioners. The terms of the agreement included the following:

> (1)
> Port Commissioners pay eight annas per wagon for every wagon that passes over the municipal line, either way, full or empty;
> (2)
> Port Commissioners have free use of the line for six hours daily, from 7am till 10am in the morning and 3pm till 6pm in the afternoon;
> (3)
> Port Commissioners pay the cost of keeping the municipal line over which the trains run in repair.

With this arrangement with the railways and the town authorities in place the port tramway was inaugurated on 22 November, 1876. After its completion, though, crucial works were still left to be done. The original intention of the Trust was to extend the tramway line across the mouth of the Chitpore canal by building a moveable bridge. However, objections were raised against such a bridge because it was feared it would interfere with the traffic on the canal. The government required:

> that any bridge to be constructed in this position should have a clear headway of 16 feet above high water. To obtain the necessary incline for the

approaches to such a bride, an embankment would
have to be made at the frontage of the Eastern
Bengal Railway Company, which would shut out the
Company from access to the river, and to this the
Company would not have agreed.

Further, an elevated line would cost approximately Rs.
4.5 lakhs, which could not be financially recovered from
the goods traffic on that line. The Commissioners decided
to abandon that route and deemed that a fixed bridge
was the only solution. The new bridge was designed with
consideration of all the objections of the canal authorities.
It proved that a passage for trains at ground level could be
built at a cost of approximately Rs. 90,000.

The tram lines soon became profitable. Between
1880–81 and 1882–83 there was an increase of almost
Rs. 15,000 in tramway receipts. The increase in traffic
necessitated the need to open up a third line between
Nimtollah Ghat and Ruthghat within a year of the
tramway's commenced functioning (that is, a year from the
opening of the other two lines in 1881). Thus, the ways in
which the roads and tramways were created illuminates
the manner in which the port area was extended and
integrated with the rest of the city.

Images: Ned Rossiter

SPACE(S) OF CALCULABILITY AND FINANCIALIZATION IN THE KOLKATA PORT

Iman Mitra

Located on the left bank of the river Hooghly, the Kolkata Dock System is one of the oldest dock systems in India. It is commonly described as the 'gateway to Eastern India for the rest of the world'. Its vast hinterland includes West Bengal, Bihar, Jharkhand, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Chhattisgarh, Punjab, Haryana, Rajasthan, Assam, the North Eastern States and the two landlocked neighbouring countries, namely Nepal and Bhutan. Currently it has two approaches from the Bay of Bengal: (1) the Eastern Channel and (2) the Western Channel. Navigation to and from the port, at this moment, is only done through the Eastern Channel, which is one of the longest navigational channels in the world. The pilotage distance to the Port from the mouth of the Eastern Channel is 223 km, of which 148 km is river pilotage and 75 km is sea pilotage, pilotage being the act of assisting the master of a ship to navigate the entrance into or exit from a port within confined waters. There are several navigation aids provided by the Kolkata Port Trust (KPT) – the port management authority in Kolkata – for the safe passage of vessels: two lighthouses on Sagar Island and Dariapur on the right bank of Hooghly, five unmanned light vessels on the sea, automatic tide gauges maintained at Garden Reach, Diamond Harbour and Haldia for round-the-clock recording of tidal data, manual tide gauges maintained at Akra, Moynapur, Hooghly Point, Balari, Gangra and Sagar, 500 river marks, 90 lighted buoys, and 42 unit buoys, a wireless VHF network for communication between approaching vessels and in-shore and off-shore KPT establishments and vessels, an electronic position fixing system named 'Syledis', and a satellite-based Differential Global Positioning System (DGPS).

This brief description of the site portrays the complex and interconnected framework of infrastructure, software and labour. In my research I seek to understand this framework from two specific yet interconnected perspectives: the

spatialization of calculability and the financialization of space. To proceed with my analysis I have chosen the Kolkata (erstwhile Calcutta) Port as a site where these two perspectives collide and communicate with each other and give birth to a particular form of logistical governance. This form of governance requires negotiations with and navigations through a network of institutional apparatuses which produce the material basis of calculations and speculations that make sense of the connections between infrastructure, software and labour.

Kolkata Port Trust (KPT) is one such institutional apparatus, and has been in charge of the management of Kolkata Port since 1870. Founded by the colonial rulers of India, it was bestowed with the responsibility of expanding and managing the Calcutta Port at Kidderpore. At the turn of the nineteenth century the port of Kolkata experienced an increase in its shipping traffic and thus an augmentation of its facilities. The export of coal, for example, rose to 877,895 tons in 1898–99 from a mere 4,282 tons in 1893–94. Similarly, the export of food grains expanded to over two lakh tonnes in the same period from only 400 tonnes five years before. In 1914, at the onset of the First World War, the Kidderpore dock had 17 general cargo berths and 10 coal berths, indicating that coal was the primary object of cargo movement. Another important export item from Calcutta was tea, for which, according to Animesh Ray, separate transit sheds and warehouses were installed on the side of the river. On the other hand, the chief import item in the second half of the nineteenth century was kerosene oil. There was a period of reduced cargo traffic after the Second World War and this continued till 1951. Some recovery was made during the Second Five Year Plan (1956–61) because the government decided to import iron, steel and project cargoes. The dock facilities also expanded with the replacement of cargo handling equipment, cranes, railway tracks and diesel locomotives, with newly purchased equipment. Under the same plan, one hundred and thirteen gangs of secondary cargo and coal dock labourers, including fifteen hundred temporary workers, were made permanent employees of the Port.

The Indian Government implemented different Five Year Plans and through these provided resources for all the ports in India. According to Animesh Ray after the depreciation of port facilities during the Second World War, the First Five Year Plan (1951–56) placed emphasis on the acquisition of 'new vessels like dredger, survey vessel, dock tug, anchor vessel, light vessel and launch'. The Second Plan (1956–61)

continued with this scheme through the reorganization of facilities and the introduction of the formalization of port labour. The most important intervention in the Third Plan (1961–66) was the initiation of another dock at Haldia to assuage the pressure on the Calcutta Port. Another important decision taken during this time was to construct a barrage upstream of the river Hooghly under the name of the Farakka Project. The aim was to increase the headwater supply of water to the river in order to facilitate the drafting of large vessels. This decision created a lot of controversy and geopolitical tension between India and Bangladesh. Later plans implemented by the government have been the construction of Haldia dock and the replacement of old technologies with new ones by developing container parks, the installation of computerized systems, and the modernization of railway tracks.

On deeper examination it is clear that the resources provided are the result of endless calculations and speculations about the geopolitical exclusivity of the port. Because it is a riverine port, Kolkata has a narrow and difficult approach encumbered with numerous sand bars across the river Ganges. The port thus has the longest pilotage distance to travel, a journey during which vessels have to shirk sand bars and make intricate calculations about the height of tides to allow for easy drafting. Any detailed study of the movements of the ships reveals a complex interface between human skills and non-human predicaments. What is crucial is to understand that the non-human elements are not fixed components in a deterministic matrix of logistical paraphernalia. They also move, shift identities and participate in international conflicts like the one which arose between India and Bangladesh over the release of water from the river Padma through the Farakka Barrage to facilitate comfortable draft of the Kolkata-bound vessels.

It is often said that the Kolkata Port is dying because of difficulties associated with pilotage and drafting. However, an examination of its annual Administrative Report for the year 2013–14 suggests a process of recuperation. Currently the Kolkata Port is ranked third among all Indian major ports in terms of container traffic handling, it is ranked second in terms of growth in the handling of both iron ore and fertilizer, and it is ranked third for the handling of raw materials used for fertilizer among all the ports in the country. Also, Kolkata is ranked first for the number of vessels handled during the financial year of 2013–14 (17.1 per cent of the total number of

vessels handled in all Indian ports). Numerous Public-Private Partnership (PPP) projects are also underway including development of berth facilities at the Haldia dock, betterment of transloading facilities at the Sandheads and its vicinity for midstream handling of dry bulk cargo, and the development of a container terminal in Diamond Harbour. According to recent calculations, in the quarter of April-September 2015 there was, under the Kolkata Port Trust, a massive 19.62 per cent rise in cargo traffic in comparison with the same quarter the previous year.

One reason of this upsurge in productivity is the increasing geo-spatial importance of the Kolkata Port in South East Asia. With the realization of the New Silk Route in the near future, the port in Kolkata will become a strategic nodal point in an international trade network, along with ports in neighbouring countries like Myanmar and Bangladesh. The Government of India has also started to acknowledge Kolkata port's geopolitical potential and, accordingly, has emphasised in its latest scheme to improve maritime trade, titled 'Sagarmala', the need for 'modernization' given it is a major port linking Chennai (India) with Yangon (Myanmar) and Chittagong (Bangladesh). The modernization drive will focus on the development of efficient coastal transport networks, the promotion of port-based special economic zones (SEZ) and ancillary industries and the enhancement of tourism through aestheticization improvements. The Union Shipping Minister, Nitin Gadkari, recently revealed that the total investment in this project will exceed Rs. 70,000 crores.

One of the crucial features of the Sagarmala project is an emphasis on the need to utilize land in and around the docks by creating investment opportunities for port authorities like the Kolkata Port Trust. KPT, being the largest owner of land in the city of Kolkata, has thus become extremely active in the domains of land speculation, rent extraction and financialization of space. Right now the port authority owns different sized parcels of land scattered all over the city. Most of these plots are leased out for various residential and commercial purposes. The authority extracts rent from the numerous warehouses it owns in Kolkata including the Strand warehouses, the Armenian Ghat Warehouse, the Canning Warehouse and the Clive Warehouse. The rent income of the KPT is yet to become a major source of revenue for the port, but the 2013-2014 annual Administrative Report showed a small increase in rent and premium on leased land (2.41 crores) from the previous year.

However, as newspaper reports show, KPT has become aware of the potential for remodelling these land parcels into more economically viable spaces for rent extraction and in trying to recalibrate the older rates and schedules. This was quite clearly evident in a recent squabble between KPT and a film production company which continued to run its business at an 80,400 square feet plot in the Hyde Road Extension after the expiry of the lease and the port authority's refusal to renew it.

KPT is still a public sector enterprise with thousands of permanent staff and millions of dollars in built-in assets – a typical situation in many Asian countries but unusual in Western countries. The connections between a range of different calculations – pilotage and drafting measurements, revenue and expenditure of the port system, valuation and depreciation of human and non-human assets, risk assessment and insurance technologies, and so forth – and the modalities of the financialization of space – by reforms in rent structure and the revaluation of land holdings with a strong emphasis on investments in the creation of special 'economic' and 'aesthetic' zones as part urban projects associated with neoliberal capitalism – cannot be addressed without a consideration of the governmental apparatuses in operation. Different regimes of calculability operate within the context of the Kolkata Port Trust's institutional networks. By exploring the processes used for making calculations – as evinced in the expert narratives of cargo traffic and the futuristic development agendas that seek to exploit the port's geopolitical exclusivity – it is possible to shed light on the notion of logistical governance. Expanding on the Foucauldian notion of 'governmentality,' I am inclined to argue that the agential boundary of a governmental state is not limited to the procedural task of the dispersal of resources under the discursive tutelage of political economy, but can accommodate various uncertainties to do with the particular spatial ontologies of these modalities of dispersal.

Images: Orit Halpern

TRADE UNIONS, INFORMALIZATION AND CONTRACT LABOUR IN WEST BENGAL'S DOCKS

Immanuel Ness

The rise of the Uber sharing economy is generating a major debate about the future of work. Paul Mason, Nick Srnicek and Alex Williams view the rise of information technology as a revolutionary force paving the way for a post-capitalist society through freeing human labour. This new post-capitalist society is freeing working class from the drudgery of full-time work and the democratization of production and distribution. Conversely, political economists Gérard Duménil and Dominique Lévy view the modern managerial global economy as the foundation for reducing the size of privileged full-timers who dictate the conditions for the majority of freelancers and contractors for numerous employers.

India, where the vast majority of labourers work for independent contractors, provides a model for the future. But any comparisons of India as a prototype for western workers stop there. In contrast, typical Indian contract workers do not have access to digital technology and toil under the most oppressive, dangerous and super-exploitative conditions. As Carlos Delclos asserts, the danger for workers is that: 'By labelling informal work as "informal", we are depicting most of the work being done in the world as an anomaly, peripheral to the global "formal" economy'. In fact, informality, the standard in South Asia and much of the Global South, is becoming the norm for most new workers.

The institution of economic liberalization in 1991 has given rise to a vast expansion of the Indian working class corresponding with the declining effectiveness of trade union representation irrevocably joined to political parties. The Indian working class now in formation is drawn from the agrarian rural countryside in far off rural regions to India's burgeoning urban agglomerations. To South Asian sociologist Jan Breman, the scale of the human population

transfer from rural to urban areas is reminiscent of the social upheaval of late eighteenth century England, portrayed in Karl Polanyi's The Great Transformation, where the vast majority of newcomers to urban centres are crowded into massive urban slums in conditions facing imminent death and sure injury at work and squalor and depravation in nearby neighbourhoods.

India's existing trade unions formed in the radical decolonization struggles in the mid-twentieth century have no relevance to the new urban workforce now employed in the strategic export promotion economy. This is because India's industrial trade unions only organize a minority of permanent workers employed year round in large plants. Since virtually all of India's major private and state firms use contractors, 93 per cent of India's workforce is employed for firms in the informal sector. At first blush the haphazard system of deregulated contract labour reveals a retrograde and backward economy deficient in planning and strategic vision. But the unplanned system gives India a decisive economic advantage against regional and global competitors. India's system of labour contracting produces an enduring and expansive reserve army of labour, which can be continuously called upon to work at 20 per cent of the wage of most permanent workers typically performing the very same jobs. The vaunted 'Make in India' initiative is built on the backs of over 400 million interchangeable contract workers

INFORMALIZATION AND INDIA'S TRADE UNIONS

What do Indian unions do? Trade unions everywhere are not a progressive force in society. They defend workers by preserv-ing the conditions of the past and are never prepared for the 'creative destruction' which capital must unleash to remain competitive and profitable. But unions live in a fictional socialism where accords endure perpetually into the future. After 25 years of the application of neoliberal reform the vast majority of trade union members have now long retired, and most unionized workplaces have long since shuttered. A thin layer of unionized jobs remains, but since unions almost always represent workers in specified labour markets, not workers, wherever they are employed, the new generation of workers has a nebulous connection to them. For the relatively small share of India's working class with permanent union jobs, wages are declining and working conditions are eroding.

India's government is particularly antagonistic to the trade unions in strategic export promotion industries, which

form part of India's global supply chain – manufacturing and transport sectors that tend to cultivate labour militancy, syndicalism, strikes and persistent industrial conflict. While manufacturing can always be relocated and new technology can replace workers en masse, it is far more difficult, if not impossible, to move logistical hubs like deep-water ports. Subjectively, dockworkers permanently occupy a strategic spatial point in the global supply chain with the power to interrupt the commercial traffic and the flow of goods and commodities to advance collective economic demands and political objectives.

FINDING THE FIX: A CONTRACT LABOUR SOCIETY

How to fix this problem? Under the command of a neoliberal economy, informality in West Bengal has expanded to dominate the leading heights of the economy. Concomitantly, as the West Bengal working class is pushed further into poverty and the margins of subsistence, due to the incapacity of the economy to generate sufficient full-time employment, Indian capital and the state have invested heavily in labour-saving technology, which further reduces the number of living-wage jobs. In a constant struggle for power over the workplace, new technology saves on labour costs, but does not diminish the time and energy the remaining workers must expend to fulfil their tasks. Moreover, new technology allows managers to save costs through converting permanent jobs into part-time positions. Thus, capital and the state intensify control over labour through strengthening the control over the workplace.

While sophisticated logistics technology is appropriated in the transportation of goods, informalization is the capital fix for West Bengal port authorities. Given the propensity of dockworkers to unionize, the only option for capital is to encourage the formation of compliant unions. India has its very own disciplining mechanism: the labour contracting system, which allows employers to hire workers on a temporary and part-time basis. Since dockworkers can be hired on a temporary basis to load and unload ships, they may be considered contract labourers and are paid a fraction of full-time worker wages. This allows port authorities in West Bengal to employ migrant labourers living in the countryside on a contingent basis. The 'footloose' South Asian working class is pervasive upon examining the West Bengal logistics industry.

CONTRACT LABOUR IN WEST BENGAL'S LOGISTICS INDUSTRY

West Bengal state and port operators discipline labour in the major ports of Kolkata and Haldia through fiercely resisting unions and suppressing rank-and-file self-activity. The dockworkers' unions represent an alternative model of worker representation to the newly forming independent unions in the industrial corridors and export processing zones (EPZs), where worker militancy has contributed to higher wages and fewer informal workers.

The vast majority of unionized dockworkers organized by Trinamool National Congress (TNC) affiliate INTTUC (Indian National Trinamool Trade Union Congress) are informal labourers employed by contractors to load and unload ships in Kolkata. The Port of Kolkata is operated by PSA, a multinational-based port operator based in Singapore, which gained a license to run the docks in 2015. PSA, one of the largest global port companies in the world, operates nearly 30 ports in 15 countries.

Why are workers in a strategic sector like ports employed by contractors? Union officials negotiate with about 500 contractors operating in the Kolkata ports. Workers are employed on average for less than three weeks per month, which exempts the contractors from having to hire them as full timers. The workers are bussed in from nearby rural areas to unload ships and fill and sew sacks of grains that are unloaded from the ships. Workers are paid on the basis of piecework, and wages fluctuate on the basis of the bags filled. The vast majority of goods handled for export are agricultural goods and raw materials while finished goods like electronics are typically imported. Since they arrive in containers, fees are lower. Workers also unload goods off trucks entering the port and into containers, where wages ware paid on the basis of weight handled by each worker.

Since the late 1980s, the demographic profile of port workers in Kolkata has shifted. Once dominated by migrant workers from the northern state of Bihar, historically the major labour supplier in the shipping industry, today only 200 Bihari workers remain and the majority of workers migrate from Mushibab – in northern West Bengal. The demographic shift was accompanied by speedup and intensification of the work process. INTTUC union leaders proudly told us that unloading a ship has been reduced from 4 to 5 days in the 1990s to 2 to 2.5 today. The productivity gain is not due

to appreciable technological advances in the docks, but the intensification of work by the port operator and contractors.

INTTUC union officials maintain that their major charge and obligation is to protect the jobs of contract workers through defending their contractors in the docks. Even when there is worker discontent over speedup, workers are not permitted to strike or engage in slowdowns. There has been no strike in the docks since 1984. Asked about the possibility of a job action, a union officer responded: 'This is sheer speculation as we have not had them. We are not interested in international solidarity actions. The strong line of our union is "No Strike". Our objective is to negotiate with contractors and avoid strikes at all costs while negotiating with management (sic)'.

HALDIA DOCKS: PRIVATIZATION OF THE PUBLIC SPHERE

Haldia is a port on the Hooghly River, about 120 kilometres southeast of Kolkata, which accommodates large ocean vessels handling imports and exports of minerals and large and heavier bulk shipments of goods and raw materials through 13 berths. Opened in 1977, as the CPI(M) gained state power in West Bengal, the Centre of Indian Trade Unions (CITU) also became the dominant union in Haldia for the majority of workers who were full-time permanent employees. Though it espoused a Marxist ideology, in practice, the party adopted social democratic Keynesian policies, and in the 2000s began supporting neoliberal development projects.

The CPI(M)'s stunning loss to the TNC in 2011, which expanded its electoral base in the spring 2016 elections, eroded the power of permanent workers who are members of CITU in Haldia's docks. From 1977 permanent dockworkers have declined from 5,400 to 2,370, due to mechanisation and the rise in private contractors. According to a CITU leader:

> Most of the operations in the dock, which were manual, have become mechanized. ... Each month, 30-35 workers are retiring and there is no replacement or replenishment of the workers ... however, the intensity ... has not decreased, but increased at a time when the labour force is increasing in age.

Permanent worker monthly salaries are on average more than 10 times higher than contract workers, which accounts

for the far higher average age of 55 years. A CITU official notes that the job tasks of permanent and contract labourers are often precisely the same: 'The crane operators of the cranes – in the private sector earn INR 16,000 a month. Public sector workers earn INR 55,000'. Over the past decade private contract labour wages have declined from INR 16,000 to less than 7,000 a month.

In addition, permanent workers receive pensions and have far higher access to medical care, transportation, canteen privileges and numerous other amenities, which contract workers do not receive. While CITU negotiates contracts on regular intervals of three-four years, contract worker wages are revised every 10 years. This disparity demonstrates the inherent powerlessness of CITU, as it impels port authorities to replace permanent workers with contract workers who have far lower wages and benefits. While CITU's permanent dockworkers can keep their jobs, upon retirement the positions can be replaced with contract labourers. According to one CITU official: 'Nearly 360 workers have been forcibly retired and kept away from duty as their gate passes have been taken away as the other union has gained power'.

The majority of contract workers are members of the All Indian Union of Port and Dock Workers Federation, an independent union that is affiliated with the governing TNC party. In Haldia, all new hires are contract labourers who have no job security. Consequently the union discourages contract labourers in the port from engaging in job actions and strikes and slavishly supports the governing TMC to increase the union's relative power and job security.

The political economy of logistics in West Bengal's two major ports exhibits that the application of new technologies are indeed accelerating the speed of information flows, leading to the vast expansion of profitability. But it also shows that new technologies are used concurrently with the expansion of a highly exploited and contingent labour force disciplined by state-dominated unions. The organizational power of unions correlates with support of the governing party, which will almost always favour its affiliated union. However, the loss of working class power is rooted in the political and economic defeat of the working class, whose conditions continue to deteriorate under the dominant regime of a state and capitalist class that profits from a dominant system of informal contract labour.

Images: Ned Rossiter

WHO ARE THE PORT WORKERS AND HOW DO WE STUDY THEM?

Mithilesh Kumar

In an interview with the author, an office bearer of Calcutta Port Shramik Union said that, according to the definition of the union, all workers who have any connection with the port are port workers. Thus a worker loading tea at Strand Road (a wholesale market in Kolkata) and transporting it to the warehouse at the port is a port worker. This and further interviews with this official were conducted at the office of the union at Kidderpore not far from the port. A former seaman arrived at the office while this interview was in progress. There was a dispute between the workers and the shipping company over wages. The workers, through the union, went to court for the payment of outstanding wages. After examining the seaman's papers the office bearer assured him that the company had deposited the money with the court and it could be collected through the lawyer of the union. When I asked the office bearer if seamen are also port workers he replied in the affirmative. Thus, in the conception and practice of the union, workers at the docks, at warehouses and on sea are organically linked and subsumed under the label 'port worker'. Struggles and negotiations are built around this understanding. The problem is that this creates a hierarchy between the seamen and dock workers with the former in a much better position to negotiate with the union as well as the employer. However, this is only one of the many definitions of port workers.

The question of defining the political and economic subject of the port worker is important in the contemporary era when the restructuring of industries and the labour market is the norm and when labour is dispersed over time and space. With the ambitious Sagar Mala Project – a project overseen by the ministry of shipping that aims to link ports across India – it is necessary to clarify the definition of a port and a port worker. A stated objective of the Sagar Mala Project is to 'evolve a model of port led development':

The ports were being developed as individual projects along with their respective linkages to the hinterland, focussing primarily on the facilities at the port and last mile connectivity. By linking the Major and Minor ports, various industrial and rural clusters and evacuation infrastructure into a single system at a larger regional level, a CER will enable seamless and efficient movement of cargo through the gateways, thereby allowing ports to enhance competitiveness and offer multiple freight options to end-users.

These changes will be made through a range of policy initiatives such as the building of Coastal Economic Regions (CERs) and the 'all round development of coastal cities' for revenue generation. Clearly, 'port led development' will involve a restructuring of cities as well as labour. The question of who is a port worker becomes crucial. In existing practices of unionization it is incumbent on the union to organize all types of workers related to the port that, in the new scheme of things, could mean all workers such as those producing goods for exports or those in the industry of processing imports in the CERs. This should be seen as an emerging trend in the politics of labour organization.

It is important to understand the port system to have a grasp of labour organization. Kolkata Port System, comprised of Kolkata Port and Haldia Dock System, is also dependent on the Farakka Barrage. During the 1970s, Farakka Barrage was recognized as being important for the port system because it prevents the riverine port being affected by silting once the navigable depth is increased through initial dredging. Is it then inappropriate, as part of the strategy of labour organization, to consider Farakka Barrage and workers there as part of the Kolkata Port System? Also, Farakka Barrage has led to constant negotiations, not always amicable, with Bangladesh on sharing of Ganges water. A network of geopolitical interests and strategies along with economic interest are therefore present in the case of the Kolkata Port System. A question that confronts union organizers is how to form strategies of labour organization when the port is enmeshed in an intricate web of geopolitical and political economic relationships. Is it possible to forge militant labour organization across these entangled spaces?

The unions have, also, to confront the question of the port worker as a result of different legal and economic regimes that act on the workers. Workers are implicated

in myriad forms of identification ranging from flags of convenience, and the distinctions made between registered owners, commercial managers and crew managers. These multiple authorities that are at work on commercial shipping create enough slippages and gaps through which the employers escape their accountability to workers and authorities. The system of outsourcing makes it difficult to determine with which authority the labour force can negotiate. Thus, it is quite easy for the operators of cargo vessels to abandon a ship mid-sea and leave the crew stranded, as reported in the International Transport Workers' Federation report, *Black Sea of Shame,* published in 2012.

As far as India is concerned, a legal definition of 'dock workers' appears in The Dock Workers (Regulation of Employment) Act, 1948. Dock Workers as defined by this law were:

(1)
Employees covered under the schedules of the Dock Workers (Regulation of Employment) Scheme relating to the major ports of Bombay, Calcutta, Madras, Cochin and Vishakapatnam.
(2)
Employees covered by Unregistered Dock Workers (Regulation of Employment) Scheme at the ports of Bombay, Calcutta and Madras.
(3)
Employees engaged by the dock labour boards and their administrative bodies.
(4)
Employees engaged by listed employers.
(5)
Employees of employers, other than port authorities, dock labour boards administrative bodies, listed employers and registered employers.
(6)
Ore employees at dumps or depots.
(7)
Employees engaged in the handling of cargoes in warehouses and transit sheds.
(8)
Crew of boats, lighters and barges wholly engaged in the docks and streams whose work is connected with loading and unloading of vessels and other processes of dock and port work.

(9)
Employees engaged in loading and unloading all
cargoes (including tea chests) in the dock areas from
river crafts, vessels boats, trucks, etc.

The Regulation of Employment makes clear that dock workers
include a variety of workers involved in different aspects of
the production of goods and services. Who a dock worker is
might depend on the port in which the worker is employed.
Yet work is structured in such a way that cooperation
among all kinds of workers need not be the case. The union
officer said that workers of stevedore companies have no
way of interacting with workers in the container yard. This
practice of integrating different workers related to docks
and shipping has a historical precedence. As highlighted by
G. Balachandran in *Globalizing Labour?: Indian Seafarers and
World Shipping, 1870–1945,* up until almost the first quarter of
the twentieth century the 'maritime labour market was largely
indistinguishable from the wider casual labour market at
Indian ports'.

Despite the comprehensiveness of the principles of
inclusion for 'dock workers', some workers were excluded.
This was evident in the case of *Calcutta Port Shramik Union
vs. Calcutta River Transport Association* which appeared
before the Supreme Court of India in 1988. The case
pertained to 15,000 bargemen (*majhis* and *dandees*) who
were denied reasonable wages and allowances for twelve
years. The Supreme Court made the point that the inclusion
principle for the 'dock workers' was based on the handling of
cargo. The judgment delivered by the Supreme Court cleared
the way for a wider inclusion of workers in the legal realm
of 'dock workers'. Clearly, then, who or what constitutes
port work and workers is not a permanent feature, legally,
economically or politically. As part of the restructuring of the
Kolkata Port System in 2006 the Calcutta Dock Labour Board
(CDLB) ceased to exist and was merged with the Kolkata
Port Trust. This signalled the end of the 'old' definition of port
workers and the emergence of new understandings. In this
emerging context the definition of a port worker continues to
be problematic. It is questionable whether it is reasonable
to consider the port as a singular entity or a series of
integrated workplaces. Instead, a port is a fragmented space
for workers with restrictions and partitions of borders, law
and political logic. Only for policy makers is it an integrated
geopolitical space.

A SHORT OVERVIEW OF WORKERS'
STRUGGLE AT KOLKATA PORT

In the second and final interview with the Port Shramik Union's office bearer he informed me that workers of Kolkata Port have not gone on strike since the 1990s. When asked about this lack of industrial action on the part of workers he said that one of the reasons was better coordination between workers and management and another was the almost complete stoppage of new recruitments. Instead, more workers, especially those handling containers, are under a contract system. This situation has been exacerbated since multinational companies such as the Singapore based PSA International entered the market. Although these workers are eligible to become members of the union there is no evidence of collective action by or on behalf of these workers.

One of the problems of Kolkata Port, identified by several observers in the late 70s, was that productivity was directly correlated with labour militancy. A study illuminated how the workplace of port workers had been under a constant state of restructuring since the beginning of the decade. This was done mainly through the practice of 'double booking'. The study showed that the workforce of 19,000 was systematically reduced through voluntary retirement and illegal retrenchment. What replaced it was the practice of booking workers for double shifts. Quite clearly this was beneficial for stevedores who paid wages without overtime and who consequently pocketed a levy. The period in which this study was done saw some of the most militant strikes in the major ports of India. These strikes were to demand wage parity, allowances, and working conditions similar to the workers of Bharat Heavy Electricals Limited (BHEL), a public sector undertaking. At that time negotiations between the state and workers took place through the labour board but now the board has been abolished and changes in technology have given rise to a very different composition of labour market.

The challenges of studying labour at the port are two-fold. First, there is the study of labour processes and struggles resulting from those processes. Second, there is the attempt by state and capital to obfuscate the legal, economic and political category of the port worker. Contractualization has made the old form of unions redundant as they are unable to put forward the demands of the new port workers. It is evident that only new forms of militant struggle by these compositionally new port workers can reveal how the port workers are politically constituted,

registering the lineaments of this emerging political subject. It is through this process that the deadlock in legal categories will also be broken. These categories are, currently, in direct confrontation with the new port worker.

A LOGISTICAL EARTHQUAKE: BETWEEN KOLKATA AND VALPARAÍSO

Elisabeth Simbürger

Crossing a bridge by foot towards the port of Kolkata, I, along with a group of other researchers, got a quick and probably rarely seen glimpse of workers carrying heavy bags from a jetty to a shed. They seemed to be running back and forth. As our group continued walking towards the container terminal, it occurred to me that manual labour seems to be an omnipresent tool used at the port. The pavement running towards the port was barely useable given that it was occupied by scrap metal mongers who transformed every square metre into mini businesses. According to Mithilesh Kumar, phenomena like the scrap metal mongers can be labelled as 'labouring for logistics', in contrast to 'logistical labour' that is directly related to the port. This distinction, however, is difficult to determine when it is unclear where a port starts and ends. And this in turn raises the question of whether all labour undertaken in proximity of the port, but which does not directly contribute to its functioning, can be classified as labour for logistics. The scrap metal mongers work in the surroundings of the port but in strict terms their work does not directly contribute to the functioning of the port. It is possible, therefore, to observe parallel logistics in the areas surrounding the port.

Given this picture, how is it possible to interpret the interplay of debris, smells, broken roads, collapsing construction sites and still functioning ports? Once this situation is accepted as not being a disruption but a part of logistics, once it is seen as planned chaos, it is possible to make empirical sense of the ports and logistical system in India. The question is, though, is this chaos part of the algorithm?

It is difficult to uncover the variables that structure empirical reality when perception is clouded by the non-familiar. When it is clouded by debris, by precarious one-person ironmongers in the street, there is the risk

of orientalizing and othering a place. There is a danger
of drawing conclusions that are premature and driven by
the moment. Then it is necessary to face the truth of the
ethnographic explorer, which can be difficult when the
ethnographic explorer is a novice in the environment. Quite
often the aim is to reveal an underlying truth, the empirical,
and to ascribe to it some mechanisms in relation to ports and
logistics. Despite all previous acknowledgements of social
constructivism and a desire to generalize beyond what is
seen, the burning question of what is seen and concluded
from it remains an important and legitimate one.

   I am not trying to argue that ethnography as a method is
not sustainable or that it is not possible to abstract from the
empirical to draw conclusions. For someone like me, whose
knowledge of India is limited, even after carefully researching
several aspects of India's Kolkata port environs, jumping to
quick conclusions is not an appropriate step. Feel free to call
me the anxious ethnographer, but it is from such anxiety I feel
it is possible to suggest an alternative.

   Rather than trying to find tidy solutions in the empirical,
a methodological means out of the messiness may consist in
finding connections between different spaces. For example,
it is possible to think of events in India that trigger a seismic
reaction in other parts of the planet. Sometimes parallels
between certain phenomena in logistics and port work in
India can be made with ports in other parts of the world.
Writing from Chile, one of the most seismically active
countries on earth, talking about earthquakes can go beyond
a metaphoric dimension. Thinking of the possibility of global
seismic effects resulting from industrial action I would like
to explore an example. In spring 2013 500 subcontracted
dockworkers at Hong Kong International Terminal (HIT),
who had no legal access to collective bargaining, were on
a 40-day long strike, demanding better working conditions,
better pay and the right to strike. They protested against the
Chinese oligarch, Li Kai-Shing, whose company holds the
largest share of Hutchison Whampoa, the parent company of
HIT. The workers who earn less today than they did in 1995
asked for a pay rise of 23 per cent. The dockworkers' wages
had fallen since outsourcing was introduced. Seismic effects
of the strike could not only be observed in Hong Kong itself,
where the dockworkers managed to mobilize the general
public to support their interests, but their actions prompted
international solidarity with people across the world
criticizing multinational corporations' degradation of global

labour rights. This solidarity was fuelled by the understanding that this system is generating inequality everywhere.

Returning to the bridge at Kolkata port, where the group I was in observed temporary dockworkers carrying heavy, white bags, we also had the chance to meet with representatives of the contractor workers' union. As I took notes I was mindful of the resemblances between this union and the Chilean system of the so-called nombrada at the port of Valparaíso, an online interface where temporary employment agencies register dockworkers for the day and send the list of nominations to the central port authority. The nominated dockworkers only have a one day contract and their nomination can be cancelled up to five minutes before the beginning of a shift.

The contractor workers' union we met up with in Kolkata is the only union of contractor workers in Kolkata and was founded in 2006. When bulk shipments come in their main job consists in sewing the produce in sacks. The jobs of sewing and sweeping are mostly done by women. The women earn INR 200 a day. A third of the contractual workers are women, however there are no women in the leading committee of the union. When a ship anchors, the contract workers work for almost 18-20 hours to earn as much as possible, considering the unpredictability of getting work again. The physically and most demanding job consists in carrying the bags from the jetty to the shed over a distance of fifteen metres. The workers are paid by the weight of the bags. The men get INR 22 for each bag and together they move some 1500 bags per day. The workers often carry the bags and run. Men are between 25 and 30 years old. The job is very tough for older men. After the 1990s the workers had four to five days for a ship turnover. Now they only have between two to three days. Their contract lasts until the ship has left.

From the distance, crossing the bridge to the port, my group could observe the process of dock workers carrying the bags and running back and forth. The conditions were clearly harsh. I later learnt that workers sleep at the docks and yet these workers had not had a major strike since 1984. Surprisingly, the general understanding of the union is not to go on strike. The union makes sure that there are no new contract companies joining the port that already has 500 contractors so as to limit competition and thus the dumping of salaries amongst contractors.

The example of the physical labour of the Kolkata port brings to mind parallels with the nombrada system in the

port of Valparaíso. By means of an online software interface temporary employment agencies at the port of Valparaíso can register themselves on the interface and nominate a list of workers to work a shift on a particular day and time and to carry out particular tasks. The list is approved or rejected by the general port authority, DIRECTEMAR. This tool allows for a lot of 'flexibility' for the employment agencies who can delete workers from the list up to five minutes prior to the beginning of a shift. Workers, who may have travelled a long way for a shift, may have done so unnecessarily as they are told at the last minute that they can't work. The software interface even gives employers the right to replace workers during the first hour of their shift and to nominate them for the next shift. This situation means workers are shuffled around, have no rights and often don't receive payment for the hours they work. This system of one-day dockworker contracts was implemented during the years of the Pinochet dictatorship in 1981. Only in February 2016 a strike of the contractual dockworkers in Valparaíso resulted in the contractor dockworkers' union being granted the capacity to nominate new workers for the nombrada when the port anticipates more work. Furthermore, contractual dockworkers can now take part in courses related to their work and will receive money for Christmas and in September, which is the Chilean national holiday.

In both Kolkata and Valparaíso, the unions try to make sure that workers are on nominated lists, chosen to work for the time it takes to unload a ship or are informed of whether they are contracted for the length of time it takes to unload a ship or just for one day. Despite these improvements it is still puzzling why workers at the Kolkata port are reluctant to strike and have not done so since 1984. Currently, this can partly be explained by demands from the Trinamool state government, with which they are affiliated, that stipulate there will be no strikes. Yet, this is not to say that labour militancy has stopped after 1984 in Kolkata Port. A wave of strikes happened after the beginning of privatization. However, this could never become a mass strike precisely because contractualization had started happening in the 1970s and by the 1990s permanent work and workers were in advanced stages of a terminal decline. Finally, there are new forms of strike emerging led by the contract workers at the port. They range from cargo handlers, to crane operators and sailors, to name a few examples. One of the manifestations of this struggle is increased violence and insubordination by the workers.

Another continuing question is whether a worker who has been outsourced has any means by which to access benefits. While in Chile, Christmas is only once a year, healthcare and social provisions are needed all year round. The earthquake continues. Next stop: Chile.

Images: Ned Rossiter

VARIETIES OF PORT LABOUR POLITICS

Carolin Philipp

'*Arriving in a port is always like coming home'*. This was my thought upon seeing the cranes and containers as I arrived in Haldia Docks south of Kolkata. While I grew up in a German town that made a living from shipbuilding in the North Sea, I now reside near the port of Piraeus in Greece. The aesthetics of tankers, cranes and containers, or simply the sound of ships' horns or the sea gulls that seem to exist in every harbour of the world, always invoke a comforting familiarity. On the other hand, all the harbour cities that I have called home share also the same disadvantage, a common precariousness in terms of the conditions of the working population.

In Haldia it was not only the similarities but also the contrasts that struck me. Generally when travelling to other regions and continents I often automatically compare the unknown with the familiar. As a result disparities are often my main impression, the obviousness of difference at first sight. However, when further reflecting about apparent differences many become less particular. Postcolonial theories highlight that constructing the seemingly different 'other' makes people overlook certain similarities. The process of 'othering' over-emphasizes superficial differences and as a consequence obscures power structures that, from an emancipative perspective, are important to uncover.

Here I do not wish to explore the aesthetic resemblances between Haldia and Piraeus but the structural ones. There are similarities and differences between the structures of port logistics and economics in the two harbours concerning business models, governmental policies and conditions of workers. Of course comparing a space of the Indian periphery with the European centre can be problematic, particularly when comparing the obviously high level of exploitation and inequality in India with European conditions, which are not without their own struggles for labour. On the other

hand, such comparisons can be useful in understanding the systemic particularities and general characteristics of the overall economic structure of capitalism.

The publicly owned port of Haldia, 125 km from Kolkata, is not just a confined area but consists of the surrounding region where people live and make a living from the port. Businesses, industries and workers are dependent on the industry generated by the bulk cargoes arriving at this major river port. Most of the inhabitants of the region were formerly internal migrants from West-Bengal and other provinces. In the construction process of the dock complex, a large number of people were displaced. Some of them got a permanent job in the docks, while others are still struggling for compensation. The majority of the permanent work force is composed of people who were dispossessed of their land in the 1960s and have been compensated with employment at the docks.

In the Greek harbour of Piraeus the structural conditions are different. The container piers have been privatized during the last decade. At the beginning of 2016 the remaining port infrastructure was sold as a concession to the mother company of the same business that had purchased the piers, the Chinese state owned shipping company Cosco Pacific Ltd. Before the privatization process the business structures in the area were interconnected like a 'string of pearls' lined up along the Mediterranean shore starting at the Gulf of Elefsina, some 20 km from Athens. Steel factories, ship repair yards, scrap metal yards and the shipping on the various Piers all related and interacted with each other. The workers came from all over Greece, migrating to the capital city and its port.

The Cosco business model disrupted the fabric of local interconnectedness. The container piers are now predominantly used for trans-shipment that – immediately and without taxation – leaves the harbour after being reloaded on the subsequent ship. The Cosco network is a connection between geographically remote but highly connected zones of exception, which are surrounding social and economic structures.

The above observations demonstrate different systems of ownership and responsibility. Haldia port facilities, like the 11 other major ports in India, are public property. In India the privatization of many businesses is prohibited by law. Nevertheless, some businesses are leased to private companies and this is the case in the electricity and mineral sectors. Also within the port system there is

a growing tendency towards the development of public-private partnerships. The determination of what is private or public is made by the central government in Delhi as the ports fall under the aegis of that government.

In Greece the deregulation process of public property is different. The port of Piraeus is at the point of being one of the biggest privatization projects prescribed to the country by the creditors of the 'Troika' of the International Monetary Fund, the European Central Bank and the EU-Commission. When, in the course of the Euro-Crisis, the Greek government had to apply for financial 'aid' from several international institutions, the Structural Adjustment Program (that until then had only been applied in the Global South) returned to its source in the Global North. In Greece strict austerity measures have been applied since 2010 and these were the hardest measures that any Western state has had to comply with in peace times (30 per cent cut to public salaries, 50 per cent cut to spending on commodities and services, 25 per cent reduction in social spending). The results of these measures, however, have not been as promised by the Troika institutions, and alternatively the economic performance of Greece has declined by 25 per cent, the average income by 25 per cent, and investment in enterprises by 70 per cent. Further, the high public indebtedness, which has been cited as one of the causes for the crisis, has increased from 120 per cent in 2010 to 180 per cent in 2014.

Nelli Kambouri, Pavlos Hatzopoulos and Ursula Huws claim that in Europe 'during most of the 20th century, much of the infrastructure was owned and maintained by national governments: postal and telecommunications services, seaports, airports, roads and railways, giving national governments the power to set standards, charges and terms of use and to monitor traffic across frontiers'. This changed in most European countries from the 1980s. In Greece, however, there was no privatization in the 1980s and relatively few approaches from businesses until Simitis was elected Prime Minister in 1996. He was welcomed by the rest of Europe as a 'European' leader, which was a synonym for 'neoliberal'. Still, further demands by the EU for the neoliberalization, flexibilization of labor conditions and deregulation of the public sector were hindered by strong union resistance in Greece.

So while in India the central government, in faraway Delhi, decides the policies and level of privatization in the port, complying with the global tendency towards privatization, in Greece the economic decisions have

since 2010 been made in Washington and Brussels by lending organizations.

In Haldia township, the idyllic image any visitor is presented with, a green village-like atmosphere where people stroll along the streets until late into the night, is eroded when talking to union representatives. While segments of the harbour labour force have been leased to private companies the individual workers have remained the same. They merely work for a different company but with, in most cases, different conditions. The division of workers into permanent and contracted positions has destroyed the established and secure working conditions of port workers. In Haldia an estimated 60 per cent of the 7000–8000 workers are casual, earning a fractional amount compared to permanent staff (12.000 versus 45.000 rupees per month). These workers are not allowed to access welfare and pensions are at risk when job security is poor. The permanent workers are also exposed to insecurity through expropriation and 80 per cent of workers have lost their land. Their compensation for losing the land that supported them – whether in the form of a permanent job or money – has been minimal and in fact has led to them being more dependent on the state. Within the context of high unemployment and people's fear of losing their jobs, traditional labour structures have been eroded and people have become indifferent about things of import such as the environment and working in a way that reduces pollution.

In Piraeus, Cosco has created a whole new system of work relations on Piers II and III. A new and smaller workforce has been hired by Cosco. Researchers for the EU-funded Daphne-project, BENEFIT, claim that 'container port growth generates limited local economic value and employment' and 'significant concerns have been raised with regard to the local labour standards'. In order to reduce the terminal operation costs, working hours have been highly flexibilized, working shifts have increased to 16 hours and accidents were unrecorded until a strike in the summer of 2014 resulted in the founding of a union.

Given these observations it is clear that the feeling of familiarity I felt when seeing the cranes and containers in Haldia was only a superficial observation. Haldia port and its workers have a greater interconnectedness with their social and local economic surroundings compared with the port at Piraeus. This has resulted in different possibilities for the workers who play a more influential role in the processes of the port. Decisions about the logistical processes in the two

Images: Carolin Philipp

ports also differ, particularly because in Haldia the Indian government exercises authority and influence. Last year the contracted dock workers joined in a general strike of the permanent workers and increased pressure on the national government. In Piraeus the Greek government, urged by the IMF and EU institutions, completed the privatization process. Commenced in 2009, with the privatization of the container Terminal, Pier II, Cosco now has a concession of 67 per cent of the port until 2051. Such privatization means that protests and resistance in Piraeus are directed at authorities that are more international and thus more remote from the actual port, which is distinct from the situation in India.

So the precariousness and deterioration of working conditions resulting from a tendency towards privatization of port infrastructure and labour is, as far as I can see, a phenomena happening in the port and surrounds of Haldia as well as Piraeus. Whether governmental decisions in Haldia or private ones in Piraeus, such decisions are leading to a situation where workers must be more flexible and yet more exposed to job insecurity. So while workers face a similar situation in both countries they have to address them differently because of the different labour situations.

HALDIA, A PORT CITY IN INDIA

Samata Biswas

Shramik Bhavan, at Ranichak, Haldia, has been considered to be at the centre of all labour mobilization and unrest in the region for many years now. Until 2011, when the state government was formed by Trinamul Congress (TMC), for the first time after a 34 year rule by the Communist Party of India (Marxist) [CPM] and its allies, Shramik Bhavan not only housed the local supremo and Member of Parliament, Lakshman Seth, it was also the headquarters for both the party and the labour union (Centre for Indian Trade Unions – CITU). There were rooms for meetings, spaces for visitors to stay, as well as an elaborate courtyard, murals on the wall and a photocopy shop. Across the road was a statue of Lenin – since 2015 it had started to crumble, and by early 2016, the metal had been removed and sold for scrap, the pedestal used to stack hay instead. After CPM's loss at the general elections, however, the building was ransacked, window panes smashed, electricity and water cut off, making the building look far older that it actually is. A couple of red flags fluttering on the first floor balcony nevertheless attested to the CPM's continuing association with the building, and I decided to start my research on Haldia port from this iconic, yet much abused, site.

On the first day, a darkening evening, flanked by two colleagues, I ventured through a rusted front gate, stepping on an overgrown pathway paved with broken cement tiles, into a wide corridor, dimply lit, with rooms on one side and broken windows on the other. Once inside, we ran into two people who live there, one a caretaker and the other, a secretary of some sorts, who then introduced us to some old men sitting and reading newspapers in one room. All were members of CITU units in different factories of the area. Once our project was explained to them, these men were eager to talk about the mess that the TMC had landed the state into, alternating between the glories of the CPM era and the present ruin,

much like the building where they were now sitting, Somewhat emboldened, I went back alone the next day, now to meet a CITU leader of the unit at the Indian Oil Corporation and then the day after, to interview another from the Calcutta Port and Shore Mazdur union, also a CITU affiliate.

On both these occasions, the huge building seemed to be empty, and was eerily quiet, although my later foray into the refurbished parts of the building at the back revealed rooms occupied by families, signs of cooking and washed clothes hung out to dry. On the second day, I moved through secluded corridors, patches of weed and dark verandas to a freshly painted flat on the first floor, and met Sk. Mujaffar, owner of Five Star group of companies (a catch-all label for more than seven firms). Clad in bright white Kurta pyjamas, Mujjafar, entrepreneur, illiterate, father of five sons and a former aide of Lakshman Seth, proceeded to give me an outline of who's who in Haldia, as well as a remembered history of the port, its rise and his own with it.

Sitting in a room flanked by helpers that he ordered around, Mujaffar extended unparalleled hospitality towards me, arranging for a car that would drop me home and a treat of Biryani for my roommates and I. However, at seven thirty on a Wednesday evening, somewhere at the back of Shramik Bhavan, appreciation of feudal hospitality was the last thing on my mind. I was acutely conscious of the fact that I hadn't met or heard a woman in over three hours, and while I was given to understand that certain Trinamul families, who earlier lived in shanties, now lodged there, as well as the families of a few CPM faithful, my awareness was acute and disconcerting.

Everyone I had spoken to so far, in the course of the project, barring Tamalika Panda Seth, had been men. I had met with them at various locations, ranging from the recently refurbished Apanjon office to a Haldia Development Authority flat to Five Star warehouses to, as mentioned above, Shramik Bhavan. They have invariably occupied spaces uninterrupted by women. This, in itself, is not a surprise, as traditionally ports have been male spaces. Nelli Kambouri explains: 'It may seem that dock work is stereotypically normalized as masculine only because in the past it required strong hands, but most of all it is the ability to work without having family or domestic care responsibilities that determine the gendered division of labour in the Port'. For people whose lives are centred, whether directly or directly, upon the port, it is no surprise that spaces are coded strictly by gender. In my analysis, I view the space

of Haldia not only made and characterized by male labour, big machinery and impossible landscapes, but also as a space that constantly obfuscates the labour of women, which undoubtedly contributes to the making of this logistical space.

The port city, in existing literature, has thus far been studied as a city marked by global flows, trying to hold on to its cultural heritage in the face of neoliberal policies and containerization that threaten to disrupt the very fabric of dock-side existence, and as a city that straddles the liminal space between negative environmental impact, business growth and economic development. Managerial perspectives are of the opinion that a variety of stake holders are crucial to the dynamic and complex innovative networks that characterise port cities and their adjacent areas. Research in Haldia repeatedly brought up narratives, both official and oral, in which men have shaped this space and these networks with definite developmental goals, with the aid of science, technology and political power, or have failed to do the so, due to a lack of will, corruption, or faulty planning. Fieldwork, however, pointed at locations and spaces at the interstices of such metanarratives of progress and failure.

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The Haldia Dock Complex was originally just an oil jetty commissioned alongside the Haldia Urban Industrial Complex in 1959. The Haldia Dock was built in 1968 and picked up its activities with the commissioning of the Haldia Dock Complex in 1977. Ethnography highlights two different directions, one where people benefitting from the building of the dock go on to own crores of rupees, and the other, in which people are displaced with little compensation in the name of a rehabilitation package. These latter people had no land to settle on and no job. While some others had jobs but no land, and a third group found rehabilitation (only of homestead), but no jobs. Tamalika Panda Seth, the erstwhile Member of the Legislative Assembly from neighbouring Mahishadal and Chairperson of Haldia Municipality, recounts the time when the Calcutta Port Trust (CPT) wanted to acquire land. She spoke eloquently of a man called Subal Das, a technical hand at the port who was reputed to take great pleasure in pulling the roof off houses with his crane while the people living there ran out for cover, struggling to collect their belongings. It is crucial to keep in mind that this achievement of mythical

proportions was aided by his mastery of new technology, the crane. The crane, with its gigantic proportions and ability to destroy, must have been an active component of children's imaginations. Their size is coupled with the understanding that they yield great power and can only be moved and made to comply with great mastery and technique possessed by a male worker. Crane-workers comprise a sizable constituency among the Class III technicians at the Dock, the others being electricians, mechanics, welders and so forth. The crane and parts of its family, the Carl Mar, the fork lift, the loader, the pock land and the ominously named Hydra, are integral to the logistical worlds being mapped here. They lift, shift, dump, load and unload, level, lay and, as has been mentioned already, dismantle.

For some, the port made them who they are, and in his reminiscences, Mujaffar's past is no less eloquent. He claims to have been working as a mati kata labourer when the dock was being built. Having lost all their land and home to the dock, five brothers of the family were employed by the dock itself. Since 1977 he became close to Lakshman Seth, initially being part of the Indian National Trade Union Congress (INTUC, the labour wing of Indian National Congress), which declined from 1978 onwards when people shifted to CITU. He had also become an employee of CPT in 1978, an employment that came to an end when he became a councillor of Haldia Municipality in 2002. The Five Star group of companies that Mujaffar runs is one of the biggest shipping and logistics service providers at Haldia. It undertakes loading and unloading work, as well as supplying labour, containers, trucks, cranes and warehouse space.

Anupam, an employee at Five Star, was entrusted with the job of explaining to me what logistics mean. According to him, it means handling the cargo once it comes off the ship, or from somewhere else, and preparing and loading it for its next destination. While human agency determines when, how and how many containers are shifted, the most precarious element of this logistical network remains labour. As mentioned earlier, with relation to the masculinity of the dock worker, the logistical worker is almost always male – driving trucks, supervising, manually unloading cargo from containers or trucks, shovelling materials into sacks, loading the sacks onto the trucks, guarding the godowns or operating the weigh bridge. In this logistical world, women are at best marginal, being employed to clean the warehouses, or as itinerant contractual labour employed to fix some small

Image: Samata Biwas

things, mix cement or lay bricks. In the logistical enterprise, apart from a handful of women of supervisory rank or with expert technical knowledge who are direct and permanent employees of CPT, women are at best contractually employed and their work determined by the amount and nature of cargo to be handled. Like the Dock, employment at a logistical outfit is also largely based on the ability to be flexible, a male attribute.

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But in the shadow of the crumbling universe of logistics in Haldia (crumbling due to rapidly closing factories, increased influx of people from neighbouring villages, looking for job and failing to find them, reduced state spending in the Dock Complex and increased precariatization of labour), certain local (as opposed to the global flows that characterize ports), woman centric, household bound networks raise their uncertain heads. Women (deemed as belonging to the home), old men and children (both groups marginalized in terms of their participation in remunerative labour), collect iron scraps (a substantial cargo traded at Haldia Dock Complex, one meriting warehouses and container traffic) from construction debris and sell them to makeshift shops that in turn sell them to scrap wholesalers. Women also sweep and collect coal dust, sift through coal sedimentation collecting in ponds right outside the Dock Complex perimeter, dry and roll them into pellets and sell them to small shops and also use them as fuel in homes.

Big machinery, big cargo, logistical networks, warehouses, factories and oil refineries are all spaces inhabited by male labour. But in an altered scale, women and other marginal actors also form ill paid yet effective supply chains, dealing with the discarded, the excess, the spillage and creating value from them.

THE 'UNTIMELY' METROPOLIS OF SILIGURI

Atig Ghosh

In the late nineteenth century no one would have guessed that the foothill hamlet of Saktigarh would become the bustling urban agglomerate of Siliguri. The introduction of the Darjeeling Himalayan Railway (DHR) in the 1880s increased the importance of this township where the Corleones of Calcutta Culture – the Dasses, the Boses, and the Tagores – would break their rail journeys on the way to the hills. The tea trade that the DHR helped to promote led to the expansion of the land and labour market as well as the establishment of Marwari *kothis* in an area that extended the informal capital and credit market. However, what transformed the scene radically was the partition of South Asia.

The formation of East Pakistan created a geographical barrier in the northeast of India. The narrow Chicken's Neck – formally known as the Siliguri Corridor, which at one point is less than 23 km wide – remained the connecting bridge between the northeast and the rest of the country. Siliguri found itself elevated to a position of geostrategic importance. Wedged between Bangladesh to the south and west and China to the north, Siliguri has no access to the sea closer than Calcutta, which is on the other side of the corridor. Between Sikkim and Bhutan lies the Chumbi Valley, a dagger-like protrusion of Tibetan territory into India. A Chinese military advance of less than 130 km could in theory cut off Bhutan, part of West Bengal and all of North-East India, an area containing almost 50 million people, from the rest of India. Such a situation *almost* came to pass during the war between India and China in 1962. Consequently there is a massive military concentration in the area.

Siliguri is hemmed in by military bases on all sides. The Siliguri Corridor is heavily patrolled by the Indian Army, the Assam Rifles, the Border Security Force and the West Bengal Police. Two air force bases, of the Eastern Air

Command, are located nearby. The second largest military camp in Asia, Binnaguri, is also located not far from Siliguri. In 2013 the army formally sought land from the West Bengal government to set up two military and air force stations in the north Bengal. Three months later, on 21 February, 2014, the foundation stone for the Berhampore Military Station (BMS) was laid by President Pranab Mukherjee. At the ceremony, Army chief Gen Bikram Singh informed the media that the BMS will be home to an Air Defence (AD) regiment where missiles will be kept ready to protect the airspace over the Siliguri corridor.

The rapid development of the local economy cannot be understood without a reference to the contribution made by this military presence. However, there is more to it than this. Described as the gateway to Bhutan, Nepal and Bangladesh, Siliguri fulfils a very unique geographical niche. Nepal lies 10km to the west of the city, Bhutan 40km to the northeast, China approximately180km to the north and Bangladesh is directly accessible via the border crossing at Phulbari. The strategic location of the city makes it a base for the receipt of essential supplies for the above regions.

The so-called four 'T's – tea, timber, tourism and transport – are the city's main businesses. The latest development in Siliguri is the construction of malls such as City Centre, Cosmos and Orbit. In 2009 the first cinema multiplexes arrived. Growing economic transactions have also led to a boom in the banking sector. There are more banks and bars along the two axial roads of Siliguri – Sevoke and Hill Cart – than can be found along any road in India. As a gesture of international cooperation, Siliguri's road network is being used by the governments of Nepal and Bangladesh to facilitate transportation of essential commodities, such as food grains. The Silk Route of India, the trade route between India and Tibet (China), is accessible only after crossing Siliguri via the Nathula and Jelepla passes. In Siliguri there are also business routes to Bhutan.

Siliguri's population has exploded. The population density of the urban area is 11,000 persons/sq. km. According to the 2011 provisional census the number of residents in the Siliguri metropolitan area at this time was 701,489, although another non-governmental estimate made as early as in 2008 put the figure at 1,559,275. However, calculations of 'residents' in Siliguri create the impression of sedentary urbanism when this is not the case. A 1990 study indicates that the city has experienced waves of migration over a number of decades.

Images: Carolin Philipp

Of these migrants, 60 per cent came from East Pakistan/ Bangladesh, 17 per cent from Bihar and 8 per cent are Marwaris who control wholesale trade. The rest, 15 per cent, came from South Bengal and Assam. Masses of repatriated Burmese have also made Siliguri their home. Siliguri is a city of migrants and thus does not lend itself easily to accurate demographic calculations. Some commentators have gone further in calling Siliguri a 'town in transit' with the implication that it 'moves with its moving population and loses fast its potential of becoming anyone's home conventionally understood as the relatively stable abode where the family lives like what Hegel calls "an individual"'.

A sizeable chunk of the migrants in Siliguri live in slums. Municipal authorities are desperate to suppress a dystopian image of the city, trying to overlay it with visionary documents outlining dream-like development projects. One document states, 'In order to develop the city in a planned manner and to make arrangement for the exploding population of the city … new townships of Uttarayon, the Kanchanjunga Integrated Park, Vastu Vihar and Shushruta Nagar-Kawakhali township have been proposed to be built around the fringes of Siliguri'. Protected, fortified housing complexes are proposed to be the living abodes of the *nouveau riche* – those who can afford to own them without having to depend on municipal corporations for water supply and sanitation, the state electricity board for a supply of electricity, or government agencies for essential services. These residents will supposedly have the money to buy these services, which will be priced beyond the reach of the urban poor. Apartments for the internationally mobile middle class and urban new-rich of Siliguri will also serve as places of conduit where trafficked women, themselves in transit, will be called to entertain their affluent customers, also in transit, and money will quickly change hands.

This *mélange* of people in flux – wholesalers, retailers, military and security personnel, tea planters and labourers, trafficked bodies and their consumers, gun-runners, political fugitives, asylum-seekers, railwaymen, construction workers and stateless groups – cannot be understood without the governing sign of neoliberalization. In 2002, Indian, Nepalese, Bangladeshi and Bhutan authorities considered a proposal to create a free trade zone in the area that would enable all four countries to connect directly with each other without restrictions. Two observations can be drawn from this.

First, it is not strange that an area that is the hub of heavy military securitization, and which is populated by

people who are obsessed with territorial integrity, is also the proposed site of international free trade. This paradoxical coupling of the military and neoliberalism has been a marker of the northeast in general. This situation makes it possible to controversially state that Siliguri, and by extension north Bengal, is more integrally a part of the northeast than it is a part of the rest of West Bengal. Second, the creation of a free zone, in terms of commodity trade, is not waiting for an international diktat. It has, as has been suggested above, already come into being. A walk through the bazaars of Siliguri testifies to this. Businesses are booming at the Seth Srilal Market, the Sevoke Road and Hill Cart Road bazaars and the airport market at Bagdogra. These are prominent places where a customer can buy daily goods, and they are extremely popular among people from nearby areas as well as tourists from all over the world. The markets are almost exclusively stocked with commodities smuggled in from neighbouring countries. The city has a very high concentration of retail trade – in commodities obtained by both licit and illicit means – and the volume of trade is unmatched by any other city in West Bengal.

Wholesale trade in Siliguri is also vibrant and, not uncommonly for India, the retailer and the wholesaler are often the same person operating from the same shop-front. Twenty per cent of those involved in wholesale trade are returnees from East Pakistan/Bangladesh and as many as 70 per cent of them are Hindi-speaking people coming predominantly from north India. Kinship bonds are strong among the wholesalers, which makes it practically impossible for newcomers to enter into the business. Wholesalers also possess a large quantity of liquid cash – much of which is derived as profit from their trade in Siliguri – which they do not spend or invest in the city. This situation creates an 'enclave economy' that operates under a neoliberal mandate.

Siliguri also hosts the Bidhan market, originally created for partition refugees. This market is now a chief hub for buying low cost Chinese goods. To the local people, as well as to tourists, this is the famous Hong Kong market where you can buy shoes and garments, watches and sunglasses, cosmetics and computers, aphrodisiacs and underwear, all imported from China at throw-away prices. This is also a space, like so many others in the city, which hinders the sanitized image of Siliguri as the hub of neoliberal development. It exposes a seamier town in the throes of economic expansion.

Siliguri is a node for the movement of smuggled goods and trafficked human beings. An intelligence report, quoted in the Draft Development Plan 2008–09 to 2012–13 of the Siliguri Municipal Corporation, states: 'In recent times, the area has become the focus of illegal crossings between Bangladeshi rebels and Nepali Maoist insurgents, both in search of refuge from their country. A flourishing narcotics and weapons traffic also takes place in this region'. These are intractable elements of crime and commerce that co-constitute Siliguri under the sign of neoliberal capitalism, injecting an unmistakeable flavour into the cocktail of this city-in-making.

One evening as I stood in the bustle of the Hong Kong market, the sense struck me that the bazaar economy in Siliguri has not been subdued or subsumed by the formal capital market. Historians have been arguing for the coevality of the two in South Asia for some time now. But that evening a general sense seemed to carry me beyond the superposition of the bazaar and neoliberal consumption. Here, beyond the mere co-existence of two allegedly incompatible modes of consumption, what seemed to be at work was a gerrymandering of collective and individual urban subjectivities. It seemed that the rational actor-citizen had been displaced by the migrant as the organizing human principle of political economy. Further, to borrow jargon from cinema studies, the cityscape presented itself as retro-futuristic, as depicting a future produced in an earlier era.

There is a need to rethink the geo-imagination of north Bengal at a time when its ideational remit is being expanded by statist defence neuroses and the everyday practices of mobile peoples. This re-imagined north Bengal is part of the northeast, with its border economy and its 'travelling actors'. Through an entanglement of control, crime, communication and capital, Siliguri shows that a border economy does not remain confined to its border or borderlands but seeps into the so-called mainland to bring about powerful transformations in economies and cities. Going further, it may be said that the metro-polarities of Siliguri present what can be called a 'futuristic archetype' of a border-city. In this sense, Siliguri is an *untimely* metropolis. Deleuze's words in *Cinema II* can easily be applied to Siliguri – 'there is no present which is not haunted by a past and a future, by a past which is not reducible to a former present, by a future which does not consist of a present to come'.

RESILIENT HOPE

Orit Halpern

When describing the word logistics there are few things that at first appear more unintuitive than the term 'concrete'. Seemingly solid and rock-like, concrete is immobile and heavy. On reconsideration, of course, concrete was and continues to be the very infrastructure for industrialization. Since the 19th century, it has been the material that made possible roads, buildings, factories and many other built environments that are now commonly understood as 'modern'. In fact, it is the material most often invoked in modernist architectural and design projects. The very auteurs of modernist design and architecture such as Le Corbusier favoured the material. When called upon by Nehru to produce a new capital for the post-colonial Punjab – the city of Chandigarh – Corbusier did not hesitate to build the monumental structures of concrete, even as the material was found to be almost untenable and unmaintainable under the climatic conditions. These now seemingly decaying but still operative monuments continue to serve, however, as both icons and memorials to a previous industrial and national order fantasized in the wake of Independence. It is not only Indians who fell in love with concrete. From the Bauhaus to the Futurists, concrete was the preferred building material that bridged nature with industry to induce new possibilities for ever faster cars, buildings and cities. All these utopias were built on a cement foundation that would creatively destroy the world before it.

Concrete, as both a fantasy and a reality, opens to a series of scenes that bridge between older histories of creation and destruction, along with technology and contemporary worlds of high speed trading, algorithms and computation. In doing so, these juxtapositions pose serious questions about the forms of speculation, and of futurity, being currently constructed through assemblages of software, hardware and, often enough, concrete.

To begin thinking about how creative destruction has now taken new 'concrete' forms within later capitalism, I want to contemplate a number of scenes, and then I would like to situate them within contemporary debates in urban planning and design about large scale infrastructural planning. This piece of writing thus has two sections, one dedicated to concrete and the second to computing. Such an organizational device is made, following Walter Benjamin, in the interest of producing an image of a condition, and to 'concretize' a relationship between these seemingly different realms of practice and technology. The cut, or edit, that links these two seemingly incommensurable realms is the term 'resilience', which is both an ontological category describing the characteristics of materials and ecologies and an emergent epistemology that shapes the practices and future imaginaries, particularly in fields such as design, engineering, urban planning and finance.

Let's set the scene. The first set of images is the site of mass extraction of boulders and sand from the river beds at the base of the Himalayas in Siliguri in West Bengal. Siliguri is located at the borders between Nepal, Bangladesh, Bhutan and China, at the base of the Himalayas. The Asian Development Bank has invested large sums in the area, developing a new 'silk' road that is part of a broader Asian Highway plan to increase and improve the infrastructure of roads throughout South and South-east Asia, connecting West Bengal and Tibet. While the economic goals of such an endeavour are unclear, the political objective of China holding Tibet is an unspoken but largely accepted truth. The road, however, demands massive financing and, like all roads, concrete.

Concrete demands sand particles that are clean, smooth, hard and without clay or chemical coatings or contamination for the mixture. Sand that has been worn by water, usually dredged from a river or seabed. The most striking element of this environment, for me, was to witness the intense forms of environmental and human devastation wrought through the endless effort to mine sand from riverbeds in order to fuel the purported construction boom within the locality, the new Asian Highway projects that will tie these regions of India to Chinese-held Tibet, Bangladesh, Nepal and, more broadly, the wide-scale real-estate speculation currently happening throughout India. The extraction of sand and boulders from riverbeds in the interest of real-estate speculation amounts to a massive

geo-engineering project, the scale of which is yet to even be recognized. The result of this speculative extraction is that the rivers are sinking into the earth and drying up, thus effectively destroying a major source of water for much of India. The full ecological and human consequences are playing themselves out in what is a large scale experiment in destruction, with no clear endpoint. Phenomenologically, this situation manifests itself through a level of particulate dust that makes breathing difficult and the dust is omni-present on one's body and belongings at all times when in Siliguri.

Some 600 kilometers to the south lies the great city of Kolkata. (Image 1: Rajarhat) One of the largest and densest settlements on Earth, it has long been at the heart of global trade and commerce, and central in the development of capitalism. Rajarhat 'New Town' has emerged in recent years, situated between Kolkata's IT park in Sector 5 and the airport. It was supposed to be designated a 'smart city' by the government. It never achieved this designation, but it has been developed in the interest of producing a space for high-technology corporations and luxury housing for the envisioned workers of these industries. While the high-tech industry never moved to Kolkata, and most of the existing firms are largely secondary service providers to the central operations located in Bangalore and elsewhere, the construction continues.

The urban space of Kolkata is crisscrossed by endless highway developments and fly-overs, one of which actually collapsed during our visit on 31 March, 2016, killing many. This collapse was the result of overly rapid construction, corruption, and the velocity of speculation and derivation in the real-estate sector. The space feels monumental, and empty. In fact many of these developments are empty, some are not even hooked into the information and bandwidth infrastructures which is their purported raison d'être. Much of the housing, here as across India, has never been, and might never be, occupied, having been bought solely for speculation by domestic and foreign investors.

Reportedly, most such construction is also heavily leveraged. Long before ground was even broken for construction, the debt and cost to both the state and the developers was credit-debt swapped with profits reaped by large investment banks located in global financial hubs of Mumbai and even more likely New York, Frankfurt and London. The function of these spaces in terms of life beyond financialization is unclear. At the same time, as a result of

the complex assembly of histories of caste, colonialism and capitalism, these constructions have cost some 30,000 people their homes. Claimed through eminent domain, the previous residents of these spaces are often dispossessed with little remuneration, since most of the lower caste inhabitants never owned the land, even if they lived and farmed on it over decades. As a result, these people end up occupying the ubiquitous shanty towns of Kolkata, seeking transitory work in locations such as the port where they often supply labor usually done by automated machines in other spaces under enormous duress. Lacking any public health sanitation infrastructure or electrical grids these individuals are literally being worked to death, and living without sanitation. The cost in morbidity and mortality is enormous. According to the union representatives we spoke to, dock workers retire by their late 30s, their bodies no longer capable of delivering efficiency and productivity at the speed necessary for unloading and loading the ships.

My interest is in how to think the automated algorithms (the software, but also concrete, infrastructure of global finance) with its material and physical impact on the Earth and on human life. I propose that these images are the traces of a new form of speculative hope that is indoctrinated within an emergent paradigm of what I want to label 'resilient hope'. Resilient hope links high-technology computational infrastructures of ubiquitous computing and 'smartness', data centres and finance to the far more 'concrete', if we will, spaces of locations such as West Bengal.

For ecologist C. S. Holling, resilience denotes the capacity of a system to change in periods of intense external perturbation, and thus persist over long time periods. In this sense, resilience is conceptually linked to crisis and states of exception; that is, resilience is a virtue when the latter are assumed to be either quasi-constant or the most relevant states. In the 1970s, Holling worked from a systems perspective, and was interested in the question of how humans could best manage elements of ecosystems that were of commercial interest (e.g., salmon, wood, etc.). What makes my concept of 'resilient hope' distinct is the marriage between this view of systems and change and practices of prototyping, versioning and demoing that are ubiquitous in software development, design and architecture.

'Resilient hope' describes a scenario in which a hopeless situation is met with hopeful speculation, usually through new forms of temporal management in finance

and technology. For instance, real estate speculation can continue to occur on new silk roads, and never occupied 'smart' or at least high-end developments, even as the Himalayan flood-planes are destroyed because the end never arrives, but is simply delayed or, more appropriately, derived. 'Resilient hope' marries older histories of actuarial management with contemporary financial and computational techniques and design thinking to reformulate systems – whether human, animal, technical or geological (or all combined) – to assimilate shock and traumatic events while maintaining consistent operability, functionality and organization through time.

Another way to think about the link between resilience and prototyping or demoing is by distinguishing between risk and uncertainty. According to economist Frank Knight, uncertainty, unlike risk, has no clearly defined endpoints or values. It offers no clear cut terminal events. Under conditions of uncertainty, the test no longer serves as a simulation of life. Rather, the test-bed makes human life itself an experiment for technological futures. As future risk transforms into uncertainty, high-technology, particularly 'smart' and 'ubiquitous' computing infrastructures, becomes the language and practice by which to imagine our future. Computing becomes concrete.

One of the key (and troubling) consequences of 'resilient hope' is to obscure differences in kinds of catastrophes. While every crisis event – for example, the 2008 sub-prime mortgage collapse or the Tohoku earthquake of 2011 – is different, within the demo-logic that underwrites the production of smart and resilient cities, supply chains and infrastructures, these differences can be subsumed under the general concept of on-going crisis without clear event structure; fortified because measurement of impacts has been transformed into 'optimization' and demoing or prototyping. That is, whether threatened by terrorism, sub-prime mortgages, energy shortages or hurricanes, smartness always respond in essentially the same way. It is precisely this evacuation of differences, temporalities and societal structures that most concerns me in confronting the extraordinary rise of ubiquitous computing and high-tech infrastructures as solutions to political, social, environmental and historical problems confronting urban design and planning, and engines for producing new forms of territory and governance. This logic also prompts us to ask about the possible alternatives.

Our challenge, then, is to fundamentally transform the current resilient hopes of deferring negative futures through the practices of demoing and versioning that mirrors the models of software development to another mode. This demands examining the social movements, construction projects and many efforts in art, design, the humanities science and politics that have challenged the positive embrace of end times, and fought to reintroduce other forms of time and life into space. When concrete first emerged as an ideal material in architecture and in art, it was in the interest of producing another world, one that was not yet here. Today, we face another challenge – one of imagining another world while recognizing the tragedy that already has, and is still, occurring to most of life on earth. This demands a change of tense for design and politics. We cannot dream of creative destruction, since we have indeed already destroyed the world, but nor can we continue to embrace a world without futures.

Images: Orit Halpern

INFRASTRUCTURE

Infrastructure is matter that moves matter (Larkin). At once mundane and monumental, infrastructure enables capital's expansion. Infrastructure is more than groundwork. Infrastructure cuts across corridors, fibres and code with imperial force. Yet infrastructure is vulnerable. Striking against infrastructure requires not just sabotage but constitutive acts of organization. Infrastructure permeates technical and algorithmic divisions to become both concrete and soft. Infrastructure is not boring. Infrastructure aestheticizes rationality.

ইনফ্রাস্ট্রাকচার অথবা পরিকাঠামো। এমনই এক বস্তু যা চালনা করে অন্যান্য বস্তুসমূহকে। একইসাথে দৈনন্দিনের সাধারণত্ব এবং ইমারতি জমককে বহন করে পরিকাঠামো। ঘটায় পুঁজির সম্প্রসারন। পরিকাঠামো। শুধুমাত্র বুনিয়াদি রশদ নয়। বরঞ্চ করিডর, ফাইবার, কোড, এই সকলেরই সক্রিয়তার মাধ্যমে বিস্তারিত হয় পরিকাঠামোর সাম্রাজ্য। কিন্তু এই রাজকীয় ক্ষমতা সত্ত্বেও পরিকাঠামোর থেকে যায় কিছু দুর্বলতা। শুধু অন্তর্ঘাত নয়, পরিকাঠামোর বিরুদ্ধে আঘাত আনার জন্য চাই কিছু একেবারে মৌলিক ধরনের সাংগঠনিক কাজ। প্রযুক্তিক এবং আলগা রদিমিমিক, এই দুই ক্ষেত্রেই পরিকাঠামোর ব্যপ্তি। আর তাই পরিকাঠামো। মূর্ত হয় শক্তপোক্ত বা কনক্রিট এবং নমনীয় বা সফ্ট, এই দুই রূপেই। পরিকাঠামো। নিয়ে ভাবা একেবারেই একমাত্রিক নয়। কারণ পরিকাঠামো। নিরন্তর সৃজন করে চলে বিভিন্ন যৌক্তিকতার।

LABOUR

Labour is not simply work. Labour is the name of subjectivity under the domination of state and capital. Labour lives and is animated by energy, unrest and movement. Labour inheres in bodily and cognitive relations. Labour is

subject to processes of abstraction that seek to reduce it to temporal measure. The tension between abstract and living labour is constitutive of political struggle. This tension crosses bodies and souls. It also shapes global space. Logistical labour emerges at the interface between infrastructure, software protocols and design. Labour time is real-time.

শ্রম শুধুই কাজ নয়। শ্রম আসলে রাষ্ট্র ও পুঁজির আধিপত্যে তৈরি যে অধীনস্ততা, তারই আরেক নাম। শ্রম যারপরনাই জীবন্ত এবং তার প্রাণ সঞ্চার হয় অস্থিরিতা, আনন্দে লন এবং শক্তি দ্বারা। শ্রমের অধিষ্ঠান বিভিন্ন শারীরিক এবং জ্ঞানীয় সম্পর্কে। বিভিন্ন বিমূর্তকরণ প্রক্রিয়া বারংবার শ্রমকে এক নিদ্দিষ্ট সময়গত পরিমাপে সীমাবদ্ধ করে রাখতে চায়। শ্রমের এই বিমূর্ত রূপের সাথে তার জীবন্ত সত্ত্বার তাই চলে এক নিরন্তর টানাপ ড়েন যা ক্রমেই তৈরি করে রাজনৈতিক লড়াইয়ের প্রেক্ষাপট। এই টানাপ ড়েন ঢুকে পড়ে শরীর ও আত্মার পরিধিতেও। আবার এই টানাটানির প্রভাব বাস্তবায়িত হয় বিশ্বায়িত স্থানান্তরণ-প্রক্রিয়াতেও। লজিস্টিকাল শ্রমের আবির্ভাব পরিকাঠামে িগত নকশা ও সফটওয়ারের নিয়মবিধির মধ্যবর্তীতে। শ্রমের সময় সেই ছকে হয়ে ওঠে প্রকৃত-সময়।

LOGISTICS

Logistics is a programmer's game. Logistical methods of organization apply to production and patterns of mobility. The global logistics industries are key to understanding emerging configurations of the social as well as their implied technologies and labour regimes. The primary task of logistics is to manage the movement of people and things in the interests of communication, transport and economic efficiencies. Central to logistics is the question and scope of governance, both of labouring subjects and the treatment of objects or things. Logistics arranges objects in space and time according to the demands of capital. Logistics puts anything, anywhere at anytime. Logistics is magic (Lyster).

লজিস্টিকস বা সরবরাহ-ব্যবস্থার খুঁটিনাটি নির্ণয়, হয় কার্যক্রম-নির্ধারকদের অর্থাৎ পরে োগ্রামারদের থেলোয়। লজিস্টিকাল পদ্ধতিতে সংগঠন মূলত উৎপাদন এবং চলমানতার বিবিধ প্রতিমানের ক্ষেত্রে প্রযে োজ্য। সমসাময়িক সামাজিকতার বিভিন্ন উত্থানশিল আকারপ্রকার এবং তার সাথে সংযুক্ত যে সকল প্রযুক্তিগত বা শ্রমগত ব্যবস্থাপরণালী, তার সম্বন্ধে ধারনা করতে

হলে বিশ্বব্যাপী লজিস্টিকস শিল্পগুলির রূপ অনুধাবন
করা অত্যন্ত জরুরি। লজিস্টিকসের প্রধান
ভূমিকা হল পরিবহন ব্যবস্থা, যে গায়ে গ ব্যবস্থা
এবং অর্থনৈতিক ব্যবস্থার ফলপ্রদতা সুনিশ্চিত করার
স্বার্থে লে কজন এবং জিনিসপত্রের চলাফেরাকে সঠিক
ভাবে পরিচালনা করা। তাই লজিস্টিকসের মূলে আছে
শ্রমজীবন ও বস্তুর জগতের ব্যবস্থাপনা। লজিস্টিকস
পুঁজির চাহিদা অনুযায়ী বস্তুবিশেষের স্থান ও কালক্রম
নির্দিষ্ট করে। লজিস্টিকস তাই এমনই এক জাদুময়
প্রক্রিয়া যা যাকে নে া কিছুকে যাকে নে া জায়গায়,
যাকে নে া সময়ে পা ঁছনে ার অঙ্গীকার রাখে।

STANDARDS
Standards are everywhere. Standards assume politics.
Standards assume decision. More precisely, standards
assume a political economy through which power is
asserted. Their capacity to interlock with one another and
adapt to change over time and circumstance are key to
their power as non-state agents of governance. Standards
underpin capital accumulation and political hegemony from
the micro level of algorithmic apparatuses to the macro
level of global infrastructures. Standards are crucial to the
interoperability of protocols across software platforms
and infrastructural components. The labour of creating
standards never ends. Standards conflict as much as they
match. The best thing about standards is that there are so
many to choose from (Tanenbaum).

স্ট্যান্ডার্ড বা মানদণ্ডর অস্তিত্ব সর্বত্র। যাকে নে া
মানদণ্ডকে ব্যবহারযে াগ্য করার প্রক্রিয়ায়ে থাকে এক
ধরনের রাজনৈতিক এবং সিদ্ধান্তগত প্রেক্ষাপটের অনুমান।
আরও পরিষ্কার ভাবে বলতে গেলে, প্রত্যেকটি মানদণ্ডের
ব্যবহারিকতায় অনুমতি থাকে এক প্রকারের অর্থনৈতিক
ব্যবস্থা যার মাধ্যমে ক্ষমতার কাজকে সম্পন্ন করা যেতে
পারে। শাসনের অ-রাষ্ট্রীয় মাধ্যম হিসেবে বিভিন্ন মানদণ্ড
ঠিক কতটা কার্যকরী হবে তা নির্ভর করে তাদের অন্যান্য
মানদণ্ডের সাথে মিশে গিয়ে কাজ করতে পারা আর সময় ও
পরিস্থিতি অনুযায়ী বদলের সঙ্গে তাদের খাপ খাইয়ে নেওয়ার
সামর্থ্যর ওপর। ক্ষুদ্রাতিক্ষুদ্র আলগে ারিদিমিক খুঁটিনাটি
থেকে শুরু করে বিশ্বব্যাপি পরিকাঠামে ার বৃহত্তর ক্ষত্রের
– এই সকল স্তরেই পুঁজির আরহন তথা সার্বিক রাজনৈতিক
কতৃ্ত্ব বজায় রাখার প্রকরণে মানদণ্ডের গুরুত্ব অপরিসীম।
মানদণ্ডকে ব্যবহারযে াগ্য করে তে ালার কাজ তাই কখনই
সমাপ্ত হয় না, তা চলতে থাকে নিরন্তর। মানদণ্ড–

সংক্রান্ত সবচেয়ে ভাল ব্যাপার এই যে মানদণ্ড সংখ্যায় প্রচুর। কিন্তু বিভিন্ন মানদণ্ডের ব্যবহারিক ক্ষেত্রে অমিল থাকার সম্ভাবনা তাদের অন্যান্য মানদণ্ডের সঙ্গে মিলেমিশে কাজ করার সম্ভাবনার চেয়ে কিছু অংশে কম নয়।

PROTOCOLS

Protocols govern systems. Their technics and rules of organization shape the extraction and divorce of value from those engaged in logistical modes of production. The capacity for standards to hold traction depends on protocological control. But there are also standards for protocols. Protocols are the immaterial groundwork of material infrastructures. Protocols enable soft forms of power. Protocols are the invisible servants to logistical operations that mobilize people, finance and things. By reducing the world to rules, we ruin our imagination to overthrow regimes – technological, social, economic, political. Protocols demand conformity. Protocols give no truck to contingency.

প্রোটোকল বা নিয়মাবলি যেকোনো ধরণের অর্থনৈতিক এবং রাজনৈতিক ব্যবস্থার শাসনে অগ্রণী ভূমিকা নেয়। লজিস্টিকাল পদ্ধতিতে উৎপাদনে নিযুক্ত যারা, তাদের উৎপন্ন মূল্যের নিষ্কাশন ও নিরসন প্রক্রিয়াকে আকার দেয় প্রোটোকলের প্রযুক্তি এবং সাংগঠনিক নিয়মাবলী। স্ট্যান্ডার্ড বা মানদণ্ডের কার্যকরীতা অনেকটাই নিয়ন্ত্রন করে প্রোটোকল। কিন্তু প্রোটোকলেরও আবার কিছু মানদণ্ড থাকে। প্রোটোকল হল প্রত্যক্ষভাবে উপলব্ধ হার–মাংস–ধাতু–লোহা–লক্করের পরিকাঠামোর পরোক্ষভাবে প্রোতে বুনিয়াদী ভিত্তি। ক্ষমতার স্থাপন বা ব্যবহার হয় কিছু অপরত্যক্ষ, 'সফট' রূপে। প্রোটোকল এই ধরনেরই 'সফট' ক্ষমতাকে চালনা করে। লজিস্টিকাল কার্যপ্রণালী যা লোকজন, জিনিসিপত্র ও অর্থের চলাফেরাকে সুনিশ্চিত করে, তারই এক অদৃশ্য সহায়ক হল প্রোটোকল। সমস্ত বিশ্বকে নিয়মাবলির মধ্যে সঙ্কুচিত করার অভিলাষ আসলে প্রযুক্তিক, সামাজিক, অর্থনৈতিক এবং রাজনৈতিক ব্যবস্থাগুলিকে বদলানোর যেকোনো কল্পনাকে সম্পূর্ণ ভাবে ধ্বংস করে দেয়। প্রোটোকল ক্রমাগত দাবী করে চলে নিয়মানুবর্তিতা। প্রোটোকলের দুনিয়ায় আকস্মিকতা বা অনিশ্চয়তার কোনো জায়গা নেই।

PARAMETERS

Parametric rules govern time, space and the mobility of people, finance and things. Parameters set limits that define and delimit ranges of activity and action. Logistics organizes labour

as an abstraction within parameters governed by software. In computer science a parameter is a function, command or 'formal argument' that establishes the reference for an 'actual argument', which then executes the command of the parameter. A change in parameters alters the operation of a program, model or simulation. Logistical operations are specific to the values that define the functions of parameters. Yet such operations are accompanied and perhaps preconditioned by the possibility of breaking and remaking rules. Therein lies the politics of parameters.

প্যারামিটার বা স্থিতিমাপ শাসন করে স্থান ও কালকে, এবং লোকজন, অর্থ ও জিনিসপত্রের চলাফেরাকে। প্যারামিটার যেকোনো ধরনের কার্যকলাপ ও ক্রিয়াপদ্ধতির পরিধিগত সংজ্ঞা ও আওতা নির্ধারণ করে দেয়। লজিস্টিকস যে বিমূর্ত রূপে শ্রমকে সংগঠন করে, তা অনেকটাই হয় সফটওয়ারে নির্ধারিত প্যারামিটার অনুযায়ী। কম্পিউটার বিজ্ঞানে প্যারামিটার হল একটি ক্রিয়া বা নির্দেশ বা একটি 'ফর্মাল আর্গুমেন্ট'/ আনুষ্ঠানিক যুক্তি যা একটি 'একচুয়াল আর্গুমেন্ট'/প্রকৃত যুক্তির প্রসঙ্গ তৈরি করে, যা পরবর্তীতে প্যারামিটারের আদেশকেই নির্বাহ করে। প্যারামিটারগত যেকোনো পরিবর্তন আবার একটি প্রোগ্রাম/কার্যকরণ, মডেল/ছাঁচ বা সিমুলেশন/অনুকরণ পদ্ধতির সম্পূর্ণ অদলবদল ঘটাতে পারে। প্যারামিটারে ক্রিয়াপ্রণালী যে ধরনের মূল্যবিশেষের ভিত্তিতে রচিত, লজিস্টিকাল কার্যক্রম অনেকটাই তার ওপর নির্ভরশীল। তবু অনেক ক্ষেত্রেই এই কার্যক্রমের অনুষঙ্গে থাকে নিয়ম ভাঙার বা পুনর্গঠনের সম্ভাবনা– এইখানেই সূচিত হয় প্যারামিটারের রাজনীতি।

ALGORITHMS

Algorithms arrange infrastructural power. Algorithms play a vital role in calculating the material properties and organizational capacities of infrastructure. Algorithms build computational systems of governance that hold a variable relation between the mathematical execution of code and external environments defined through arrangements of data. Algorithms instruct things to do things to things. Algorithms create patterns. Condensing code and sociality, algorithms generate movement through data processing, scraping and forecasting. Algorithms drive financial markets, operate transport and communications infrastructure, connect global supply chains and allocate resources. Algorithms evaluate labour productivity and capital gains in real-time. Algorithms displace experts and transform worlds.

আলগে ারিদম বা গািনিতিক–ব্যাকরণের মূল কাজ হল পরিকাঠােমা গত ক্ষমতার ব্যবস্থাপনা। যেকে ােন া পরিকাঠােমা ার সাংগঠনিক সামর্খ্য এবং বাস্তবিক বৈশিষ্ট্যগুলির ক্রমাগত গণনায় গুরুত্বপূর্ণ ভূমিকা নেয় আলগে ারিদম। আলগে ারিদম তৈরি করে শাসনের বিভিন্ন গণনামূলক বা কম্পিউটেশোনাল ব্যবস্থাপদ্ধতি। এই ব্যবস্থাপদ্ধতিতে, কে ােড বা সফ্টওয়্যারে িচিত ভাষার গাণিতিক কাজ চলে, বিভিন্ন তথ্যের ভিত্তিতে বহিঃস্থ পরিবেশের সাথে কিছু পরিবর্তনসাপেক্ষ সম্পর্ক বজায় রেখে। আলগে ারিদমের নির্দেশিকায়ে বিভিন্ন বস্তু অন্যান্য বস্তুকে দিয়ে নানারকম কাজ করিয়ে নেয়। আলগে ারিদম তাই তৈরি করে ক্রমপদ্ধতির কিছু ছাঁচ। কে ােড এবং সামাজিকতাকে একসাথে এনে এবং তথ্যের সংগ্রহ, প্রক্রিয়াকরণ ও পূর্বাভাসের মাধ্যমে, আলগে ারিদম সৃষ্টি করে বিভিন্ন প্রকারের চলমানতার। এই ভাবেই আলগে ারিদম চালায় অর্থের বাজারকে, বা পরিবহন ব্যবস্থাকে বা যে ােগায়ে ােগের পরিকাঠােমা াকে। এই ভাবেই আলগে ারিদম সংযে ােগ ঘটায় বিশ্বব্যাপী সরবরাহ ব্যবস্থায় আর একইসাথে ঠিক করে দেয় কে াখায় কখন কিসের সংস্থান হওয়া দরকার। পুঁজির কে াখায়, কীভাবে মুনাফা বাড়ে এবং শ্রমকে কীভাবে করা যায় আরও উৎপাদনশীল, আলগে ারিদম ক্রমাগত তার অঙ্ক কষে। আলগে ারিদমের এই যে রূপান্তরিত দুনিয়া সেখানে অবশ্য ক্রমশই অবান্তর হয়ে যায় পুরনে া বিশেষজ্ঞরা।

CHAINS

Chains supply. Chains connect. Chains bind. Chains link multiple units into single linear systems. Chains produce value. Chains join enterprises through relations of subcontracting and outsourcing. Chains proliferate difference within structures of economic power. Chains balance robustness against agility. Chains stimulate standardization. Chains grow gaps between rich and poor. Chains generate varied forms of hierarchy and exclusion. Chains connect diverse firms and labour forces (Tsing). Chains mobilize the political fantasy of hitting at the weakest link. Workers of the world have nothing to lose but their chains.

চেইন একাধারে শিকিলের বাঁধন, আবার চেইন তৈরি করে সম্পর্ক এবং সেই সম্পর্কের মাধ্যমে চলে সরবরাহ, যে ােগানের প্রক্রিয়া। আলাদা আলাদা উপাদান বা অংশবিশেষের সংযে ােগ করিয়ে একরৈখিক ব্যবস্থার সূচনা করে চেইন – এই ভাবেই চলে চেইনের মাধ্যমে মূল্যের উৎপাদন। চেইন ভিন্ন ভিন্ন উদ্যে ােগকে একে অপরের সাথে আউটসে ারসিং বা ঠিকাদারি

মাধ্যমে যুক্ত করে। চেইনের ফলে তাই যে োগায়ে োগ ঘটে বিবিধি শিল্প–প্রতিষ্ঠান ও নানাবিধি শ্রম–শক্তির। অর্থনৈতিক ক্ষমতার কাঠামো ার মধ্যে এক ধরনের বহুমাত্রিকতার ক্রমবৃদ্ধি ঘটায় চেইন। যেকে ানে ো ব্যবস্থাপনায়, বলিষ্ঠতার সাথে তৎপরতার ভারসাম্য রক্ষা করে চেইন। চেইনের দুনিয়ায়, বিভিন্ন মানদণ্ড তৈরি করা হয়ে ওঠে অত্যন্ত প্রয়ো জনীয়। চেইনের পাকে অবশ্য ব্যবধান বেড়েই চলে ধনী ও গরিবের। এ ছাড়াও চেইনের ফলে উৎপন্ন হয় নানারকম থাকবন্দীকতা ও বহিষ্করণের ধারা। চেইন থাকলেই অবশ্য অবিরাম চলতে থাকে তার দুর্বলতম গাঁটে আঘাত করে তাকে ছিন্নভিন্ন করার রাজনৈতিক স্বপ্ন–দেখা। দুনিয়ার মজদুরদের তাই তাদের চেইন বা শিকলগুলি ছাড়া আর কিছুই হারাবার নেই।

ZONES

Zones are territories for organizing logistical operations. With historical precedents in free ports, pirate enclaves and colonial concessions, zones have multiplied their presence in the contemporary global landscape. Zones are instruments of market rationality subject to irrational proliferation. Zones generate undeclared forms of polity (Easterling). Authoritarian capitalism conjures zones as spaces where anything can happen, liberal democracy presents them as hideaways for its constitutive coercions. Neither sites of transition nor development, zones are spaces where dispossession meets exploitation. Zones are not fields for your ethnography. Keep out and don't ask questions!

লজিস্টিকাল কার্যকলাপ সংগঠিত যে সব এলাকা–ভিত্তিক ঘেরাটে োপে, সেগুলিরই চলতি নাম জে ান। জে ানের ঐতিহাসিক পূর্বসূরি হতে পারে খে ালা, অনিয়ন্ত্রিত বন্দর, জলদস্যুদের আস্তানা বা ব্যবসা করার বিশেষ ঔপনিবেশিক অনুদান। বিশ্বব্যাপি বাণিজ্যকক্ষেত্রে জে ানের সংখ্যা ক্রমেই বেড়ে চলেছে। আদপে বাজারি যে ৌক্তিকতার হাতিয়ার, এই জে ানগুলি এহেন এলে োপাথারি বিস্তারের যে খুব একটা যুক্তিযুক্ত ভিত্তি আছে, তা নয়। জে ান কিছু অঘে াষিত রাজত্ব তৈরি করে যা স্বৈরাচারী পুঁজিবাদের কল্পনায় এমনই সব অঞ্চল যেখানে যা খুশি তা করা যায়। আবার উদারপন্থী গণতন্ত্রের মূলে রয়েছে যে ধরণের বলপ্রয়ো গের সম্ভাবনা, তা সকলই বাস্তবায়িত হয় জে ানের গে োপনীয়তায়। জে ান তাই উন্নয়ন বা উত্তরণ, কে ানটারই অবস্থান নয়। জে ানে বরঞ্চ এক অদ্ভুত সন্ধি ঘটে শে াষণ ও দখলের। জে ান তাই ঠিক নৃকুলবিদ্যাচর্চা করার জায়গা না। কারণ জে ান মানেই – 'ভিতরে ঢুকে ো না আর কে ান প্রশ্ন করে ো না!'।

CORRIDORS
Corridors connect zones. Corridors bundle infrastructure along axes to narrow space and accelerate time. Corridors establish channels or pipelines of movement that intensify logistical organization and its accompanying tensions and conflicts. Stable regulations, well-developed communications, efficient transport systems and uniform software implementations are the basic requirements for establishing corridors. Yet corridors cross borders and negotiate variegated conditions of capitalism. Corridors string governance across gaps of knowledge and topography. Power vacates the office. Decisions are made in the corridor.

করিডর বা চলপথ সংযোগ ঘটায় দুটি বা তার বেশি জোনের। করিডর বিভিন্ন নিরদিষ্ট অক্ষে পরিকাঠামোকে সম্মিলিত করে সময়ের ক্রমাগত গতিবৃদ্ধি আর স্থানের ক্রমান্বয়ে সংকোচন ঘটায়। করিডর এভাবেই স্থাপন করে চলমানতার বিবিধ পাইপলাইন বা চ্যানেল যার মাধ্যমে লজিস্টিকাল কার্যকলাপ হয় আরও সংগঠিত, আবার তার আনুষঙ্গিক টানাপোড়েন ও দ্বন্দগুলি হয় আরও তীব্রভাবে মূর্ত। করিডর তৈরি করার জন্য আবশ্যিক কিছু সুপ্রতিষ্ঠ বিধিনিয়ম, সুগঠিত যোগাযোগ ব্যবস্থা, কার্যকরী পরিবহন ব্যবস্থা এবং কিছু একনিয়মানুসারী সফটওয়ার পদ্ধতি। পুঁজিবাদের পরিবর্তনশীল নানান অবস্থার সাথে যুঝতে যুঝতে করিডর অতিক্রম করে বিভিন্ন দেশের সীমা। এইভাবে করিডর শাসনের কাজকে জ্ঞানগত বা ভূসংস্থিতি নানা ব্যবধান বা ফাঁকফোকরকে অতিক্রম করায়। সমসাময়িক ক্ষমতা তাই আজ অফিস-দপ্তর ছেড়ে তার সমস্ত সিদ্ধান্ত নিচ্ছে করিডরে।

OPTIMIZATION
All optimization is partial. Optimization modifies design to improve efficiency and performance. Optimization is the art and science of the tweak. Optimization drives labour hard. Optimization is clean. Optimization marshals mathematics to the ends of capital. Optimization generates externalities of time and dirt (Douglas). Linear or quadratic, unconstrained or bound, optimization embraces variables but shuns deviation. Optimization transcends heuristics. Optimization divides the world into levels or orders, selecting or finding possibilities within hierarchies. Optimization is not utopian. Optimization settles for the sufficiently good.

অপ্টিমাইজেশান, অর্থাৎ যেকোনো প্রক্রিয়াকে সর্বাধিকভাবে ফলপ্রসূ করা, সর্বদাই আংশিক ভাবে

সক্ষম। অপ্টিমাইজেশানের কাজ ব্যবস্থাপনার বিভিন্ন নক্শা বদলাতে থাকা, যাতে কার্যকারিতা ও কর্মক্ষমতা ক্রমাগত বৃদ্ধি পায়। সেই অর্থে অপ্টিমাইজেশান হল ব্যবস্থাপনার ছে'টি-ছে'টি প্যাঁচের শিল্প ও বিজ্ঞান। অপ্টিমাইজেশান তাই শ্রমকে নিরন্তর চালনা করার আরেক উপায়। অপ্টিমাইজেশান পুঁজির কাজে গতিকে ব্যবহার করে বলে, অপ্টিমাইজেশানের পদ্ধতি আপাত ভাবে খুবই সাফ-সুতর, পরিস্কার। অপ্টিমাইজেশানের পরিসীমায় অবশ্য ক্রমাগত উৎপাদন হয়ে চলে সময় ও ময়লার উপক্ষয়। একরৈখিক বা 'চতুর্মাত্রিক' (কোয়াড্রাটিক), স্বাধীন বা আবদ্ধ, সমস্ত ধরনের চলরাশি নিয়েই খেলা করে অপ্টিমাইজেশান। কিন্ত চলরাশি নিয়ে কাজ করলেও, অপ্টিমাইজেশান কোন পথ বিচ্যুতি কোন ভাবেই সহ্য করে না। অপ্টিমাইজেশান, যথাযথ নিয়মানুগ ভাবে যেকোনো সমস্যার অনুসন্ধান বা সমাধান থে'জার (বা হিয়রেউিস্টিক) মধ্যে সীমিত থাকে না। এই পদ্ধতিগত সীমানাকে ছাপিয়ে গিয়ে অপ্টিমাইজেশান নিজের একটি ব্যবস্থাপনার পৃথিবী তৈরি করে যা ভাগ করা থাকে বিভিন্ন স্তরে, ক্রমে বা বর্গে, এবং এই থাকবন্দি স্তরবিন্যাসের মধ্যেই হয় বিভিন্ন সম্ভাবনার চয়ন অথবা নতুন সম্ভাবনার থে'জ। অপ্টিমাইজেশান তাই কোন সর্বোত্তম ফলপ্রদতার কল্পনা নয়। অপ্টিমাইজেশান আসলে পর্যাপ্তভাবে উপযুক্ত প্রক্রিয়া বা পরিণামের সন্ধ্যান।

CONTINGENCY

Contingency is the nightmare of logistics. Contingency is more than unpredictability or randomness. Contingency registers the force of material practices and events that disrupt logistical operations. Labour strikes, software glitches, inventory blowouts, traffic gridlocks – all interrupt the desire for a smooth world that animates logistical interventions and fantasies. Contingency produces variation and movement that prompt the invention of standards and protocols. Contingency demands 'fault tolerance' to make logistical worlds seamless. Once a normative state has been achieved, disruption and renewal can happen again. Contingency makes logistics.

কন্টিন্‌জেন্সি বা আকস্মিকতা হল লজিস্টিক্সের দুঃস্বপ্ন। আকস্মিকতা সাধারণ অনিশ্চয়তা বা যদৃচ্ছতার চেয়ে অনেক গুরুতর এক ব্যাপার। আকস্মিকতার ধারনার মধ্যে রয়েছে বাস্তবিক চর্চা ও ঘটনাপ্রসূত সেই সকল শক্তির খতিয়ান যার ধাক্কায় লজিস্টিকাল কর্মপদ্ধতি হয় ব্যহত বা বিপর্যস্ত। শ্রমিকদের ধর্মঘট, সফ্‌টওয়ারের ত্রুটি, আগার বা গুদাম ব্যবস্থায় বেমক্কা ফাটল, যাতায়াত ক্ষেত্রের পাকান

জট — এই সবই লজিস্টিকাল কর্মপদ্ধতির একটি মসৃণ, নিরবচ্ছিন্ন জগত তৈরি করার উদ্দেশ্য বা বাসনা আর তার বাস্তবায়নে ঘটায় ব্যাঘাত। আকস্মিকতার ফলে উত্পন্ন হয় অবস্থান্তরের যে সম্ভাবনা বা আন্দোলন তারই সাথে খাপ খাওয়াতে ক্রমাগত আবিষ্কার করে যেতে হয় নতুন নতুন মানদণ্ড বা প্রোটোকল। আকস্মিকতার সাথে বোঝাপড়া করার জন্য চাই বিভিন্ন 'ত্রুটি'কে সহ্য করার ক্ষমতা বা 'ফল্ট টলারেন্স' যার মাধ্যমে চেষ্টা চলে লজিস্টিকাল জগতকে এক সুষম, নিরবিছিন্ন রূপ দেওয়ার। এর পরও কোন স্থিতিশীল, আদর্শ অবস্থা যদি সাধন হয়েও, তাতে ভাঙ্গন ধরা অথবা সেই জগতের নবীকরণ শুরু হতে পারে পুনরায়। তাই আকস্মিকতা এক ভাবে লজিস্টিক্সের জনকও বটে।

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Logistical Worlds – Moving through the Burrabazar district along Kolkata's Strand the immediate buzz of hustling and trade obscures the crumbling warehouses that line the thoroughfare. According to a popular saying, 'Everything is available in Burrabazar'. This ethos of ready supply, at least for those who are prepared to haggle (and almost everyone is), comes with an infrastructural and informational layer. 'Everyone wants to buy cheap and sell dear', writes Clifford Geertz in a classic article on the bazaar economy from the 1970s. 'In the bazaar information is poor, scarce, maldistributed, inefficiently communicated, and intensely valued'. What are the material conduits that support this game of information procurement and coveting and what are the historical and political conditions that have allowed it to flourish?