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MANAGING PORT REFORMS IN INDIA:

Case Study of Jawaharlal Nehru Port Trust (JNPT)

Mumbai

By

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Abstract

JNPT was established with the goal of creating a world-class port in India. Indeed, it clearly enjoyed an edge over other Indian ports with respect to both infrastructure and performance even in the pre-reforms period. However, it suffered from some of the inherent drawbacks ailing the Indian port sector that prevented it from achieving world standards in port efficiency. As the most modern among Indian ports, and also the one with the least labor problems, JNPT was the natural choice as a test case in privatization of port operations. This paper discusses the key reforms at JNPT, their formulation and implementation. It is clear that the reform process was well designed and optimally sequenced with active participation of a wide range of actors. The nitty-gritty of the reform process at JNPT was not imposed top-down. The reform has been a reasonable success. With the creation of a new private terminal and the follow-up measures undertaken thereafter, JNPT has demonstrated its capability to enhance efficiency of the public terminal through the introduction of intra-port competition and it has succeeded in earning the distinction of being the world's 29th largest container port.

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THE INDIAN PORT SECTOR: AN OVERVIEW

Institutional and Regulatory Framework

India has almost 5560 km of natural peninsular coastline strategically located on the crucial East-West trade route, which links Europe and the Far East. The coastline is serviced by 12 major ports and about 180 minor and intermediate ports. Ports have assumed enormous importance in the era of globalization with a phenomenal expansion in world trade. The volume of cargo traffic in Indian has also expanded significantly. Total throughput of all the major ports taken together was 313.53 million tonnes in 2002-03, an increase of almost 15 times since 1950-51, the beginning of the First Five Year Plan, when India embarked on the path of economic development. In this study, we focus exclusively on the major ports of India, in the context of a case study of the Jawaharlal Nehru Port Trust (JNPT). This is, however, not to undermine the role of minor and intermediate ports in the Indian economy.

The 12 major ports, placed under the Union list of the Indian Constitution, are statutory bodies (trusts) administered by the Government of India under the Indian Ports Act, 1908 and the Major Port Trust Act, 1963.¹ The ***Indian Ports Act (1908)*** lays down rules regarding safety of shipping and conservation of ports for the entire port sector and regulates matters pertaining to the administration of port duties, pilotage and other charges. The ***Major Port Trust Act (1963)*** lays down the institutional framework for the major ports in India. Accordingly, each major port is governed by a Board of Trustees appointed by the Government of India. The composition of these Boards reflects greater government representation compared to private interest groups. The trustees exercise limited power and are bound by directions on policy matters and orders from the Government of India. The port trusts are expected to serve public interest rather than maximizing profits or revenues, while at the same time, ensuring optimum deployment of assets.²

The working conditions of port labor are governed by the ***Dock Workers (Regulation and Employment) Act of 1948***, which stipulates the terms and conditions of port labor employment, service rules standards and other welfare issues in the interest of port and dockworkers. The Act is highly protective of workers' rights and offers them complete job security. Under this legislation, ***Dock Labor Boards (DLBs)*** were set up at seven major Indian Ports (Calcutta, Chennai, Cochin, Kandla, Mormugao, Mumbai and Visakhapatnam). Establishment of a DLB, however, was discretionary, and depended upon the individual port trust and the government. The DLBs are exclusive suppliers of dock labor, who work on vessels. The shore labor, on the other hand, is employed by the port trusts themselves. The issue of complete interchangeability between dock and shore labor, for ensuring optimal labor utilization, has been under active consideration by the Government. This interchangeability, however, requires merging of the DLBs with port trusts. But there is no provision for such mergers under the Dock Workers Act, 1948. Accordingly, an amendment to the Act was passed by the Indian Parliament in 1997 for facilitating merger of the DLBs with port trusts. Subsequently, three DLBs (Cochin, Chennai and Mormugao) have been merged with the respective port trusts, while the Mumbai port DLB has been superceded.

The regulatory framework also includes shipping laws (*Merchant Shipping Act of 1958*) and environmental regulations (*Environment Protection Act of 1986*).

The Pre-Reform Scenario

Prior to the introduction of the new economic policy in the early 1990s, India had followed an inward looking development strategy of import substitution and self-reliance, where trade and exports received very little attention. Imports were largely restricted to oil, fertilizers and essential foodstuff, imported in years of crises, while equipment and machinery, as well as other intermediate goods, were subject to strict import-licensing requirements. Thus, Indian ports handled mainly bulk cargoes transported in full shiploads. With the ushering in of the era of *globalization and liberalization* in India in the early 1990s and a gradual shift to a more *outward oriented trade regime*, there was not only a *massive expansion in the volume of India's sea borne trade*, but also a *change in the composition of Indian port traffic* from break bulk to liquid bulk (due to industrial growth and declining domestic production of POL) and containerized cargo (driven by trends in global logistics).³ The Indian port sector was *supply-constrained* to handle such massive *demand* expansion due to inadequate and inappropriate capacity, and capacity underutilization.

Supply Constraints:

Inadequate capacity

The major ports handled about 179.02 million tonnes of traffic in 1993-94 as against an estimated capacity of about 173.04 million tonnes implying a capacity over-utilization of almost 3.5%. This figure rose to a peak of 21.5% in the year 1995-96 before it started declining. A reason behind such over-utilization may lie in the use of general cargo berths for unloading and loading of containerized and bulk cargo in the absence of dedicated berths for each category. Apart from such quantitative capacity constraints, the major ports were also characterized by qualitative inadequacies. Outdated layout of berths, outmoded cargo handling equipment, insufficient maintenance and inadequate operational dredges rendered Indian ports operationally unsuitable for modern cargo handling. Attachments for handling specialized cargo as well as the number of technicians trained to handle modern equipment were in short supply. Moreover, in the logistic chain, land transport capacity was insufficient. Railways lacked the necessary equipment and structure to ensure steady flow of container traffic and concentrated on mainly bulk transport instead. Poor road linkages with ports also impeded the flow of cargo.

Underutilization of existing facilities

Apart from serious obstacles posed by inadequate capacity, the major ports of India were also characterized by problems of underutilization of existing facility. Several berths for traditional cargo, whose significance had diminished over time, remained unutilized. Underutilization of port capacity also occurred due to multiple management control and inadequate communication between port staff, customs authorities, stevedoring companies, transport authorities etc. This was further compounded by lack of synchronization of interdepartmental working times within the port trust itself and absence of pre-arrival planning and work scheduling.

Overstaffing and low productivity of port labor further aggravated the situation. For instance, overstaffing, reflected in the number of workers employed for transfer of containers from ships to quay, was the highest for Kolkata port at 32. For container stuffing/de-stuffing, Kolkata and Mumbai employed as many as 28 workers. As regards low port productivity, in 1998-99, Indian ports handled an average of around 1,424 tonnes per employee. In comparison, ports in U.K. handled around 47,000 tonnes of cargo per employee in 1997-98 while the Port of Rotterdam handled 50,500 tonnes per employee in 1998-99. Colombian ports, post-reform, handled 4,200 tonnes of cargo per employee per day in 1996. The provisions of the Dock Workers Act made it almost impossible to downsize port employment in India to a more optimal level and achieve higher labor productivity in the port sector.

Consequences for Port Efficiency

The immediate consequence of the above constraints and inadequacies was poor operational efficiency of Indian ports. In terms of most performance indicators, Indian ports lagged behind their foreign counterparts. As is evident from Table 1, earlier, ***average ship turn around time (ASTA)*** in India used to be exceptionally high (11.9 days in 1984-85) and despite having progressively declined in the 1990s, stood at 5.23 days in 1998-99, which was one of the highest among Asian ports.⁴ ***Average ship berth output (ASBO)*** of the Indian ports displayed a slow rising trend over the decade of 1980s, before declining in the mid-1990s, and stood at 5,904 tonnes per berth day in 1998-99.⁵ ***Average pre-berthing delay*** was also on the higher side (3.6 days in 1984-85) before coming down to 1.64 days in 1998-99.⁶ These were largely due to capacity constraints that led to operational delays and unnecessary crowding of the port area. As a result, in India, ships had to wait for berths instead of the other way round. ***Share of idle time at berth to total time*** for major Indian ports was actually on the rise since the decade of the 1980s, reaching a high of 42.8% in 1993-94, and declining only in the late 1990s to 32.92% (1998-99).⁷ Notwithstanding some improvement in the 1990s in all these performance indicators, Indian ports failed to compare favorably with foreign ports on any of these accounts.

Inefficiency of Indian ports resulted in ***higher through-port and sea transport costs***, making cargo shipped from Indian ports cost-inefficient and non-competitive in international markets.⁸ Coupled with this, the long waiting time discouraged large cost efficient vessels and ship liners from touching the Indian ports. Consequently, Indian container cargo had to be transshipped in Colombo, Dubai or Singapore, resulting in additional costs and transit times.

Operational delays also gave rise to ***corrupt practices*** like payment of “speed money” directly to individuals to speed up operations, as well as high custom agent charges. These were estimated to comprise between 10%-20% and 20%-40% of container through-cost respectively.⁹ Finally, overstaffing resulted in further escalation of costs, making Indian ports highly uncompetitive. As discussed later, the costs of such inefficiencies were ultimately borne by the users in terms of overpriced imports and uncompetitive exports.

The combined financial performance of major ports indicated an almost four-fold increase in ***operating surplus*** from Rs. 323.4 crores in 1989-90¹⁰ to Rs. 1,216.68

crores in 2002-03. The trend had dipped from 1998-99 but has picked up again since 2001-02 (See Charts 1 and 1A and Table 2). However, it ought to be noted here that such operational surpluses did not necessarily reflect the actual profitability of Indian ports since a large portion of these surpluses were accounted for by demurrage charges and other kinds of rent earned by ports due to inherent inefficiency of the port sector.

Losers and Gainers

The primary losers in the context of the inefficient pre-reform scenario prevailing in the port sector were the ***Indian exporters and importers***. Inefficient port services raised transport costs of exports and imports. Sundar (1999) estimated that the annual incidence of various factors like demurrage charges, transshipment costs, pre-berthing delays and vessel turnaround time might have been as high as US\$ 1.5 billion per annum. Moreover, transshipment through Colombo, Dubai or Singapore prevented the Indian exporters from availing “fixed-day-of-the-week-services” offered by the liner industry at a time when manufacturing and trading companies abroad were increasingly selling and buying on a “just-in-time” basis. Indian exporters were thus operating on the basis of substantial buffer stocks, which made them even less competitive in global markets. High cost imports adversely affected domestic producers who used imported raw materials and equipment as well as domestic consumers. In particular, higher costs of imported inputs had strong input-output linkage effects of raising production costs across the board, with its consequent adverse effects on the entire ***national economy***.

The inefficient port sector also posed a major burden on the national exchequer. While, owing to their trust status, the ports did not have to pay taxes to the ***Government of India*** (GOI) (either on property or on commercial activities such as cargo handling and storage), they did receive budgetary allocations from the GOI for maintenance, expansion and new investments. The total deficit under the ‘ports & lighthouses’ head of the Ministry of Shipping shows an increasing trend during the period 1999-00 to 2001-02 (from Rs 242.77 crore in 1999-00 to Rs 287.02 crore in 2001-02). The higher deficit has largely been due to a steady increase in expenditure, particularly revenue expenditure (from Rs 384.96 crore in 1999-00 to Rs 408.33 crore in 2001-02). The bulk of the increase in revenue expenditure has arisen from the ‘non-plan’ category, which implies higher outgo on current expenses, rather than productive investment. Unproductive use of such funds causes a drain of public money, leading to loss of national output.

The parties that gained significantly from such a situation were the individual ***port trusts***. Profitability was not a major concern of the port trusts and hence, they were hardly affected by inefficiencies in port operations. In fact, inefficiency often contributed to their revenue earnings in the form of demurrage charges on cargo stored for a long time on port premises. This represented nothing but a rent earned by the inefficient port system. Indeed, many of the ports recorded high operating surpluses, often overestimated due to the fact that depreciation and user-cost of capital were not adequately accounted for.

Port labor was also among those who gained from an inefficient port sector. Overstaffing implied that the number of laborers employed far exceeded the optimum

level. Being one of the most strongly unionized labor lobbies in the Indian economy, port labor enjoyed significant representation in the Boards of Trustees of major ports, which made retrenchment of excess labor an exceedingly difficult proposition.

The inefficiencies of the port sector also gave rise to certain *unethical practices* like acceptance of speed money and high custom agent charges in order to expedite port operations, which worked to the benefit of *private individuals, often in connivance with port personnel*, as well as employees in customs and other agencies.

Port Reforms in India: Motivation and Key Issues

In the new international economic order, ports were no longer mere modal interfaces between surface transport and sea transport. They were now logistics and distributional platforms in the supply chain network that drove trade competitiveness. International trade had become very transport intensive and time sensitive making speedy cargo movement central to meeting the challenges facing Indian ports in the wake of globalization and liberalization.

As discussed above, the Indian port sector was plagued by problems of inadequate capacity on the one hand, and operational inefficiency and sub-optimal use of existing facilities on the other. Both constituted the key driving forces for port reforms in India.

It was estimated that by the end of the Ninth Five Year Plan (2002), the Indian port sector required to be equipped with roughly 420 MT of capacity during the Ninth plan period. Nearly 70% of the additional capacity expansion was envisaged in the major ports, with an aggregate investment requirement of Rs.16,000 crore. Public resources (Central budgetary support, internal resources of ports and borrowings) were expected to muster only 50% of the estimated investment. In order to bridge the resource shortfall, reform measures, aiming to invite private sector participation, had to be undertaken in the port sector.¹¹

However, *resource mobilization* for investing in capacity creation was not the sole motivation for reforms. Provision of *cost-efficient service* to customers was an equally important objective, especially arising out of public sector ownership of ports that created the usual problems of accountability and inefficiency. Hence, there was an urgent need to structurally reform the Indian port sector.

Port reforms in India involve *four sets of key issues*. There are *policy issues* pertaining to private sector participation (PSP), corporatization, competition and connectivity. There are also *organizational issues* concerning labor, equipment and management (coordination). *Capacity issues* of port reforms relate to capacity augmentation, creation of new facilities in existing ports, creation of new ports and feasibility of hub ports. Finally, there are *regulatory issues*, which include safety and conservancy regulations, environmental regulations and economic regulations, namely tariffs and entry. In Annexure I, we highlight these key issues of port reforms in the context of India, particularly focusing on the type of reforms deemed necessary and appropriate for revitalizing the Indian port sector. This serves as a benchmark for the analysis presented in the rest of the report.

Evolution of Port Reforms Policy in India

The reform process was initiated in the Indian port sector during the decade of the 1990s. The Indian economy's gradual integration with the global economy and the sharp growth in industrial output induced by the new liberalization policies made it imperative to improve the quality, and expand the capacity, of the country's physical infrastructure for sustaining industrial growth. This called for a large step-up in infrastructure investment. Public resources, however, were insufficient for creating the size of infrastructure envisaged. Accordingly, it was decided to involve the private sector in core infrastructure services like electricity generation, telecommunications, roads and highways, and ports.

Port reforms in India, therefore, were *not 'stand-alone' reforms* by themselves. They were part of a broader strategy of infrastructure development through private participation,¹² the key motivation behind which was the urgent requirement for additional resources. The initial policy directions encouraging private participation in port operations were broadly indicative in nature.

In 1994, the *Ministry of Surface Transport (MoST)* of the Government of India, which was the nodal agency overseeing the Indian port sector, published a policy document specifying the broad contours of desired reforms in the sector (*MoST, 1994*). The document highlighted the intention of the government to create a more conducive atmosphere for privatizing key port facilities and amending the governing rules, regulations and procedures accordingly. The document, however, refrained from adopting an aggressive posture towards reforms by specifying that involvement of private initiative will not entail changes in the existing labor laws, and by capping the tariffs charged by private operators within limits specified by the government. Private sector participation was being essentially sought in areas where the former could offer attractive rates of return on the port assets leased out and also assure no retrenchment of labor over a given period of time.

A clearer direction to India's port reforms was provided by *World Bank (1995)*. The report drew attention to the various inefficiencies prevailing in India's port sector and emphasized upon the nature of reforms required in various segments for turning around the sector. Apart from indicating the required legislative changes and relevant reforms relating to port labor, the World Bank report spelt out the modalities for private sector involvement in Indian ports.

The first policy guidelines for private sector participation (PSP) (domestic and foreign) in major Indian ports were announced by the *Ministry of Surface Transport in October 1996 (MoST, 1996)*. The guidelines pertained to clauses regarding collaborations between major ports and foreign ports, minor ports, and other private operators, respectively. The announcement of the guidelines implied that future development of ports would no longer be in the exclusive domain of the public sector. The 1996 policy guidelines specified four areas for privatization. These were:

1. Leasing out existing assets and construction of new assets: Major ports were permitted to lease out their existing assets to private entities. Permission was also granted for entering into contractual arrangements with private developers for construction/creation of new assets like container terminals, cargo berths,

- warehousing, storage facilities, tank farms, craneage equipment, captive power plants, dry-docking and ship repair facilities.
2. Leasing of equipment and floating crafts: Permission was granted to major ports to lease out modern equipment and floating crafts to the private sector.
 3. Pilotage: The need for privatization will be assessed by the port trusts on the basis of existing floating crafts /pilots and the period of contract will also be determined by them.
 4. Captive facilities for port-based industries: Major ports were allowed to lease out 100% captive facilities (including oil jetties, platforms etc.) to port-based industries.

In introducing *private sector participation (PSP)* in the port sector, the government decided to adopt the 'landlord port' model propagated by the World Bank. This particular model distinguishes between the port owner and the port operator. Application of the model implies that the government (major port trusts) progressively relinquishes the responsibility of providing operational port services and their management to private developers through various contractual agreements.

In India's port sector, these agreements have been in the form of ***Build-Operate-Transfer (B-O-T)*** schemes, chosen from tenders collected through open bidding processes, where the private sector takes over the development and management of port facilities (e.g. berth and cargo terminals) for a specified period. The government, however, retains the right of ownership over port land. The period of lease was to be restricted to a maximum of thirty years, at the end of which, the assets were to be reverted back to the port free of cost.

Introduction of these new guidelines did not require any significant ***legislative amendments***. The Sections 34(1) and 42(3) of the Major Port Trusts Act, 1963 permitted the leasing out of a major port's immovable and movable property (viz. land, berths, super structure etc.) to private entities. The construction of new facilities by private parties was also permitted by the Act, as was performance of any of the port services by a private party on terms and conditions fixed with the approval of the Central Government. The executive branch of the Central Government could, therefore, carry out the decision of PSP in the port sector on its own.

One of the subsequent changes in the policy guidelines relates to the issue of return of assets by the private agency to the major port at the end of the lease period. The policy guidelines issued in October 1996 stipulated that the assets would be returned to the port at the end of the B-O-T period 'free of cost'. This condition has subsequently been amended. Presently, it is specified that 'port-related assets' will be returned at the end of the B-O-T period 'in accordance with the conditions of the Agreement'.

As a first attempt to establish a regulator for the port sector, a ***Tariff Authority for Major Ports (TAMP)*** was set up in 1997 for regulating tariffs in major ports. The TAMP fixes tariff ceilings for services rendered by major ports. The major ports are free to fix tariffs on various services at any level, which is less than the notified tariff ceilings prescribed by the TAMP. It is mentionable in this context that TAMP's mandate is limited to only notification of the tariff bands. It doesn't have any quasi-judicial authority like regulators in other infrastructure sectors (e.g. Telecom

Regulatory Authority of India (TRAI), the Central Electricity Regulatory Commission (CERC) etc.).

In 2001, India's first *corporate port* was set up at Ennore near Chennai. The government has decided to progressively corporatise all the existing major ports for ensuring their functioning on commercial principles. In this regard, it has introduced the ***Major Port Trust Act Amendment Bill, 2001*** in the Parliament. The JNPT is slated to be corporatised next, as proposed in the Union Budget for 2001-02. However, the process of corporatisation is yet to begin due to the delay in the passage of the legislation introduced in the Parliament.

CASE STUDY OF JAWHARLAL NEHRU PORT TRUST, MUMBAI

Introduction: The Birth of JNPT

Among the 12 major Indian ports, the Jawaharlal Nehru Port Trust (JNPT) occupies a place of prominence. Commissioned in 1989 and located within the Mumbai harbor on the west coast of India, JNPT is the second youngest and one of the most modern major ports of the country. Certified an ISO 9002 port, it was initially planned to be a “satellite port” to the Mumbai Port with the purpose of decongesting traffic at the latter. Being one of the oldest ports in India, the Mumbai port was proving to be structurally inadequate to meet the requirements of modern cargo handling. Shallowness of the channel, congestion of roads and railways through the Mumbai city linking the port to its hinterland, as well as labor problems, including over-manning, were among the major problems ailing the Mumbai Port in the pre-reform days. As a result, the Port was simply incapable of handling the expanding volume of modern cargo directed to the west coast and there was an ***urgent need for a new port*** in the Mumbai region, which eventually led to the birth of JNPT in 1989. The port was completed at a cost of Rs. 1,109 crores, out of which Rs. 956.97 crores were obtained as loans from various funding agencies, with the World Bank being one of the major contributors (See Table 3).

Although JNPT was initially being planned as a “satellite port” to Mumbai under the Mumbai Port Trust, eventually however, the JNPT was developed as an independent port on its own right and it became the country’s largest container port, presently handling about 60% of India’s container cargo.¹³ In fact, a recent study by the International Association for Ports and Harbor (IAPH) based on throughput data in 2002 has ranked JNPT as the ***29th largest container port in the world***.¹⁴ The land area in possession of the JNPT measures 2,584 hectares with enough back-up area ideally suited for developing additional facilities for future maritime requirements of the country.

Equipped with ***one of the most modern cargo handling facilities*** among major Indian ports, JNPT started operating with two dedicated terminals, one for handling import and export of containerized cargo, with 8 container freight stations, and the other for handling dry bulk cargo. JNPT has also been a pioneer in running its day-to-day operations with the help of information technology (IT), including Electronic Data Interchange (EDI) and vessel traffic management system (VTMS). JNPT enjoys very good road and rail linkages with its hinterland as well as important business centers like Thane, Nasik and Ahmedabad, which facilitate excellent port-industry interface. JNPT is also characterized by highly automated and round-the-clock operations and has demonstrated enough potential and capacity to develop as India’s first major hub port.

Overview of JNPT in the Pre-Reform Scenario

Against the pessimistic profile of the Indian port sector in the pre-reform scenario, JNPT stood out as a prominent exception in several ways. Indeed, one of the main objectives behind the establishment of JNPT in 1989 was to overcome the existing deficiencies and anomalies that characterized the Indian port sector.

Equipment and Infrastructure

At the time of its inception, JNPT was equipped with ***modern container and bulk handling facilities***, with a separate terminal dedicated to each type of cargo. In particular, the container terminal of 680 meter quay length (three berths) was designed and equipped to handle large container vessels. JNPT was also provided with adequate liquid cargo berth, shallow draft berth and multipurpose berths.

Moreover, compared to most other major Indian ports, JNPT enjoyed better ***communication through intensive use of IT***. Right from its inception, it has made ample use of the container tracking and management system as well as the vessel traffic management system (VTMS). The port also has the most advanced Electronic Data Interchange (EDI), which ensured unhindered and efficient interaction between the port, the port users and the customs.

Better ***connectivity*** of JNPT with its hinterland, which facilitated faster clearance of cargo from the port, was ensured by close proximity to National Highways 4B and 17 and other state highways that directly link JNPT to Thane, Nasik and Ahmedabad. The port also enjoyed road connections with 23 inland container depots (ICDs) as well as with the Konkan, Central and Western railway systems. The primary mode of container cargo movement was through road, but railways, operating through the Container Corporation of India (CONCOR), also accounted for about 33% of the same.

It may be noted that terminal charges, including shore handling, storage, delivery etc. at JNPT were the lowest among all major Indian ports.¹⁵

Labor

JNPT was also fortunate to have a relatively young and educated workforce and did not have to carry the baggage of huge labor supply (resulting in massive overstaffing) like Mumbai or Kolkata Ports or problems of militant and unreasonable trade union activities. Unlike some of the other major ports in India, JNPT did not have a Dock Labor Board for recruitment of its workforce. Note that the formation of a DLB was left to the discretion of individual port trusts. Moreover, there was not any clause in the Dock Workers Act (1948) that stipulated any minimum number of laborers the port had to employ, although the existing pool of labor in any port enjoyed complete job security under the provisions of this Act. Both of these points worked in favor of the JNPT authority and helped them avoid the problems of overstaffing which plagued the older ports by being cautious on this issue right from the beginning. Moreover, since selective liberalization of the various sectors had already been initiated in the Indian economy from the mid 1980s, there had been a change in the mindset of the government and the policy makers and there was less pressure on public sector units, especially the new ones, to employ labor in excess of requirement just to fulfill social objective of employment generation.

Thus, on the whole, it is quite apparent that on several accounts, JNPT was different from most of its sister ports right from the beginning and enjoyed distinct advantages.

Port Performance

In terms of port productivity, however, JNPT presented a mixed picture. In some areas, it seemed to have performed well towards the end of the 1990s with respect to other Indian ports, whereas in certain others, its performance can at best be described as modest. Charts 2-5 present performance indicators for all ports for the period 1995-96 to 2002-03, as obtained from the Indian Ports Association.¹⁶

In 1995-96, *average turnaround time* of ships at JNPT (9.03 days) was among the higher ones in India, but it progressively declined to 1.96 in 1998-99, the lowest among all major ports (See Chart 2). *Average pre-berthing time* at JNPT was 2.1 days in 1996-97, substantially lower than that in Kandla, Mumbai and Chennai, but somewhat higher than the rest. By 1998-99, it became 0.83 days, again lowest among all major ports (See Chart 3). Likewise, the *percentage of idle time at berth to total time* at JNPT also exhibited a downward trend. It was the third lowest among major Indian ports in 1995-96 (24.38%) but declined to 9.8% in 1998-99, the lowest among all major ports (See Chart 4). It should be noted that there was a substantial gap between JNPT (9.8%) and Mormugaon (20%), the best performer among the remaining ports in terms of this parameter. On all these counts, JNPT compared favorably relative to other major ports in India even in the pre-reform days.

With respect to *average ship berth output*, however, JNPT's performance was not at par with the best in India. It experienced a massive expansion in *average ship berth output* from 1996-97 (2,987 tonnes) to 1997-98 (6,209 tonnes) and stabilized at that level in the next two years (See Chart 5). It is notable that JNPT's rank among the 12 major ports with regard to ASBO improved from 10th in 1996-97 to just 6th in 1998-99, reflecting no distinct advantage enjoyed by JNPT in this context in the pre-reforms period.

JNPT's financial performance was quite impressive, especially with respect to other major Indian ports (except Kolkata-Haldia), improving from a net operating surplus of Rs. 7.09 crores in 1990-91 to Rs. 228.13 crores in 2002-03. Ever since 1990-91, it has consistently recorded an operating surplus despite some fluctuation in 1996-97. It should be noted that some other Indian ports, like Mumbai, were running losses (See Chart 1 and Table 2).

However, despite comparing by and large favorably vis-à-vis other Indian ports, JNPT failed to achieve the standards of the other efficient ports of the world, as it could not escape certain inherent shortcomings of the Indian port sector in general. For instance, in 1992, even the very modern container facilities at JNPT handled at most 10 containers per hour (of vessel at berth), which probably increased to 11 or 12 containers per hour in 1994 but still fell far short of comparable ports in East Asia, namely Bangkok and Singapore, which handled an average of 38 and 69 containers per hour respectively during the same period.¹⁷ At Singapore, particularly for container ships, the average turnaround time was only six to eight hours,¹⁸ a cut above the levels achieved by JNPT (1.96 days) in 1998-99.

The bottomline is that JNPT clearly enjoyed an edge over other Indian ports with respect to both infrastructure and performance and was perhaps the obvious candidate for the reforms experimentation. However, it did suffer from some of the

drawbacks inherent in the Indian port sector in the pre-reforms era, especially in terms of capacity that prevented it from achieving world standards of port efficiency and performance. No doubt, there was a natural growth of traffic at JNPT and its performance also showed an upward trend, but clearly, it failed to reach its full potential commensurate with growing volumes of container cargo.

Key Reforms at JNPT: Formulation and Implementation

Despite early optimism, JNPT failed to live up to the expectations it had generated regarding its performance. Shortage of crucial equipment acted as a major constraint in this regard because the port was operating with the World Bank-specified original capacity since its inception in 1989 right up to 1994. However, the Port administration soon realized the urgent need to upgrade and augment the port's equipment to ensure larger cargo handling capability.

Equipment Augmentation: 1995-97

In 1995, JNPT undertook the first set of equipment augmenting reform measures to strengthen port facilities. A second set of similar measures was undertaken in 1997. During this period, JNPT acquired three rail mounted quay cranes (RMQCs), six rubber tyred gantry cranes (RTGCs) and two rail mounted gantry cranes (RMGCs).¹⁹ Additional yard capacity in the form of slots was also paved to overcome the capacity constraint.

Due to major resource constraints faced by the port trust for investment in port infrastructure, some of the equipment augmentation in 1995 and 1997 was done on the basis of leasing-in arrangements with private parties. In fact, after April 1999, there has been no equipment augmentation on ownership basis. In case of leasing-in arrangements, the private leaser was responsible for equipment maintenance (including spares and consumables), while the port bore the fuel costs. Also, payment to the private party was determined on availability rather than on actual use basis, implying that the port would be required to pay the relevant charges even if the equipment lay idle. All this was to encourage private parties to invest in port equipment as a profitable proposition, which enabled the port trust to overcome its resource constraint for equipment augmentation.

Equipment augmentation during 1995-97 led to the enhancement of the port's productivity. This is amply reflected in Table 4 in terms of a marked improvement in *berth productivity* as well as a massive rise in *average output per ship-berth day* (in tonnes) in 1997-98. Moreover, since 1998-99, *average pre-berthing detention* in JNPT has consistently remained below one day.

A New Private Terminal (NSICT), 1999

While equipment augmentation with private participation improved port performance somewhat, complete private operation of a terminal, with a view to promoting port efficiency and profitability, was also being contemplated at the same time. This is in line with India's new economic policy, enunciated in the early 1990s, which envisaged a more prominent role for the private sector in the provision of infrastructure services. In this context, MoST (1994), World Bank (1995) and the

Rakesh Mohan Committee (1996) played an important role by drawing attention to the various inefficiencies prevailing in India's port sector and emphasizing upon the nature of reforms required in various areas for turning around the sector.

As the most modern among the existing Indian ports, and also the one with the least labor problems, JNPT was the natural choice as a test case in such privatization efforts. The World Bank report had also pointed out that success in achieving private collaboration in port operations at JNPT would send out firm signals regarding the government's commitment to port reforms.

In January 1994, tender documents were initially prepared for contracting out the container terminal at JNPT to private operators. However, in 1995, the proposal was amended and it was decided to invite *private participation in creating a new container terminal* while retaining the existing one under government ownership and operation. Although it is difficult to pinpoint the specific reasons behind such a change, the arguable reluctance on part of the JNPT authorities to let go of their existing facility might partially explain the decision. Given the fact that port trust boards comprise of representatives from various interest groups that are important stakeholders in port management and operations, it is possible that some of the groups on the JNPT board were reluctant to dilute their control over port ownership and operations. It is worth noting in this context that JNPT's Board of Trustees includes 8 representatives from the government along with 2 labor representatives out of a total of 19 members. These 10 members forming a majority voice in the board may have strong incentives to retain government ownership and operation of the port, an issue that we shall discuss later. Another likely explanation relates to the change at the helm of affairs in the Ministry of Surface Transport. During the period when the privatization programme at JNPT was being finalized, a change of guard at the Ministry saw a more pro-labor minister assuming charge. It is possible that on account of safeguarding the interests of dock labor at JNPT, the ministry assumed a more defensive outlook on reforms, and decided to refrain from privatizing the existing facility.

JNPT issued a global tender for building a new two-berth container terminal of 600-meter quay length on B-O-T basis for thirty years. The bid document, specifying qualifying criteria for responding parties, was on sale from December 26, 1995 to February 15, 1996. The total investment in the project was estimated to be around Rs 900 crores. Thirty firms from India and abroad purchased the bid document and P&O Ports, Australia, was awarded the contract after a competitive bid. Thus, India's first-ever private container terminal, christened the *Nhava Sheva International Container Terminal (NSICT)*, commenced operations from April 1999. It was the first totally automated container terminal to be developed in India with all its operations, right from receiving the vessel bay plans to invoicing, being computerized.

The development of the NSICT terminal is a typical example of the application of the 'landlord port' model, referred to in the last section, which distinguishes between the port owner and the operator. JNPT is responsible for scheduling entry and berthing of vessels, pilotage and towage, dredging, navigational safety, supply of electricity, water supply to terminals and ships and monitoring air and water pollution. NSICT, on the other hand, is responsible for operation, maintenance and repair of port equipment at the new terminal. NSICT is required to

pay royalty to JNPT for guaranteed traffic in the event of not achieving the minimum traffic indicated.²⁰

Although NSICT commenced operation ahead of schedule, its establishment procedure was not hurdle-free. The bidders faced problems with the bidding process, which, they felt, was too long and cumbersome. The bidding documents lacked clarity and precision, making it difficult for the interested investors to understand the clauses accurately. The bidders were sometimes also discouraged by the labyrinths of bureaucratic processing. Even after the new terminal had become operational, any demand for changes in existing facilities were met with a lot of bureaucratic hurdles because the clauses in the agreements were deliberately kept vague so as to empower the bureaucracy to interpret them as per their choice and discretion. These constraints sent out wrong signals to the private sector, creating doubts regarding the sincerity of the government's commitment regarding privatization.

Post-NSICT Reforms Management and Follow-up Reforms, 2000-2003

Despite the obstacles mentioned above, it is to the credit of NSICT that right from its inception, it set a new benchmark of operational performance, comparable to the best international standards. Its success can be attributed to superior productivity parameters as well as state-of-the-art equipment fitted with the latest technology. By offering better customer service and faster turnaround, NSICT started diverting traffic away from the Jawaharlal Nehru Port Container Terminal (JNPCT) that consequently led to a decline in the latter's performance, both in terms of volume of traffic as well as efficiency. This made the JNPT authority realize the importance of further capacity augmentation and following up the reforms introduced prior to the establishment of NSICT with more initiatives in order to compete successfully with NSICT. The post-NSICT reform management process includes four dimensions as discussed below.

Capacity augmentation

It was realized that JNPT's strength lay in the vast land area it owned and that its performance was being constrained by the lack of sufficient equipment. ***Modernization of facilities and augmentation of capacity*** seemed to be the need of the day. Hence, two RMQCs were commissioned in 2002, along with hiring of tractor-trailers, mostly on call-service basis. Reach stackers were also hired, initially from NSICT, and later from other private agencies. The port is also in the process of augmenting the yard equipments in the container terminal by adding 18 RTGCs in the fleet and disposing of four old ones.

In September 2002, JNPT also set up a ***shallow draft berth*** in the lagoon area between the container and bulk terminals that was capable of handling dry bulk cargo like fertilizers, cement as well as general cargo like steel coil, wood pulp etc.

Capacity restructuring

The JNPT authority was of the opinion that there was need to convert non-performing assets into performing ones as part of ***"business process re-engineering"*** through conversion of idle bulk tracks into operational container tracks, for instance.

Moreover, the Port's bulk terminal, which handled both bulk and liquid cargo, had not been performing satisfactorily for some time, leading to low returns. Hence, JNPT contracted with two major public sector oil companies, Bharat Petroleum Corporation Ltd (BPCL) and Indian Oil Corporation Ltd (IOCL), to develop a new ***dedicated state-of-the-art liquid cargo handling facility***, with a designed capacity of 5.5 million tonnes of liquid cargo per annum, on B-O-T basis with the objective of shifting the entire handling of POL (petroleum-oil-lubricant) products and other liquid cargo to this terminal.

It was proposed that the bulk terminal be transformed into a ***third container terminal*** thereby enabling JNPT to wrap up its bulk cargo handling activities and concentrate only on containerized cargo. This will be discussed in detail later.

Financial restructuring

JNPT initiated a proposal for ***capital restructuring***, which suggested clearing the entire principal component of outstanding liabilities (Rs. 487.22 crores as on 31st March 2002) and freezing the accrued interest (Rs. 741.92 crores). JNPT also decided to raise loans worth Rs. 500 crores through open market borrowings for repaying the loans from the World Bank and the Government of India (GOI). The idea was to swap high interest loans for low cost debt. The GOI and World Bank loans were pre-paid by raising the required fund from the open market through non-convertible debenture (NCD) route for liquidating the principal components of both the loans. Meanwhile, the Port has also decided to clear the Mumbai Port Trust loan by paying Rs. 252 crores out of its own resources against the total outstanding of Rs. 279 crores. JNPT is also in correspondence with the Kandla Port Trust for clearing an outstanding loan of nearly Rs. 89 crores. Such financial restructuring will enable JNPT to clear all its debt liabilities along with interests in the near future.

Enhancing labor productivity

The cooperation of labor in the reform management process was extremely vital, especially in the context of operational restructuring. Labor at JNPT was not sufficiently unionized at the time when NSICT was established. Later, however, the labor union became much more effective in looking after the interests of port employees. Unlike in certain other Indian ports, the JNPT labor union today shares a very good rapport with the management. Such a healthy synergy between these two interest groups has minimized conflict arising out of resistance and has played an extremely significant role in JNPT's overall achievements by removing certain operational inadequacies, especially in the context of labor productivity.

For instance, like a number of other Indian ports, JNPT had also fallen prey to certain malpractices like "speed money", which the shipping lines had to pay to port workers (through intermediaries) in order to expedite cargo movements. This prompted the Port Trust to introduce ***official incentive schemes*** for workers that would replace such unethical practices and after some initial hesitation; the labor union cooperated fully and also became a party to the designing and implementation of the scheme. Under this new scheme, the Port itself, rather than the shipping lines, is responsible for making these incentive payments to the workers, thereby turning unaccounted money into official income without any potential loss of earnings for the

workers. The earlier inefficient and illegal system, which benefited individual middlemen much more than the workers themselves, was now replaced by an official system of incentives. One drawback of this incentive structure is that it is based on average rather than individual performance and incentives are distributed equally among all workers. In this context, it is notable that JNPCT borrowed this idea from NSICT, which had such a scheme in place right from the beginning.

Secondly, following the example of NSICT, JNPT also introduced the ***“hot seat exchange” scheme***, which implied that there would not be any break between shifts, thereby leading to an increase in the number of man-hours devoted. This was not a standalone measure but comprised an integral part of a larger scheme of productivity-enhancing measures following the example set by NSICT. The JNPCT labor force finally accepted this scheme because they realized that without such measures JNPCT will be out-competed by NSICT and they will lose out in the long run.

Reform Management at JNPT: A Synthesis

By and large, JNPT demonstrated significant dynamism, capability and ingenuity in designing and implementing the post-NSICT reforms management process. Much of it originated from within the system involving all interested parties, namely, the board of trustees, senior management, labor and customers (shipping lines) through regular interaction and monthly meetings. Interestingly, some of the technocrats in the JNPT authority felt that they were suffering from cumbersome and often meaningless and unnecessary bureaucratic procedural hurdles imposed by the government through the Ministry of Shipping and other departments. Almost every decision, even minor ones, required their approval through a lengthy process and made it difficult to execute reforms in a speedy and efficient manner. It was strongly felt that greater autonomy of the Port Trust would have made the reform management process much more efficient and successful.

Reforms in the pipeline

Conversion of the Bulk Terminal into a 3rd Container Terminal

As mentioned earlier, after transferring the handling of liquid cargo to the IOC-BPCL run terminal, in 2002, the JNPT authority issued global tender inviting bids for ***conversion of the under-utilized dry bulk terminal into a container terminal*** in order to meet the requirements of the growing container traffic. The proposal involves the widening of the existing bulk berths, widening of the approaches, developing container yards in the back-up area and providing for state-of-the-art facilities and equipment. The proposed terminal is expected to add another 1.2 million TEU capacity, raising JNPT's cumulative capacity to 3.5 million TEUs.

The bidding process, however, ran into some difficulties. JNPT had banned the P&O Ports from participating in the global tender on the grounds of preventing monopolistic concentration. The ban was challenged in the Supreme Court, which, however, turned down the plea of the P&O Ports. That left only five consortiums to bid for the terminal, of which four were shipping lines. An objection was raised in the context of leasing out the terminal to a private shipping line due to fears of emergence

of a captive port with the line using the port exclusively for its own cargo. However, the Ministry of Shipping allayed apprehensions on this account by claiming that the operating shipping line would have to abide by the *minimum guaranteed throughput (MGT)* clause.

It is worth noting how the labor union is also participating in designing this reform process to protect the interest of labor. Since this reform entails handing over an existing public facility to private hands, there is a natural apprehension with regard to retrenchment of labor. The agreement, therefore, specifies that the current 400-strong staff of the bulk terminal must be absorbed by the private operator, but the labor should be given the option to continue working with JNPT till their retirement, if they so desire. However, the experience of privatization of a terminal at Chennai Port suggests that labor might be reluctant to move to the private operator. This has been a learning experience, prompting the JNPT to consider adopting a 5 year lien clause to allow labor to come back to JNPT in case they are dissatisfied with the private employer.

New Terminals

Keeping in mind the expanding flow of traffic directed to the port and the projected increase in throughput over the next ten years, macroeconomic and technical studies are being conducted regarding the *construction of a fourth terminal* on B-O-T basis.

Another future plan of JNPT is to develop an *integrated seven berth chemical terminal* for handling and storage of class A, B and C grades of chemicals/liquids, liquefied gases (refrigerated/pressurized) and liquefied natural gas (LNG). The terminal is supposed to comprise of one LNG berth and six offshore berths with about 100 hectares of area to be reclaimed for tank farms and other facilities. Phase-wise development of a 100 hectares back-up area for tank farms has also been permitted in this context and the clearance from the Ministry of Environment & Forests (MoEF) has been received for all types of liquid cargo, excluding LNG. The capacity of the terminal is expected to be 9 million tonnes per annum in the first phase.

JNPT is also planning an ambitious \$1 billion *integrated port project* that will combine the fourth container terminal and the marine chemical terminal with building back-up yards and approach road/rails. The expected date of completion of the project is 2007-08. The JNPT authority expects this offshore container terminal, with the capacity of 3 million TEUs, to match the capacity of the existing terminals of the Port. The planned integrated terminal will have a quay length of almost 1,700 meters and will have around six berths. The immediate problem that JNPT faces in this context is that developmental work cannot be carried out in that 50% land area of the port that falls under coastal regulated zone (CRZ). However, the authority is confident that the CRZ Committee will agree to their plea regarding the removal of this embargo.²¹

Dredging Project

Increasing of the depth in the approach channels of JNPT to about 12.8 meters below chart datum has been proposed in order to handle 6th generation container vessels of draught up to 14 meters using tidal window. In fact, JNPT has drawn up a

developmental plan for undertaking capital dredging at an estimated cost of Rs. 700 crores.²²

Infrastructure

On the infrastructure front, a proposal has been put forward to **lay another track** in addition to the single track that links the Port to the main network of the Indian Railways. Secondly, **roads** connecting the Port to the National Highway Network and to Navi Mumbai are being upgraded by doubling the current width to fulfill four lane traffic requirements. Thirdly, **land plots** have been earmarked for tank farm operators, vehicle operators and warehouses for the storage of cargo including containers, workshops, petrol stations and other ancillary facilities. Fourthly, a **Special Economic Zone (SEZ)** is being planned by City and Industrial Development Corporation of Maharashtra Ltd (CIDCO), near JNPT area at Dronagiri Node, for development of the region with relaxed foreign exchange, excise and customs regulations along with investment friendly labor laws. JNPT is considering the idea of contributing 300 hectares of its own land towards the proposed SEZ.

Impact of Reforms

JNPCT and NSICT: A Comparative Analysis

Traffic: Diversion and Reversal

The effort to initiate private participation in the Indian port sector paid off with the JNPT's private terminal achieving international levels of efficiency and performance. Naturally, JNPCT, the public terminal run by the Jawaharlal Nehru Port itself, initially faced the possibility of being out-competed by its more efficient neighbor although the former possessed greater licensed land area than the latter.

Right from its inception, NSICT had given stiff competition to JNPCT and had succeeded in diverting a considerable amount of traffic from the latter since 2000 (See Table 6). The first signs of **traffic diversion in favor of NSICT** became evident as early as in July 1999 and October 1999 but it was in May 2000 that for the first time, NSICT's traffic exceeded that of JNPCT (See Chart 6). NSICT's traffic continued to grow for the rest of 2000 while that of JNPCT continued to fall, reflecting clear signs of traffic diversion in favor of the former. Between June 2001 and August 2001, NSICT saw a huge surge in traffic, when the volume of traffic handled at its terminal expanded from 67,909 TEUs to 90,125 TEUs.

NSICT's better performance had a "demonstration effect" on JNPCT. As discussed above, several concrete measures were taken to improve JNPCT's performance, the results of which became visible from September 2001. From this point in time, there occurred a **reverse trend of traffic diversion towards JNPCT**.

By overstressing its capacity, NSICT left its customers dissatisfied. For instance, NSICT norms were rather strict with regard to last moment cargo loading, which the shipping lines often failed to meet due to logistic problems. JNPCT is much more flexible in this regard. The change in JNPCT's set-up and functioning, along with efficient marketing strategies, succeeded in attracting some of these customers to

JNPCT. In March 2003, JNPT successfully tapped the extra business potential of the *Maersk Sealand Shipping Line* and allowed them to set up their new equipment and conduct “private yard management” within JNPCT. The estimated traffic potential in this context was 60,000 TEUs per year on a regular basis. In May 2003, C. Consortium, Singapore, started feeder servicing activities from JNPCT, with an estimated traffic potential of 40,000 TEUs. In July 2003, IndAmex Shipping Line switched operational base from NSICT to JNPCT, citing congestion problems and inadequate attention of the NSICT authority towards their business. EuroGalax also began operating from JNPCT from July 2003.

Performance Indicators

JNPCT achieved considerable success in expanding its volume of traffic post-NSICT. In terms of other port performance indicators, however, it is yet to catch up with NSICT’s levels, notwithstanding a marked improvement compared to the pre-reforms era (See Tables 5 and 6).

Initially, ***berth occupancy*** of JNPCT was higher than that of NSICT right up to June 2000, indicating a better performance by the former on this count (See Chart 7). It was only in July 2000 that NSICT actually overtook JNPCT and has remained higher ever since. However, after falling to a minimum of 38.21% in December 2000, JNPCT’s berth occupancy started to climb again to reach a peak of 86.51% in May 2002, before dipping again. It is notable in this context that JNPCT exhibited greater fluctuations compared to NSICT, which has recorded a steady growth.

JNPCT’s ***pre-berthing time*** has also been fluctuating with increasing amplitude since 2001 (See Chart 8). During the period July 2000 to May 2001, pre-berthing time at JNPCT was much lower than that of NSICT. The following month, however, saw a different trend. In general, NSICT has displayed far greater stability in its pre-berthing trend than JNPCT.

Regarding ***turnaround time***, NSICT matched JNPCT as early as May 1999, and since then, has remained lower than JNPCT in terms of this parameter (See Chart 9). In this regard, JNPCT does not appear to have improved significantly. Here too, JNPCT has displayed a far more fluctuating trend than NSICT, recording the lowest turnaround (0.86 days) in November 2000 and the peak (1.46 days) in April and August 2002. On the other hand, NSICT’s fluctuations have somewhat dampened after September 2001.

With regard to ***average output per ship berth day***, again, NSICT’s performance has been better than JNPCT’s right from the beginning (See Chart 10). Initially, however, NSICT displayed greater fluctuations in average output, while JNPCT displayed a relatively steady trend. Between July 2000 and June 2001, the trends in both NSICT and JNPCT were more or less similar, initially rising and then falling off. Both trends picked up thereafter, but all through, average output of NSICT remained much higher than that of JNPCT. In fact, from January 2002, NSICT has consistently handled 1,500 TEUs per berth day, whereas JNPCT crossed 1,000 TEUs in November 2002, only to drop below that level within five months.

Crane productivity, often considered a proxy for labor productivity, has been higher for NSICT as compared to JNPCT right from the beginning (See Chart 11). Barring its first month of operation i.e. April 1999, NSICT has consistently recorded a crane productivity of 20 moves per hour and above, whereas JNPCT was able to cross 15 moves per hour only in November 2000. JNPCT improved steadily thereafter, reaching a peak of 17.75 moves per hour in February 2001 before declining again, underlining its inability to sustain high levels of crane productivity. Though NSICT's crane productivity has also shown a declining trend since 2002, it has remained above that of JNPCT.

Port Activity

Owing to greater planning among the various services offered by the terminal, especially assuming complete responsibility of the ship once it enters the port premise, NSICT, unlike JNPCT, can ensure faster and more efficient service through better coordinated port activity.

NSICT: Strengths and Obstacles

Overall, NSICT's success, at least in the initial years, can be attributed to use of state-of-the-art equipment, implementation of latest technology, especially IT, in day-to-day operations, greater discipline, more effective and professional port management that prevented unnecessary fragmenting of port activities and promoted NSICT's efficiency.

The reasons behind NSICT's higher labor productivity as compared to JNPCT may be explained in terms of its superior quality equipment and rigorous training (10 days per year) of laborers. Moreover, the labor force at NSICT is educated, young and disciplined. Diluting the hierarchical structure of the work environment, emphasizing safety measures, observing family days etc. have also contributed to the creation of an atmosphere that has facilitated efficiency and productivity of workers.

It is worth noting that although both NSICT and JNPCT are governed by the same legal framework under the purview of the Jawaharlal Nehru Port Trust, the former enjoys greater autonomy in matters of decision-making compared to JNPCT. This has also been an important factor contributing to NSICT's success.

However, the NSICT authority alleges that being under the purview of JNPT (directly controlled by the Ministry of Shipping) seriously curtails its decision-making autonomy in specific dimensions, especially those pertaining to expansion, redesigning and creation of new infrastructure. In many cases, requests in this regard have often been inordinately delayed and even turned without adequate justification from the government. Such bureaucratic hurdles could be a reason why standalone NSICT, in spite of being perhaps the most productive container terminal in India, unfortunately, does not compare too favourably with ports of international standards on all accounts. For example, average vessel waiting time in Colombian ports, after they carried out reforms in 1996, had become practically negligible whereas that in NSICT has remained significantly above 0.5 till date. That of JNPCT has been even higher.

Interest groups: gainers and losers

The turnaround of JNPCT has demonstrated that the public sector, too, can be productive if it has the right attitude and environment. Under such a productive public-private synergy, it is a win-win situation all the way. The biggest beneficiaries of the reform process has been the ***exporting and importing community*** of the country who have been provided with an efficient outlet to trade with the rest of the world and enhance India's share in world trade.

The private operator, ***P&O Ports, Australia***, has also been a beneficiary since it has been making steady profits right from the beginning through its NSICT venture.²³ Jawaharlal Nehru Port's own container terminal, ***JNPCT***, has also reaped its share of benefits by achieving a major turnaround in its traffic and performance owing to a strong "demonstration effect". The ***Jawaharlal Nehru Port***, as a whole, is also a gainer since the reforms process has enabled it to emerge as a leading container port in the world apart from being the most successful port in India.

Port labor has also been a gainer as productivity levels at JNPCT have gone up in the new competitive environment created by the establishment of NSICT. This view is also echoed by the JNPT labor union. The new environment has brought about a certain change in the attitude of workers who have realized that obstructing work is not in their interest. Rather, they should concentrate on improving their levels of productivity so as to ensure maximum pecuniary benefits for themselves. Also, the new terminal has created fresh employment opportunities. In fact, in the design of the pipeline reform for converting the dry bulk terminal into a 3rd container terminal, labor has succeeded in protecting its interest without obstructing the reform process.

The ***international shipping lines***, the customers of the port, have also benefited from reforms since they now have access to better and more cost-efficient port services.

The ***World Bank***, being one of the first to point out the inadequacies and failings of the Indian port sector, had provided a direction to the Government of India's attempt at reforming this sector. Since it had also invested in the establishment of JNPT, it had a direct interest in seeing it perform well. Hence, the success of the reform process, especially the privatization attempt, has vindicated the stance of the World Bank.

The only party that might have lost out somewhat in this reform process is the ***government bureaucracy***, in terms of some loss of authority and control over port operations. The reforms have made it rather evident that bureaucratic control has been one of the major roadblocks in the process of creating an efficient port infrastructure in India. With the success of this reform experiment, the bureaucracy is now under increasing pressure to grant greater autonomy to the ports so that enhancing port productivity and improving port performance could be given top priority without getting tied down in superfluous bureaucratic delays. This would invariably mean that certain bureaucratic posts might become redundant, hurting individual interests in the bureaucracy.

LESSONS FROM JNPT REFORMS: Political Economy Perspectives

We have interesting political economy lessons to learn from the JNPT experience. These lessons pertain to various facets of the reform process including its philosophy and approach, the ideal political environment for initiating reforms, reform implementation as well as the gaps that could have been overcome to make this experiment more successful. However, we must note at the outset that the JNPT's reform process adopted a moderate middle path towards privatization, which comprised of initiating private participation in new terminals (under a B-O-T model) while keeping existing facilities under government control and operation. A more radical or "fundamental" approach would have been to contract out even the existing terminal to private operators as envisaged in the original papers in 1994. Here, we do not intend to provide a normative analysis of the ideal reform path. Rather, what we attempt is a positive political economy analysis of JNPT's experience in following the middle path. We divide our discussion into the following broad sub-headings.

Reforms Approach: Top-down or Bottom-up?

While the broad reform guidelines for private participation in port operations were provided on a top-down basis from MoST (1994, 1996), World Bank (1995) and Rakesh Mohan Committee (1996), the nature and extent of private participation as well as reform formulation and implementation were left to the initiatives of the Port Trust. Perhaps, it was because of such a step that JNPT adopted the so-called middle path of reforms. At the same time, this has also, perhaps, been the key to success in JNPT's reform program.

In fact, the turning point in JNPT's case was, perhaps, the very first decision to stall the bidding process for privatizing the operations of the existing container terminal in 1994 in order to protect the interest of labor and other groups. Instead, at the behest of JNPT (representing the entire spectrum of interest lobbies), with proactive support from a pro-labor Minister, it was decided to invite private sector initiative to construct a new container terminal on B-O-T basis, while retaining the existing terminal under government ownership and operation.

As we have discussed above, the new private terminal (NSICT) injected dynamism into the functioning of JNPT through introduction of competition as well as strong demonstration effects, and the latter's subsequent improved performance provides indication of the benefits that have accrued to the port following such exposure to private competition. JNPT's own initiative to design and implement a plethora of follow-up reforms was also instrumental in bringing about the turnaround.

Interestingly, these *reforms were undertaken by consulting all concerned* and much of the reform ideas were generated from within the system rather than being imposed top-down. Many lessons were also learnt from the experience of the neighboring private terminal, NSICT.

By and large, the *philosophy of reforms* at JNPT has been to take everybody along in the reform experiment. As a result, all groups in JNPT, from labor to top management, shared a common goal of improving the port's performance and augmenting productivity through reforms. Consequently, all of them have actively

engaged in formulating and implementing new reform ideas. This is especially true in the ongoing reform management process, where the Board of Trustees, containing representatives of all concerned parties, including shipping lines, labor union, government etc., interact in monthly meetings to decide the course of action. The consultation process has, by and large, been participatory rather than one-way communication. Reform ideas mooted by all concerned have been given serious consideration and much of the reforms have been formulated and designed in such consultative manner. Needless to say, some of the steps might have hurt the interest of some groups, at least in the short run, but the mindset has been to derive workable solutions to overcome such hurdles. A top-down imposition of reforms would have failed to create this mindset among all interest groups because the proponents of such a top-down approach would not, perhaps, give credit to the capabilities and dynamism of the actors involved. The JNPT experience may come to them as a surprise. Moreover, failing to accommodate the interests of all concerned parties, such top down reforms would prove to be unsustainable in the long run.

Political Regime for Initiating Reforms: Coalition vs. Majority Rule

The role of the political regime in facilitating economic reforms has been a highly debated issue. The JNPT reform experience adds new dimensions to this debate.

Since 1991, India has had four different governments, each of which has been distinct in terms of political ideology and composition. The Congress (I) government was in power from June 1991 to May 1996. It was succeeded by the Bharatiya Janata Party (BJP) government for a brief span of only thirteen days. Subsequently, in June 1996, the United Front (UF), a coalition of various parties cutting across ideological lines, including the Left, assumed office with the support of the Congress (I). The UF coalition government, with no party as a dominant partner, lasted till March 1998, and thereafter, the National Democratic Alliance (NDA), led by BJP as the dominant partner, along with a coalition of several smaller but ideologically aligned regional parties, has been at the helm of affairs.

Port sector reforms in India were decisively launched in October 1996 with the announcement of the guidelines for private sector participation in port operations. It is interesting to note that despite having a clear majority in the Parliament, the Congress (I) government under P.V. Narasimha Rao (June 1991 – May 1996) did not initiate any proactive reform measures in the port sector. On the whole, reforms undertaken in the infrastructure sector by the Congress government were much less than the initiatives it forged in external and industrial sectors.

In complete contrast, the United Front (UF) government issued guidelines for private participation in ports within less than six months of assuming office, which paved the way for the collaboration between JNPT and P&O Ports, Australia, for construction of NSICT. During its tenure of just under two years, the UF government also initiated major reforms in other key infrastructure sectors like electricity and telecommunications, and attempted to implement several key recommendations of the Rakesh Mohan Committee Report (1996) on commercialization of infrastructure projects.

The difference between the UF government and its predecessor in terms of emphatic action in reforming the port sector is indeed noteworthy. Political stability of a majority government has often been cited as a necessary precondition for reform. However, the experience with the UF government seems to suggest otherwise. The UF government had its fair share of crises, which led to a change in leadership midway through its tenure (I.K. Gujral replacing H.D. Deve Gowda as the Prime Minister) and eventually resulted in its premature termination. But, in spite of the instability created by the friction between divergent interests of the multi-party coalition, the UF government was able to push through purposeful reforms in the port sector and elsewhere.

Reforms in the port sector are distinguishable from their counterparts in other sectors of the economy (e.g. financial and external) in terms of larger number of interest groups involved. Trustees in port trusts include representatives from the bureaucracy, shipping lines, labor unions and other segments associated with ports. Introducing reforms in the port sector requires emergence of a consensus among all these stakeholders.

Since the UF government was a coalition of different pressure groups within the Indian polity, including the labor-friendly left-of-center parties like the Communist Party of India (CPI), it might have found it easier to build up a favorable constituency for port reforms. The presence of pro-labor, socialist strands within the coalition is also likely to have ensured protection of the interests of port labor. The latter prerogative was reflected in the condition of 'no-retrenchment' for the existing labor in the guidelines announced for private sector participation. It was categorically pointed out that private investors in major ports had to also take over the labor, while taking over the operations and maintenance of existing port assets. In this respect, the reforms probably marked a departure from their more flexible versions adopted in other countries, and were adequately tailored to suit the interests of particular pressure groups.

While coalitions like the UF, therefore, might have precipitated reforms, it is also likely to have been more inclined towards a piecemeal approach. The presence of diverse interest groups, while enabling greater communication and consensus on reforms, can also result in half-hearted, 'painless' reforms so as to minimize political backlash. This is particularly relevant for a fragile coalition like the UF, which saw a change in leadership midway, and which was always susceptible to the possibility of an early collapse and fresh elections. The perceived lack of durability of the coalition could have prevented its partners from agreeing to measures that were damaging for their respective support bases. Many reforms undertaken by coalitions, therefore, might consciously attempt to avoid the political radar screen (Bardhan, 1998) and might appear to have been initiated by default, and bereft of any long- or medium-term vision.

The JNPT experience, however, suggests that such apprehensions are perhaps unfounded. Even if reforms are initiated as a piecemeal proposition, if it is implemented successfully with the acceptance, approval and participation of the wider segment of interest groups involved, it is likely to generate its own steam to forge ahead with successful follow-up reforms.

Privatization and Competition

Private sector participation in infrastructure development has been strongly advocated on two grounds. First, given the scarcity of public funds, there is an urgent need to mobilize resources from the private sector to invest adequately in infrastructure. Secondly, there is a common belief that the public sector is incapable of delivering infrastructure services efficiently and privatization holds the key. JNPT's experience provides illuminating insights in this regard.

We have already discussed the political economy forces of JNPT's privatization attempts that led to the creation of a new private terminal (NSICT) rather than handing over the existing public sector terminal to a private operator (JNPCT). This was India's first attempt at creating a public-private partnership in the port sector. Based on the 'landlord' port model, JNPT has reaped the benefits of this privatization program through two routes. First, with the setting up of this modern and highly efficient private terminal (NSICT), the Jawaharlal Nehru Port has earned the distinction of being the world's 29th largest container port and has emerged as the most successful port in India.²⁴ Secondly, and perhaps more importantly, NSICT has introduced intra-port competition at JNPT, which has had a favorable impact on the performance and efficiency of the existing public terminal (JNPCT).

In fact, the JNPT experience shows that even the public sector can function efficiently along commercial lines, if it is exposed to a healthy competitive environment along with the right set of reforms and attitude, although, we must say that without the privatization initiative, the public sector could not have succeeded in demonstrating its latent capabilities and aspirations. However, it may be pertinent to ask how far the gains achieved by JNPT, under government ownership and operation, may be sustained in the long run. It will critically depend on the introduction of further long-term initiatives aimed at enhancing competitiveness and efficiency, namely ***greater autonomy*** and ***corporatisation*** that we discuss in the following section.

The overall message from the JNPT case study is that port performance and efficiency can be substantially improved by adopting a moderate approach to promote private sector development that encourages the private sector, not necessarily to replace the public sector, but to introduce a healthy competitive environment, so that it can act as a tonic to revitalize the latter. Moreover, as we have argued above, such a moderate approach is likely to be much more successfully implemented as it would be more readily accepted by a wider constituency.

Privatization also brings to the fore another important issue in the context of port reforms in India, namely the promotion of both ***inter-port and intra-port competition***. Intra-port competition, to the extent permitted by existing port infrastructure, can be promoted by allowing multiple service providers to operate port facilities without imposing restrictions on developing competing facilities in the same port. This is precisely what JNPT reforms aimed to achieve with the establishment of NSICT by the P&O Ports, Australia. But, interestingly, the same company was banned from bidding for the 3rd container terminal at JNPT, again, for the sake of fostering intra-port competition. The idea was to thwart the growth of a private

monopoly in the hands of P&O Ports at JNPT and let intra-port competition be further strengthened by another private operator running the 3rd terminal.

Agenda for Further Reforms: Obstacles and Roadblocks

Although the case study has, by and large, portrayed JNPT's reform as successful, it still has a long way to go before it reaches international standards of port performance. The sailing has not always been smooth or hurdle-free. It may, therefore, be well in order to highlight some of the obstacles and roadblocks faced in the formulation, implementation and management of reforms at JNPT, which should have ideally been avoided in order to make the reform process more successful. It is also important to take note of some of the lacunae in the reform process. Both these points would, in effect, be indicative of the agenda for further reform in future.

Greater Autonomy for the Port Trust

Although the implementation and management of the reforms have been carried out by the Port Trust, it has always been under the clutches of bureaucratic control from the Government of India (Ministry of Shipping). The existing policy guidelines for private participation indicate that the major port trusts can decide the facilities and operations where they would like to invite private initiative. However, the port trusts are functionally dependent upon their controlling ministry (the erstwhile Ministry of Surface Transport and the current Ministry of Shipping) for approval of expenditure beyond a particular limit (Rs 100 crore) and also for other significant decisions, under the Major Port Trust Act of 1963. The involvement of the Ministry creates an additional level of decision-making, which may not always facilitate the larger interests of port trusts. This has often acted as a major stumbling block in effective and efficient reform management – design as well as implementation. Survival in a competitive environment demands ***quick and effective decision-making***, free from red-tapism and bureaucratic hassles. Due to a prominent presence of core civil servants at the helm of affairs at the Port Trust, there is always a tendency to exercise considerable caution in implementing aggressive reforms. Interestingly, the technical personnel at the senior management level at JNPT are, perhaps, more spontaneous in suggesting pro-active and bold steps towards executing reform management.

De-linking of the ministry from port trusts in the context of key decision-making can therefore help the latter in taking quicker, and probably more value-additive steps, as far as increasing their efficiency and productivity are concerned. The quality and outcome of further reforms at JNPT and other Indian ports will therefore depend upon the extent to which ministerial control continues to prevail over ports.

Corporatisation

Corporatisation can be looked upon as a possible solution to this problem of restricted autonomy that characterizes port administration in India. Corporatisation of Indian ports will certainly increase their ability to muster resources from the market. To that extent, the ports will become less dependent on budgetary support. Port trusts may be transformed into companies under the Indian Companies Act, 1956, but this

requires legislative action for amendment of the Major Port Trust Act of 1963, which is pending in the Parliament. But corporatisation can only be a means to reduce, and not put a complete end to, ministerial control. Even corporate ports might continue to face ministerial and bureaucratic interferences as long as they remain public sector corporations.

Corporatisation of ports, essentially, can be thought of as constituting a first step towards privatization of the same, which would result in complete removal of ministerial control and bureaucratic hurdles that obstruct port operations. However, corporatisation and privatization of ports may not be easy reforms to implement in India, especially if one takes into account labor interests and the clout that labor lobbies enjoy in the country. An ex-post analysis of India's economic reform experience reveals that there have hardly been any labor market reforms in the country. Several important legislations, like the Industrial Disputes Act (1947) and the Contract Labor Act (1970), have been proposed for amendment in order to remove the existing rigidities in the labor market and put in place a flexible exit policy for the organized sector. However, these amendments are yet to be effected. Since port sector reforms involve a pronounced labor component, decisions to corporatise major ports are bound to have long-term implications for dock labor, which is one of the strongest and most secure lobbies in the organized sector of the Indian economy. The group has significant representation in the Indian legislature as well, in the form of parliamentarians, who have close ties with trade unions. This is probably one of the reasons why the Major Port Trust Act (1963) Amendment Bill, which is expected to facilitate corporatisation of major ports including JNPT, is yet to be passed. However, it is mentionable in this context, that even after corporatisation, decisions pertaining to retrenchments and lay-offs may not be easy to implement immediately, since the financial difficulties of most major ports may constrain them from offering attractive retirement packages. This is an issue that deserves careful attention especially in a country like India, where there is no social security for organized labor in the eventuality of their loss of jobs.

Regulations

Greater autonomy for ports, coupled with efforts to introduce privatization, must be accompanied with a good regulatory framework, especially with regard to tariffs. The presence of a regulator will set out a road map for determining ***optimal tariffs*** in various port services and shall be instrumental for ***augmenting competition*** in the sector. The TAMP, right now, is fulfilling this obligation only partially by fixing tariff ceilings. However, it does not have any quasi-judicial mandate for settling disputes unlike the Telecom Regulatory Authority of India (TRAI) or the Securities Exchange Board of India (SEBI).

CONCLUDING REMARKS

JNPT was established with the goal of creating a world-class port in India. Indeed, we have shown how JNPT clearly enjoyed an edge over other Indian ports with respect to both infrastructure and performance even in the pre-reforms period. However, it suffered from some of the inherent drawbacks ailing the Indian port sector that prevented it from achieving world standards in port efficiency. As the most modern among Indian ports, and also the one with the least labor problems, JNPT was the natural choice as a test case in privatization of port operations.²⁵

From our discussion of the key reforms at JNPT – their formulation and implementation – it is clear that the reform process was well designed and optimally sequenced with active participation of a wide range of actors directly involved with the port. The nitty-gritty of the reform process at JNPT was not imposed top-down.

It is quite evident that the reform has been a reasonable success. With the creation of a new private terminal and the follow-up measures undertaken thereafter, JNPT has demonstrated its capability to enhance efficiency of the public terminal through the introduction of intra-port competition and it has succeeded in earning the distinction of being the world's 29th largest container port. The manner in which the reforms have been carried out ensured that none of the stakeholders or interest groups was hurt. It has been a win-win situation for all – JNPT and its public terminal (JNPCT), the private operator (NSICT), the labor, the shipping lines and above all, the exporting and importing community of the country and the national economy. The only possible loser might have been the government bureaucracy, which might have come under increasing pressure to relinquish some of its authority and control over port operations.

We have arrived at the following lessons from this case study of successful reform:

- A successful and sustainable reform initiative must be rooted in a philosophy to take everybody along in the reform experiment, even if it is at the cost of pursuing an aggressive reform agenda. All interest groups in JNPT, from labor to top management, shared a common goal of improving the port's performance and augmenting productivity through reforms. Consequently, all of them have actively engaged in formulating and implementing new reform ideas. Needless to say, some of the steps might have hurt the interest of some groups, at least in the short run, but the mindset has been to derive workable solutions to overcome such hurdles. A top-down imposition of reforms would have failed to create this mindset among all interest groups because the proponents of such top-down approach would not, perhaps, give credit to the capabilities and dynamism of the actors involved.
- Reforms like that of the port sector involve a large number of interest groups. Introduction of such reforms, therefore, requires emergence of a consensus among all of them. A coalition government, representing a large number of pressure groups, including the left-of-the centre parties, is perhaps more conducive to introduction of such difficult reforms. Indeed, the presence of pro-labor socialistic strands within the coalition government initiating JNPT

reforms is likely to have ensured protection of the interests of port labor, which has definitely contributed to its success and sustainability.

- The overall message regarding privatization is that port performance and efficiency can be substantially improved by adopting a moderate approach to promote private sector development that encourages the private sector, not necessarily to replace the public sector, but to introduce a healthy competitive environment, so that it can act as a tonic to revitalize the latter. Moreover, as we have argued above, such a moderate approach is likely to be much more successfully implemented as it would be more readily accepted by a wider constituency.

ANNEXURE I: KEY ISSUES IN INDIAN PORT REFORMS

Policy Issues

Private sector participation

The Government of India spelt out the following *objectives* for commercialization of the port sector through private sector:

- Revenue generation and augmentation of financial viability
- Improvement of efficiency and customer satisfaction
- New enterprise culture

The *broad areas* considered for private sector participation were –

1. Leasing out existing port assets
2. Setting up and operating additional assets such as
 - Container terminals
 - Bulk, break-bulk, multipurpose cargo and specialized cargo berths
 - Warehousing, container freight stations, storage facilities and tank farms
 - Cranage/handling equipment
 - Captive power plants
 - Dry docking and ship repair facilities
 - Lease of equipment for handling, lease of port craft etc.

Private sector participation would also require evolving appropriate *contractual arrangements*. The options include:

- Acquisition of Moveable Assets: A joint venture company, with or without equity holding by the port authority, is formed to purchase the moveable assets of the port authority such as cranes, bulk loaders and cargo-handling equipment. At the end of the lease, if it is not renewed, the assets of the company are reverted back to the port authority at market value.
- Build Operate Transfer (B-O-T): Under this model proposed by the World Bank, the new joint venture company acquires the total facilities, including equipment, buildings and wharves and is responsible for the repair and maintenance of existing facilities. The port authority is relegated to the role of a regulatory body and landlord with responsibilities for navigational channels and port control. At the end of the B-O-T period, normally no less than 25 years, the facility's fixed assets are handed back to the port authority at written-down value.
- Lease Arrangements: Under this method, the port either leases out its assets to a private operator for maintenance and operation or leases in equipment to operate on its own.
- Management and/or Technical Contracts: The management contract offers the authority a package of expertise to build a profitable business more rapidly than is possible through licensing, consultancy and other routes. The contractor should bring to the project a reputation for sound training of local management and a network of international contracts that make it easier to mobilize funds and promote the port.

With private sector participation in ports, a regulatory framework to stipulate and monitor port tariffs was set up through the establishment of the Tariff Authority for Major Ports (TAMP).

Corporatisation

Corporatisation refers to change in the legal structure of a port authority from being an extended arm of the government (as a trust) into an independent company under the Indian Companies Act (1956), thereby becoming either a Public Sector Undertaking (PSU) or a private company, depending on shareholding. It is believed that corporatization of ports will necessarily make them operate on commercial principles and enable an evaluation of their performance based on the profitability criterion. Corporatization implies that port management is given total control over all levels of decision-making regarding port operations and administration, and freedom from administrative, legal and policy constraints, imposed by the government through rules and legislation. Port trusts should also be delegated adequate powers to sanction capital investment to facilitate speedy creation of assets and their optimum utilization.

Competition

Mere corporatization or privatization without the introduction of competition would not be sufficient to bring about any major transformation of port operations. It is essential to promote both inter-port and intra-port competition along with the introduction of privatization and corporatization. The essence of inter-port competition is that it allows an efficient port to out-compete its less efficient counterparts by offering lower costs of usage. Proper integration of the ports with the transport system is a pre-requisite. Intra-port competition, to the extent permitted by existing port infrastructure, can be promoted by allowing multiple service providers to operate port facilities without imposing restrictions on developing competing facilities in the same port.

Connectivity

It is imperative to ensure sufficient rail and road connectivity of ports to their hinterland as well as to the inland container depots, so as to facilitate faster cargo movement and boost port efficiency. Indeed, the National Highway Authority of India (NHAI) has been in the process of evolving options to connect major ports. The Indian Railways should also evolve schemes to upgrade connectivity of major ports. With increasing private participation in major ports, one can expect more arrangements of this type to be developed in the country.

Organizational Issues

Labor

Port labor reforms assume a lot of significance since overstaffing and ensuing inefficiencies in labor operations become major deterrents in the path of private investment in port facilities. The usual strategy across the globe has been to “buy-out” the labor by designing an appropriate voluntary retirement scheme. Ideally, manning

scales should depend on cargo characteristics and packaging. Workers need to be trained to improve their skills, with special stress on safety aspects.

It has been also suggested by some that labor reforms should allow private operators (mainly stevedores) to take charge of the entire labor force for their management, wages and other benefits, with regulatory controls to ensure security of employment and wages. They also suggest that labor compensation should be restructured from the present monolithic pay structure to piece-based wage scheme to set up an efficiency-boosting incentive system at the basic levels. However, there is a considerable debate on the efficacy and desirability of such attempts to contractualize labor force.

Equipment Utilization and Management

Better techniques are to be devised to ensure more efficient cargo handling that would facilitate faster handling and turn-around.

Management Information Systems (MIS) and improved coordination among port agencies

Use of advanced MIS, in the form of telecommunication and software technology, allow ports to stay informed regarding oncoming ships and their cargo arrangement, so that they can prepare their equipment accordingly and facilitate faster vessel turnaround as well as reduced stay of cargo in the port area. Through compatible Electronic Data Interchange (EDI) systems, ports can also arrange to link up with customs databases to process and clear cargo even before the ships touch shore since predictability and minimization of transportation time is critical in a *just-in-time* world.

Capacity Issues

Container Capacity Enhancement

Container capacity enhancement, either through new investment or by conversion of general cargo berths into container handling ones, is of vital importance for galvanizing the port sector. The berths of the latter type might not operate at optimum efficiency but could, nonetheless, be a worthwhile trade-off. Container handling capacity may also be enhanced through improved equipment and better work practices.

New facilities in existing ports

Once the existing physical infrastructure has been stretched to the limit by altering practices and expanding existing equipment, the possibility of new capacity creation through additional private investment would become attractive. Efficient services ensured by private operation of existing container terminals could also create additional demand for capacity at specific locations. An ancillary benefit of such capacity addition could well be the emergence of a new class of domestic port operators, which would encourage competition by increasing the number of potential

bidders. To that end, needless over-specification of pre-qualification conditions that may effectively discourage participation of Indian companies should be avoided.

New port development

Exploring sites for development of new ports is yet another option. In this regard, proper valuation of the price of land through a market-oriented policy is of vital importance since it would ensure that all related costs, including the ones arising out of negative externalities such as urban congestion and environmental damage, are taken into account. A common viewpoint, in this context, is that private initiative would ensure that new ports would locate only at the most efficient sites, subject to limitations imposed by the negative externalities. Explicit or implicit collusion between major ports and the proposed new ports should be studiously avoided, which will not only save resources but also ensure efficiency by increasing port-productivity (IDFC, 1999).

Feasibility of a hub port

Although the disadvantages of trans-shipment are not too significant in India's case, an initiative to develop a main line hub port in India would, nevertheless, be welcome. Indeed, India satisfies the basic requirements of large cargo and proximity to the main trade routes. However, given the number of ports competing for hub-port status in the region, the decision to hub out a certain port needs to be taken with considerable caution. This is because any new Indian hub port might be left at the caprices of large liners and Indian trade might still continue to leverage the presence of ports like Singapore, which is closer to Eastern India than Mumbai. Moreover, the establishment of an Indian hub-port will not effectively reduce the costs of other Indian feeder ports vis-à-vis transshipping via foreign ports.

Regulatory Issues

Conservancy and Safety

Unique characteristics of each port demand that individual port managements should be delegated the authority to lay down regulations concerning conservancy, dredging, pilotage, towing and other commonly provided port functions.

Environmental Regulations

Recognizing the inherent fragility of waterfronts as ecosystems, special regulations should ensure safe handling of potentially dangerous cargo such as POL products. Unrestricted expansion of ports should also be regulated on account of environmental hazards posed by increased urban congestion, necessitating intensive and optimum use of existing port area.

Economic regulation

Economic regulation should aim at fostering greater competition. The relevant areas in this context are:

- Tariff regulation- Following private participation in the port sector, there might arise the need for an independent regulator to set port tariffs in order to ensure fair competition. A need might also be felt for the presence of a common regulator to benchmark performance and establish a performance-based regulatory regime.
- Entry Regulation: Limited potential for additional operators in major ports necessitated some governmental control over entry. The ultimate objective is, again, promoting competition by having multiple operators.

ANNEXURE II: TABLES AND CHARTS

Table 1: Selected Performance Indicators of all Major Indian Ports taken together over the period 1995-2003.

Performance Indicators	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
Average turnaround time (in days)	7.83	6.24	6.03	5.23	4.84	4.16	3.95	3.47
Average pre-berthing time (in days)	3.02	2.52	2.09	1.64	1.58	1.16	1.28	1.06
Average ship berth output (in tonnes)	4763	5223	5453	5904	6321	7406	7713	8750
Share of idle time to total time at berth (%)	40.10	38.75	34.53	32.92	31.19	29.64	28.74	27.12

Source: Indian Ports Association, Major Ports of India: A Profile, 1996-97, 2002-03.

Table 2: Financial Performance in terms of Operating Surplus of Major Ports in India over the period 1990-91 to 2002-03

(Rs. Crores)

Port	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
Chennai	64.23	70.04	89.08	109.39	97.61	103.22	109.16	101.86	94.78	71.76	45.64	58.88	65.21
Cochin	14.70	16.16	14.34	9.78	19.80	25.45	43.17	44.19	33.41	33.15	30.14	31.33	53.47
Jawaharlal Nehru Port	7.09	18.68	23.41	24.59	66.08	118.03	106.25	150.33	196.22	140.18	114.03	163.73	228.13
Kandla	28.40	31.67	43.39	50.07	63.07	71.83	80.77	100.95	146.02	96.37	63.29	74.72	72.26
Kolkata	64.88	54.61	70.04	129.77	155.36	189.91	214.00	275.56	242.61	206.02	267.63	275.22	202.95
Mormugaon	14.37	9.96	17.63	27.91	22.88	16.35	21.83	27.16	20.46	30.32	20.30	54.83	59.27
Mumbai	63.88	61.80	145.35	176.74	174.54	268.29	218.15	211.15	172.91	68.56	-88.62	-15.25	-10.50
New Mangalore	14.28	9.45	10.49	10.32	15.24	14.38	60.41	83.02	72.41	76.50	65.54	86.33	106.38
Paradip	35.19	29.56	23.88	48.26	55.59	65.32	63.60	73.41	59.37	61.57	111.18	96.31	169.43
Tuticorin	8.09	10.26	16.09	11.47	11.28	25.87	27.60	38.08	40.79	36.68	53.25	58.01	63.60
Vikhakhapatnam	37.67	36.93	57.75	70.50	78.71	97.18	104.55	95.82	92.50	105.53	107.08	167.51	206.44
Total	352.78	349.12	511.45	668.80	760.16	995.83	1049.49	1201.53	1171.48	926.64	789.46	1051.62	1216.64

Source: Indian Ports Association, Major Ports of India: A Profile, 1996-97, 2002-03

Table 3: Details regarding JNPT's debt

Funding Agency	Rate of Interest	Moratorium period (Yrs)	Repayment period (Yrs)	Amount (in Rs. crores)
1. Mumbai Port Trust				
Loans up to Rs. 200 crores	10.00%	5	10	200.00
Loans above Rs. 200 crores	10.25%	10	15	143.21
2. Kandla Port Trust	10.25%	10	15	50.00
3. World Bank	11.50%	5	20	328.16
4. Government of India	10.25%	10	15	187.60
	13.00%	5*	20	13.00**
	13.00%	2*	8	5.00**
Total loans for original project	14.00%	2*	8	10.00**
				936.97
5. Chennai Port Trust	13.00%	2	13	20.00**
Total Loans				956.97

Source: JNPT, Note: * No moratorium for payment of interest; ** Fully repaid

Table 4: Selected Performance Indicators of JNPT over the period 1995-2002.

Performance Indicators of JNPT	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02
Berth productivity (moves /hr)	12.84	15.8	24.51	28.62	23.15	26.67	28.42
Average ship berth output (in tonnes)	3585	2987	6209	6140	5905	6383	8307
Average pre-berthing detention (in days)	2.17	2.10	1.52	0.83	0.64	0.89	0.93

Source: Indian Ports Association, Major Ports of India: A Profile, 1996-97, 2002-03.
Daily Shipping Times, Jawaharlal Nehru Port Special 2002.

Table 5: Selected Performance Indicators of Major Ports of India over the period 1995-2003.

Average turnaround time (in days)	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
Chennai	8.18	8.30	7.12	7.50	6.40	5.80	5.60	3.70
Cochin	4.21	3.90	3.99	3.61	3.23	3.10	2.75	2.19
Haldia	6.83	5.98	5.30	4.73	5.21	3.96	4.01	3.02
Jawaharlal Nehru Port	9.03	6.03	4.47	1.96	1.72	2.48	2.98	2.28
Kandla	14.88	9.00	8.98	8.61	6.15	4.72	6.55	5.94
Kolkata	9.12	7.71	7.47	6.59	6.59	5.50	4.71	4.47
Mormugaon	6.29	6.28	6.32	4.81	4.30	4.25	4.65	1.94
Mumbai	10.10	7.68	8.37	7.01	5.60	5.20	5.47	5.06
New Mangalore	5.21	4.37	4.09	3.72	3.80	2.89	2.73	2.37
Paradip	6.34	4.94	5.12	4.11	3.89	4.16	3.99	3.37
Tuticorin	5.99	5.09	5.05	4.87	6.39	4.10	0.41	3.59
Vishakhapatnam	7.78	5.60	6.11	5.28	4.75	3.71	3.51	3.72
All Ports	7.83	6.24	6.03	5.23	4.84	4.16	3.95	3.47
Average pre-berthing time (in days)	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
Chennai	3.45	4.12	2.98	3.60	2.80	2.40	2.00	1.13
Cochin	1.24	1.12	1.12	0.87	0.87	0.74	0.55	0.47
Haldia	2.61	2.19	1.96	1.30	1.61	0.91	0.91	0.87
Jawaharlal Nehru Port	2.17	2.10	1.52	0.83	0.64	0.89	0.93	0.85
Kandla	9.56	6.61	5.12	3.25	3.04	1.46	3.10	2.20
Kolkata	1.39	0.97	1.10	1.04	1.03	0.61	0.58	0.52
Mormugaon	2.78	2.17	2.10	1.40	1.09	1.32	1.74	1.92
Mumbai	4.22	4.59	2.86	2.11	1.37	1.26	1.28	1.11
New Mangalore	1.73	1.51	1.09	0.92	1.07	0.77	0.76	0.65
Paradip	2.44	1.62	1.66	1.20	1.14	1.41	1.19	0.80
Tuticorin	2.28	1.56	1.55	1.60	2.98	1.40	1.58	1.35
Vishakhapatnam	2.41	1.63	1.97	1.59	1.37	0.75	0.75	0.91
All Ports	3.02	2.52	2.09	1.64	1.58	1.16	1.28	1.06
Average ship berth output (in tonnes)	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
Chennai	4732	5461	4800	5762	5886	6977	7030	8416
Cochin	5771	5438	5420	4617	5952	6138	5984	6837
Haldia	5842	5855	5902	5282	5599	6384	6207	7531
Jawaharlal Nehru Port	3585	2987	6209	6140	5905	6383	8307	8226

Kandla	5233	7299	6556	8778	8740	9559	9211	8862
Kolkata	1164	1188	1285	1697	2157	2305	2215	2889
Mormugaon	8878	8540	10171	11076	11162	12438	13576	15370
Mumbai	2516	2605	2530	2940	3876	4213	3994	5170
New Mangalore	5515	7176	7210	7507	9000	12192	12528	15939
Paradip	5825	6406	6128	7012	7106	8503	8831	10763
Tuticorin	2759	3026	2934	2984	2891	3983	3900	4403
Vishakhapatnam	5336	6696	6286	7057	7579	9799	10772	10591
<i>All ports</i>	<i>4763</i>	<i>5223</i>	<i>5453</i>	<i>5904</i>	<i>6321</i>	<i>7406</i>	<i>7713</i>	<i>8750</i>
Share of idle time to total time at berth (%)	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03
Chennai	44.86	42.59	37.71	40.00	37.19	33.10	30.78	35.29
Cochin	45.52	43.87	36.14	32.80	36.60	34.80	33.50	31.80
Haldia	53.57	50.92	49.35	49.21	42.44	37.16	35.79	35.90
Jawaharlal Nehru Port	24.38	27.00	18.67	9.32	7.84	10.76	10.38	11.06
Kandla	30.92	30.52	28.89	26.00	18.00	18.00	16.00	14.00
Kolkata	51.07	50.68	44.30	44.57	44.18	42.64	41.31	41.42
Mormugaon	53.41	49.77	30.29	20.04	19.49	20.77	17.76	20.50
Mumbai	32.91	37.80	36.40	32.30	30.78	30.56	36.65	30.28
New Mangalore	53.78	47.95	47.43	46.00	40.00	35.00	33.00	24.00
Paradip	23.37	20.38	23.96	25.16	28.97	30.19	31.32	28.31
Tuticorin	43.19	41.98	38.58	40.54	38.65	35.38	34.35	33.15
Vishakhapatnam	24.22	21.54	22.58	29.11	30.15	27.35	24.00	19.71
<i>All ports</i>	<i>40.10</i>	<i>38.75</i>	<i>34.53</i>	<i>32.92</i>	<i>31.19</i>	<i>29.64</i>	<i>28.74</i>	<i>27.12</i>

Source: CMIE 2003: Infrastructure

Indian Ports Association, Major Ports of India: A Profile, 1996-97, 2002-03.

Table 6: Comparison between JNPCT and NSICT with respect to selected Performance Indicators over the period 1999-2003.

Year	<u>Total TEUs handled</u>		<u>Berth Occupancy (%)</u>		<u>Crane Productivity (moves/hr)</u>		<u>Pre-berthing waiting time (hr)</u>		<u>Turnaround time (days)</u>		<u>Output (TEUs)</u>	
	JNPCT	NSICT	JNPCT	NSICT	JNPCT	NSICT	JNPCT	NSICT	JNPCT	NSICT	JNPCT	NSICT
1999-2000												
April (99)	51,274	13,625	72.51	35.80	14.24	17.20	8.80	9.84	1.08	1.34	820	1269
May (99)	51,483	14,473	67.75	33.59	14.22	20.22	5.51	6.72	1.11	1.11	816	1723
June (99)	52,955	12,748	78.94	23.73	14.17	23.41	14.86	6.24	1.28	1.02	743	1782
July (99)	48,265	23,881	74.31	36.60	12.34	26.72	9.42	12.48	1.26	0.67	698	2093
August (99)	41,023	26,956	67.79	46.80	13.14	23.37	8.04	15.36	1.15	0.63	672	1769
September (99)	43,137	29,474	73.45	44.10	12.82	23.70	15.19	12.96	1.19	0.73	672	1444
October (99)	39,959	33,882	61.65	36.32	13.88	23.60	6.47	6.24	1.12	0.70	697	1505
November (99)	39,741	33,785	67.08	39.35	13.33	23.73	6.66	6.72	1.04	0.73	658	1450
December (99)	42,991	37,428	67.58	40.40	12.51	24.10	8.30	6.00	1.19	0.76	656	1494
January (00)	40,310	30,726	69.63	30.93	12.57	28.12	16.60	6.24	1.18	0.62	616	1602
February (00)	46,993	41,111	80.67	45.99	12.64	24.82	12.93	5.76	1.27	0.78	660	1543
March (00)	48,660	45,098	76.26	62.71	13.87	21.79	7.81	10.08	1.14	0.83	685	1160
2000-2001												
April (00)	49,715	45,838	77.28	53.97	12.44	21.80	13.87	8.64	1.20	0.75	675	1415
May (00)	43,564	45,757	69.19	53.79	13.28	24.73	3.83	5.04	1.24	0.74	672	1372

June (00)	41,585	50,862	69.62	62.03	12.31	23.69	10.34	4.08	1.34	0.76	658	1367
July (00)	45,019	52,148	71.70	80.06	12.51	20.11	7.47	12.00	1.36	0.89	671	1051
August (00)	41,659	57,301	55.64	76.88	14.88	22.30	1.96	8.88	1.04	0.72	805	1202
September (00)	40,389	60,385	58.49	79.19	13.97	22.51	1.77	9.60	1.14	0.72	767	1271
October (00)	35,277	62,323	43.38	74.47	14.94	24.29	0.37	9.84	1.02	0.67	868	1350
November (00)	37,431	62,490	44.45	71.26	15.89	25.98	2.57	8.16	0.86	0.63	927	1461
December (00)	35,682	65,221	38.21	77.29	16.91	24.60	1.97	10.32	0.87	0.67	1000	1361
January (01)	39,493	61,081	43.06	70.79	17.37	25.45	0.91	5.23	0.90	0.61	966	1392
February (01)	38,788	61,125	44.24	80.90	17.75	24.80	2.27	6.72	0.97	0.74	1034	1349
March (01)	46,279	70,368	50.00	86.04	17.32	23.85	3.13	6.48	1.06	0.81	975	1319
2001-2002												
April (01)	46,204	63,133	56.14	82.86	16.90	23.53	3.67	12.72	0.89	0.68	909	1270
May (01)	46,634	62,052	59.71	75.58	15.38	23.01	3.75	12.00	0.97	0.64	825	1248
June (01)	50,525	67,909	79.66	94.21	15.04	22.26	23.46	10.08	1.39	0.91	696	1189
July (01)	47,767	87,439	66.39	92.01	15.06	22.05	11.06	12.00	1.29	0.77	767	1533
August (01)	48,653	90,125	62.56	92.94	16.14	24.19	4.70	8.16	1.17	0.65	831	1564
September (01)	52,851	85,870	69.01	88.42	16.77	24.91	4.18	8.64	1.04	0.60	854	1619
October (01)	53,470	82,581	69.52	82.80	15.55	25.16	7.95	6.72	0.97	0.63	828	1609
November (01)	48,181	80,666	62.26	88.57	16.15	24.73	3.36	8.88	0.94	0.65	848	1518
December (01)	55,197	75,536	62.77	82.27	16.68	24.38	3.44	12.72	0.89	0.65	935	1481
January (02)	58,256	77,948	70.26	82.27	16.49	25.21	6.83	7.20	0.98	0.62	878	1589
February (02)	53,566	80,527	67.89	83.86	16.09	25.13	7.60	8.40	1.02	0.63	929	1715
March (02)	68,445	90,142	77.91	87.25	16.05	25.89	8.78	9.84	1.10	0.67	937	1666
2002-2003												
April (02)	64,197	90,626	86.51	91.15	15.00	25.67	27.44	10.32	1.46	0.65	814	1658
May (02)	60,885	96,023	86.51	94.56	14.81	25.17	33.60	11.76	1.40	0.64	799	1638
June (02)	53,540	92,008	76.07	98.82	12.96	24.77	20.75	11.52	1.26	0.68	766	1552
July (02)	60,611	93,753	76.96	89.46	14.40	25.98	23.41	11.04	1.36	0.64	839	1690
August (02)	60,104	103,846	79.30	95.26	13.77	25.16	14.05	18.00	1.46	0.73	803	1758
September (02)	55,536	100,991	65.85	95.10	15.01	25.79	4.03	13.44	1.16	0.70	904	1770
October (02)	62,105	104,553	66.24	93.36	15.70	25.52	2.69	9.12	1.09	0.74	979	1806
November (02)	54,615	100,923	54.64	96.01	15.89	25.90	2.99	8.40	1.00	0.68	1055	1752
December (02)	58,253	108,892	60.08	93.77	16.01	26.61	4.49	7.92	1.01	0.65	1017	1873
January (03)	65,564	102,869	61.96	97.88	15.99	25.62	3.23	8.64	0.97	0.70	1019	1695
February (03)	58,821	97,418	61.91	95.87	16.77	25.26	3.15	7.44	1.00	0.75	1091	1815
March (03)	74,181	109,210	70.00	96.38	15.62	24.96	7.46	11.04	1.16	0.75	1076	1860
2003-2004												
April (03)	72,667	102,402	74.82	93.13	16.00	24.72	6.63	8.64	1.05	0.74	1031	1833
May (03)	73,733	103,279	78.34	94.12	14.77	23.03	8.93	9.84	1.21	0.79	955	1770
June (03)	73,479	100,714	80.10	93.22	13.66	22.15	23.54	9.36	1.31	0.85	946	1801
July (03)	85,115	98,094	83.84	92.48	13.01	22.22	14.86	9.60	1.23	0.80	967	1711
August (03)	81,259	106,494	70.25	95.28	15.73	22.38	5.19	6.48	1.10	0.77	1205	1707
September (03)	83,002	104,435	77.77	100.00	14.80	21.29	7.40	10.80	1.13	0.79	1115	1636
October (03)	86,722	110,493	81.69	100.00	13.90	20.91	11.33	9.84	1.23	0.78	1009	1657
November (03)	91,107	93,467	85.24	99.20	14.54	20.64	10.47	7.92	1.27	0.76	1094	1568

Source: JNPT

Chart 1: Financial performance- Operating Surplus of major ports in India (Rs. in crores)



Chart 1A: Operating Surplus (Total of all Major Ports) 1990-2003

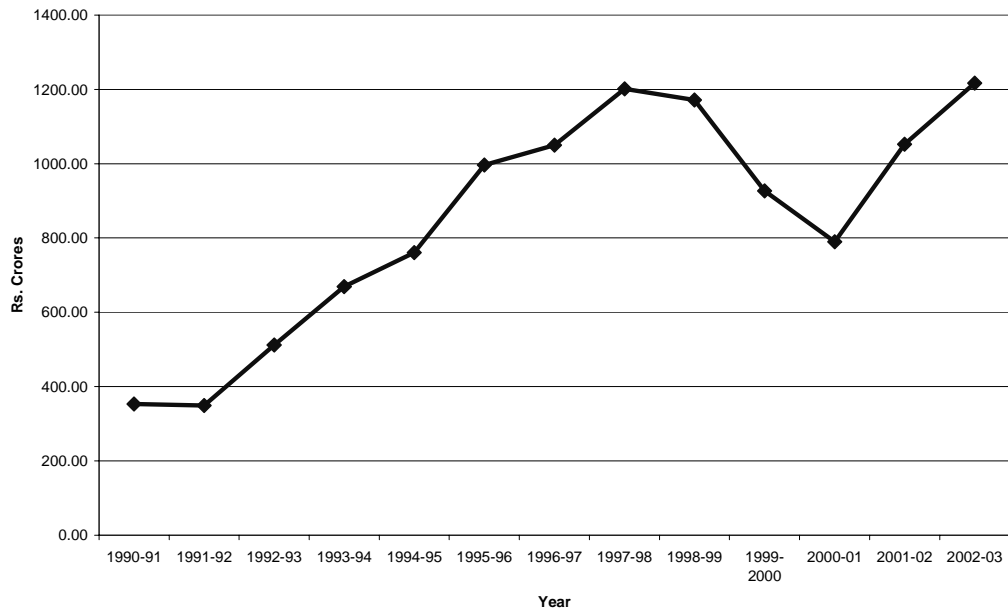


Chart 2: Average turnaround time (in days) for ships at major ports in India

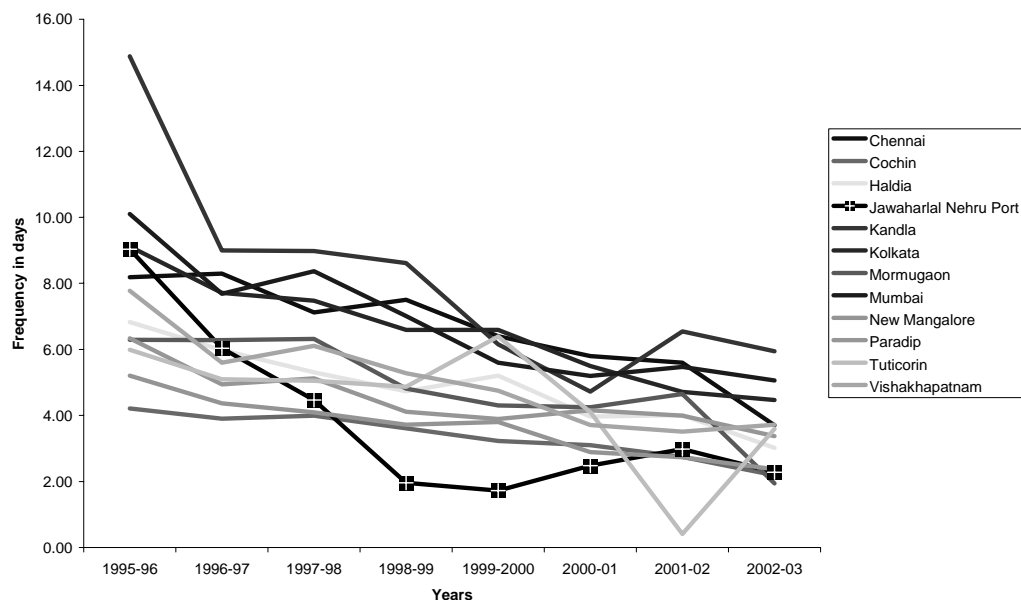


Chart 3: Average pre berthing time (in days) for ships at major ports in India

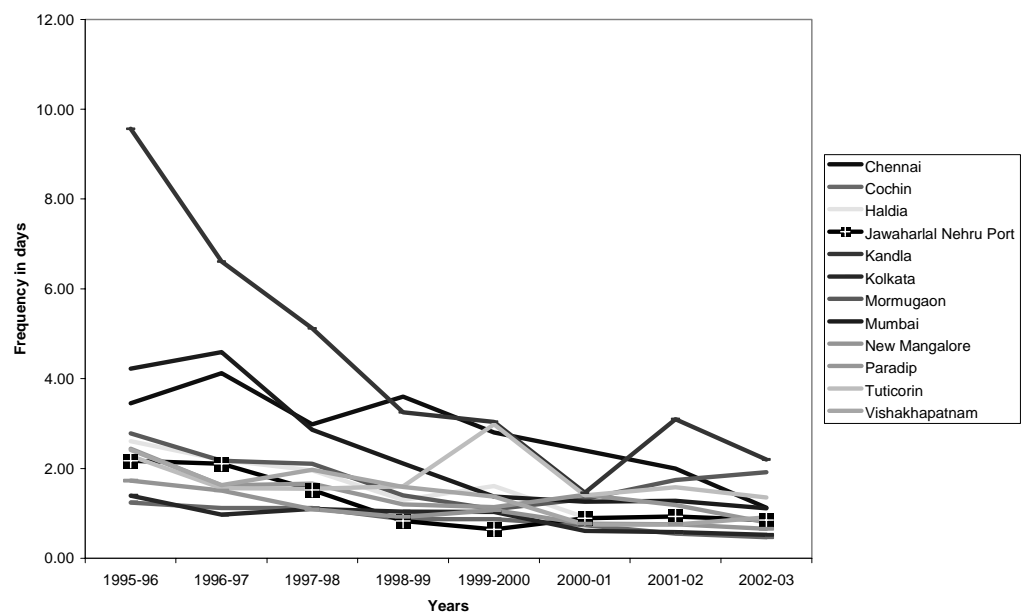


Chart 4: Percentage of idle time to total time at berth for ships at major ports in India

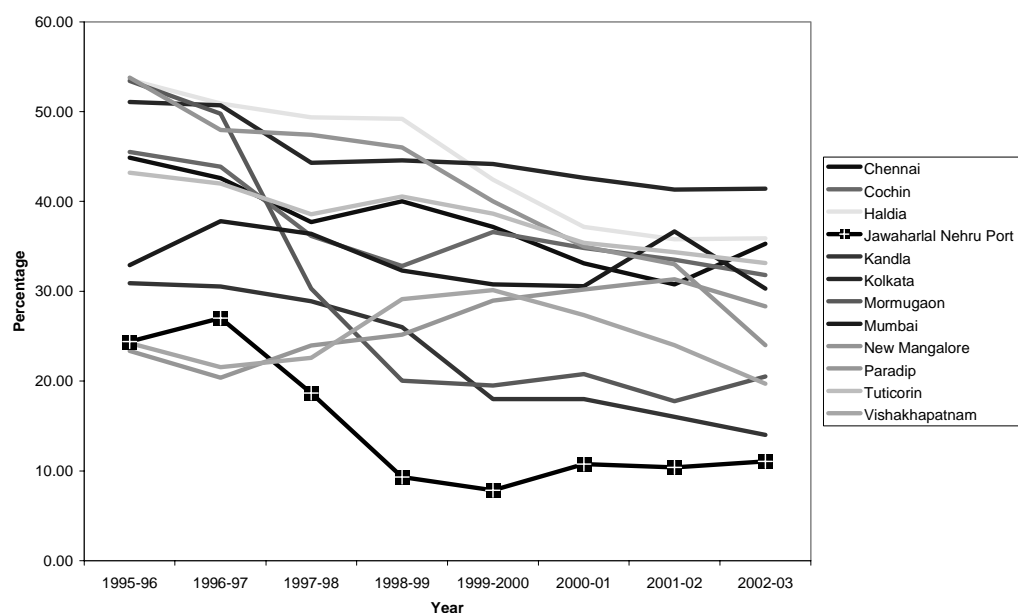


Chart 5: Average ship berth output (in tonnes) for ships at major ports in India

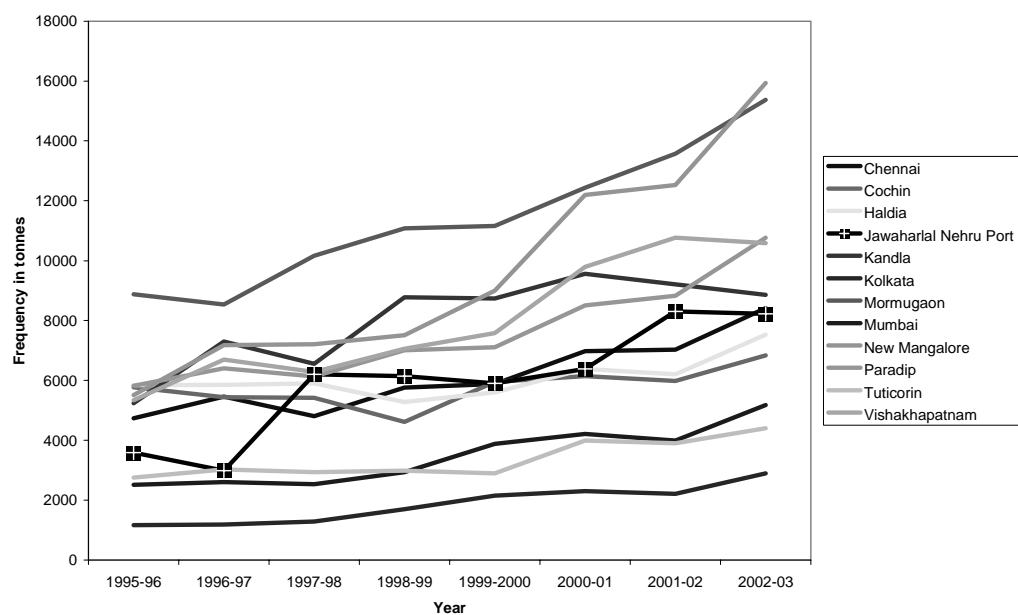


Chart 6: JNPCT and NSICT-Total TEUs handled

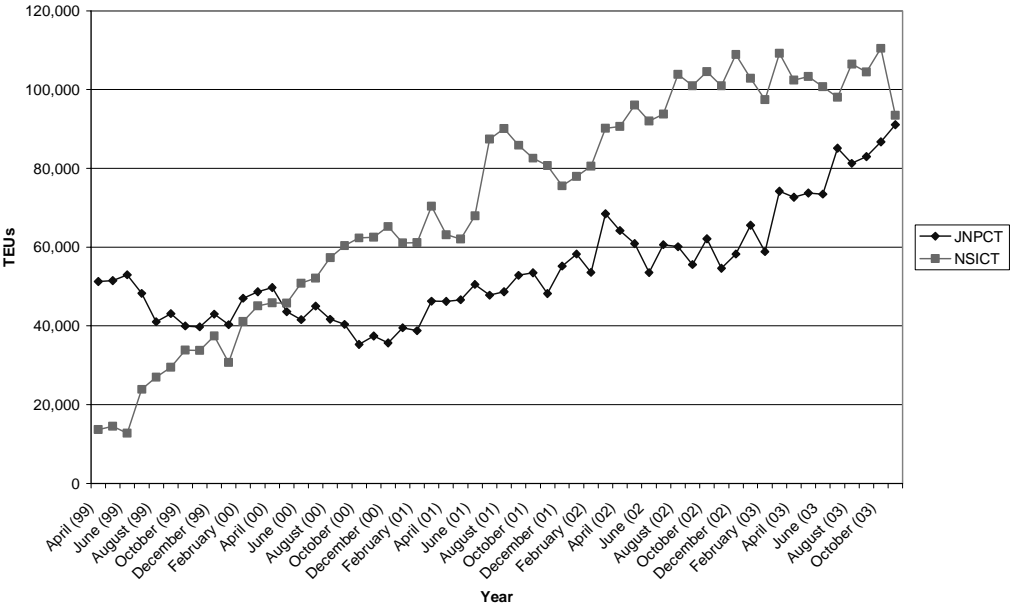


Chart 7: JNPCT and NSICT-Berth Occupancy (%)

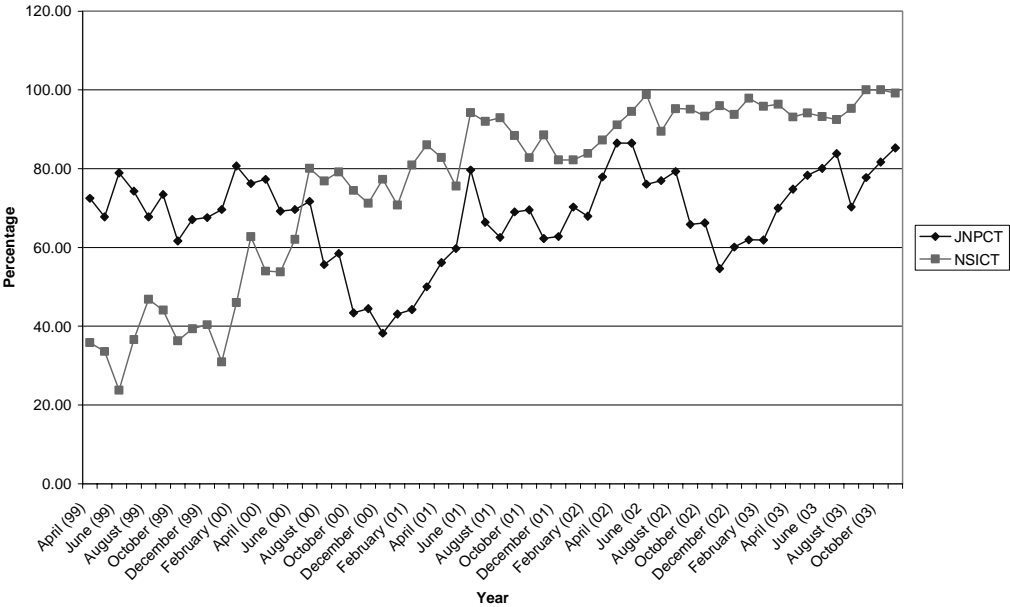


Chart 8: JNPCT and NSICT-Pre-berthing waiting time (hrs)

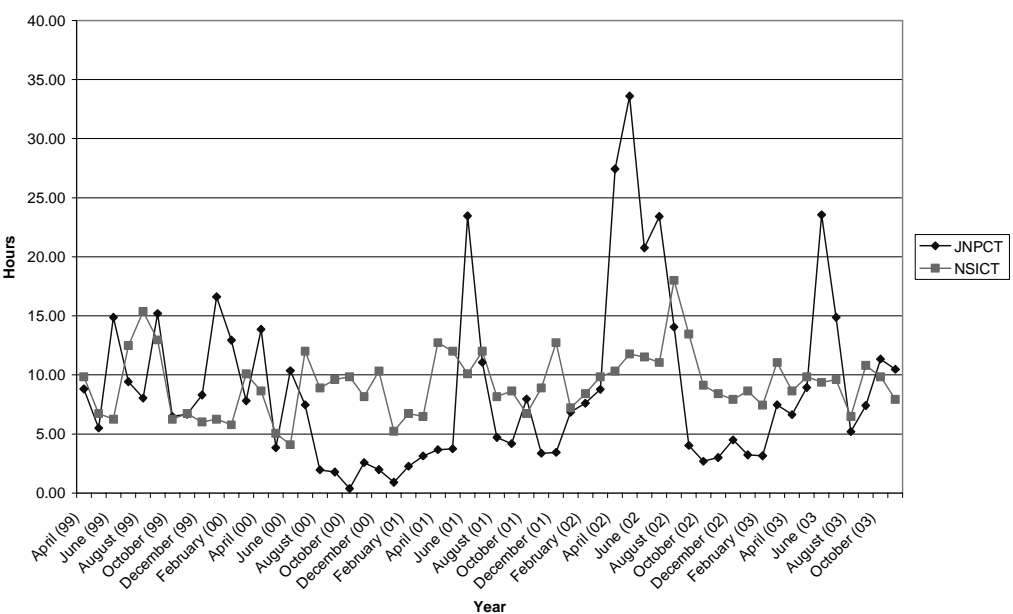


Chart 9: JNPCT and NSICT-Turnaround Time (days)

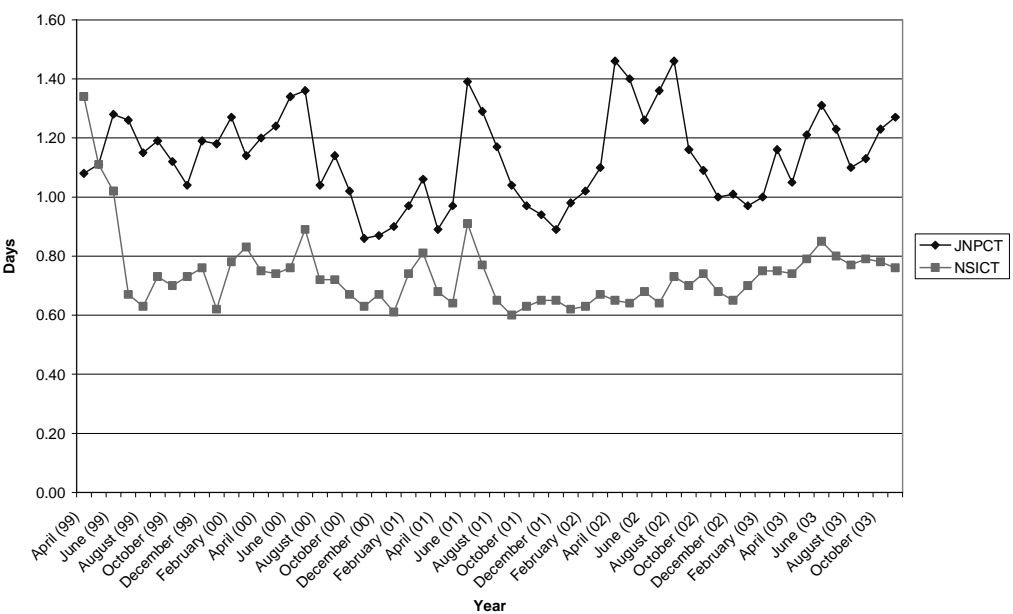


Chart 10: JNPCT and NSICT-Output per ship birthday (TEUs)

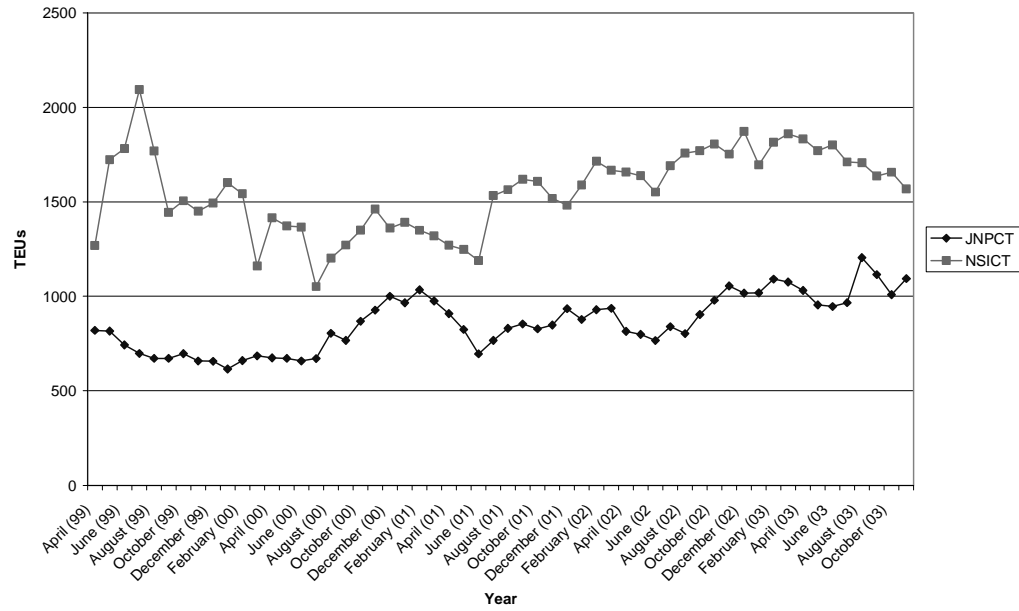
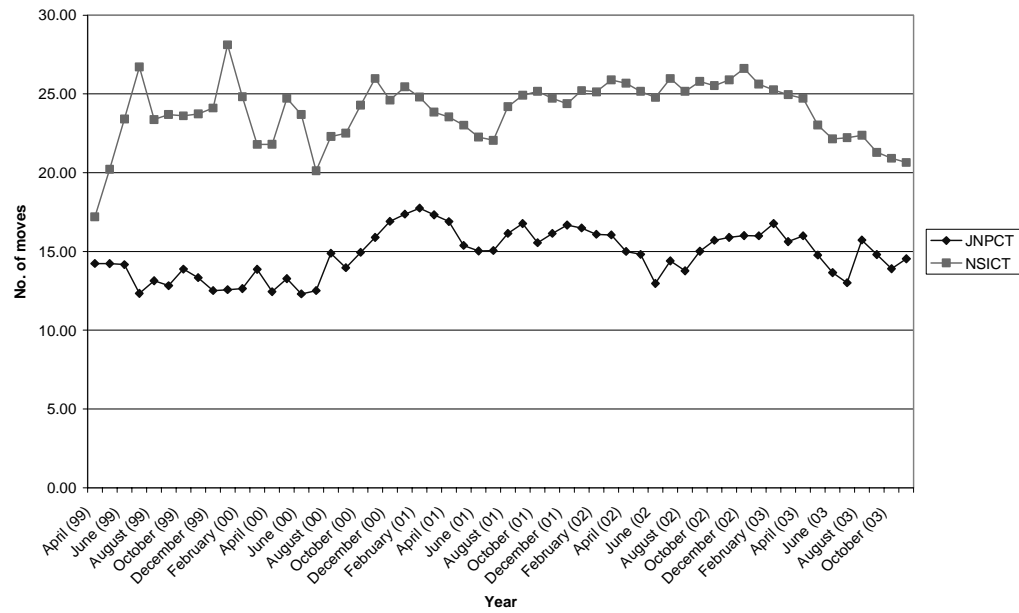


Chart 11: JNPCT and NSICT-Crane Productivity (moves/hr)



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LIST OF ABBREVIATIONS

ASBO	Average Ship Berth Output
ASTA	Average Ship Turn Around time
BJP	Bharatiya Janata Party
B-O-T	Build-Operate-Transfer
BPCL	Bharat Petroleum Corporation Limited
CERC	Central Electricity Regulatory Commission
CIDCO	City and Industrial Development Corporation of Maharashtra Ltd
CONCOR	Container Corporation of India
CPI	Communist Party of India
CRZ	Coastal Regulated Zone
DLB	Dock Labor Board
EDI	Electronic Data Interchange
GOI	Government of India
IAPH	International Association of Ports and Harbors
ICD	Inland Container Depots
IOCL	Indian Oil Corporation Limited
IT	Information Technology
JNPCT	Jawaharlal Nehru Port Container Terminal
JNPT	Jawaharlal Nehru Port Trust
LNG	Liquified Natural Gas
MGT	Minimum guaranteed through-put
MoEF	Ministry of Environment and Forest
MoF	Ministry of Finance
MoS	Ministry of Shipping
MoST	Ministry of Surface Transport
NCD	Non-convertible debenture
NSICT	Nhava Sheva International Container Terminal
POL	Petroleum-Oil-Lubricant
PSP	Private Sector Participation
RMGC	Rail mounted gantry cranes
RMQC	Rail mounted quay cranes
RTGC	Rubber tyred gantry cranes
SEBI	Securities Exchange Board of India
SEZ	Special Economic Zone
TAMP	Tariff Authority of Major Trust
TEU	Twenty-feet equivalent unit
TRAI	Telecom Regulatory Authority of India
UF	United Front
VTMS	Vessel Traffic Management System

ENDNOTES

¹ Minor ports, placed in the Concurrent list of the Constitution, fall within the jurisdiction of the State governments and are governed by the 1908 Act.

² See, for instance, World Bank (1995).

³ Total port traffic grew by 10% from 1993 to 1994 (CMIE, 2003) as compared to only 2% to 3% from 1989 to 1992. Regarding the composition of trade, the share of the once dominant break bulk cargo declined steadily from almost 70% in 1950-51 to 7% in 1993.

⁴ Simple average of ASTA for all major ports, (IPA, 2000)

⁵ Simple average of ASBO for all major ports, (IPA, 2000)

⁶ Simple average of Pre-berthing time for all major ports, (IPA, 2000)

⁷ Simple average of Share of idle time at berth to total time for all major ports, (IPA, 2000)

⁸ Through-port costs of Indian ports (except Haldia) were 45% to 50% higher for containerized cargo as compared to foreign ports and so were sea transport costs. Ship detention costs, ranging from US \$15,000 to US \$20,000 per day further compounded the problem. See World Bank (1995) and Rakesh Mohan Committee (1996).

⁹ World Bank (1995)

¹⁰ Rakesh Mohan Committee (1996)

¹¹ See "Guidelines For Private Sector Participation In Ports Through Joint Ventures And Foreign Collaborations", Ministry of Shipping Website: www.shipping.nic.in

¹² It was the Rakesh Mohan Committee Report (1996), which articulated the broad guidelines for reforming infrastructure sectors in India, including the port sector in particular.

¹³ i-maritime (2003)

¹⁴ IAPH (2002)

¹⁵ World Bank, 1995

¹⁶ Unfortunately, prior to 1995 there is no systematic compilation of such data.

¹⁷ World Bank, 1995

¹⁸ Rakesh Mohan Committee (1996)

¹⁹ Fortune India (2003)

²⁰ i-maritime (2003)

²¹ Fortune India (2003)

²² i-maritime (2003)

²³ Note that P&O Ports has been banned from bidding for the 3rd container terminal. On this count, they consider themselves to be a loser out of the reforms process. The prospective private operator who might succeed in winning this bid would be gainer.

²⁴ Business Standard news report, dated 13 January 2004.

²⁵ We must note that, JNPT's experience is rather unique because of its privileged status in the Indian port sector in the pre reform era. It may be rather difficult to replicate JNPT's experience in some of the older ports of India that are plagued with structural problems arising out of their historical legacies. Reforming such ports might require more ingenious reform design and implementation.