3 Handling Operations

All the 11 major ports had facilities to handle different types of cargo and they handled 530 MT of cargo in 2008-09.

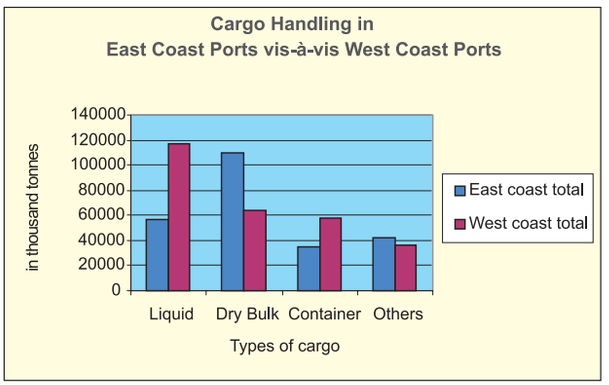


Fig 3.1

The nature of cargo was categorised into liquid bulk[31], dry bulk[32], containers[33] and break bulk[34] cargo. In terms of actual handling, the predominant share in the cargo mix was liquid bulk for Kandla, Mumbai, Cochin and New Mangalore, dry bulk for Mormugao and Paradip and containers for JNPT. Other ports handled multiple cargo types in relatively even proportions. Four ports on the east coast, viz. Chennai, Kolkata, Paradip, and Visakhapatnam played a predominant role in handling dry bulk. Dry bulk handling at Kolkata Port Trust was mainly carried out at the Haldia Dock Complex. The other three types of cargo were mainly handled at the six ports on the west coast (Fig 3.1) with JNPT alone handling 60 *per cent* of the total containers during 2008-09.

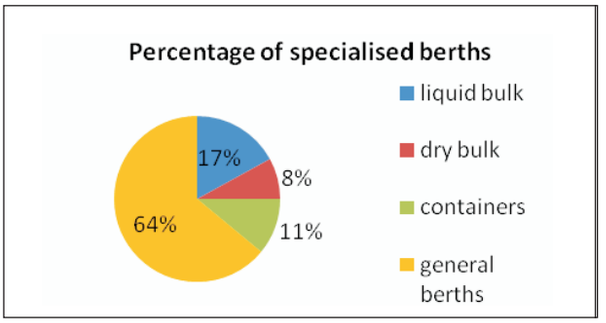


Fig 3.2

The nature of cargo has nowadays become specialized with POL, dry bulk (mainly iron ore, coal and fertilizers) and containers comprising more than 85 *per cent* of the traffic at ports. With increasing containerization of cargo globally, the share of break bulk cargo, which involves labour intensive handling, is presently as low as six *per cent* in India. For increasing handling efficiency, it is imperative that the ports create specialised high capacity berths, supported by modern equipment and an efficient labour force. It was, however, noticed (See Fig 3.2) that the share of specialised berths at the major ports was low, with 64 *per cent* of the berths being of

[31] Petroleum oil and lubricants (POL), liquid chemicals, etc
[32] Coal, iron ore, alumina, fertilizers, etc.
[33] Standardised boxes measuring 20 feet or 40 feet in length carrying a variety of cargo.
[34] Cargo shipped in non- standard packages, e.g.: project cargo, steel components, etc.

general[35] nature. Only in the case of liquid bulk cargo, almost the entire handling was occurring at specialized berths and Single Buoy Moorings (SBM[36]). The factors that affected efficient handling of each type of cargo were examined in audit and the findings are discussed below:

3.1 Liquid Bulk

For handling of liquid bulk, all ports had specialised berths where marine loading arms (MLAs[37]) had been installed. During 2007-08, 44 such berths handled 125 MT of liquid cargo with significant handling occurring in five out of 11 ports, viz. Haldia, Kandla, New Mangalore, Mumbai and Visakhapatnam as shown in Fig 3.3. Although 1.05 MT of liquid cargo was handled during 2007-08 at the Kolkata Dock System, no MLAs were installed there.

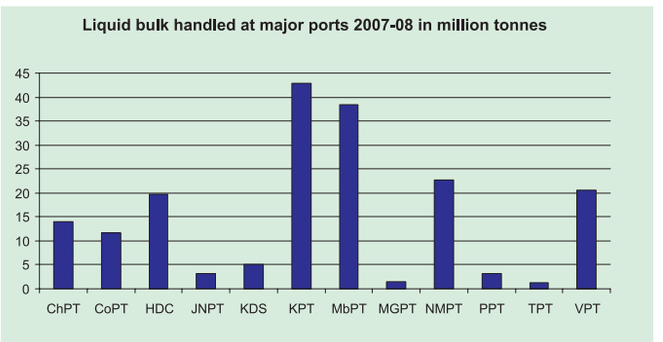


Fig 3.3

Apart from this, 28.6 MT of POL was handled at three offshore SBMs at Kandla, which was the highest liquid bulk handling port. More than 90 per cent of the liquid cargo was handled in specialised berths or SBMs. The average TRT of liquid bulk vessels, however, ranged from 1.76 days at JNPT to 5.59 days at Tuticorin (See Fig 3.4).

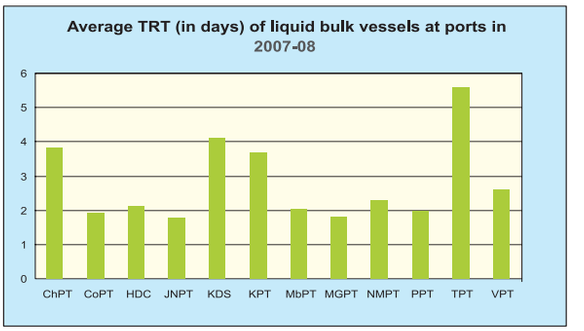


Fig 3.4

[35] Berths with equipment support that enable handling of various categories of cargo.
[36] Offshore handling facility where a temporary floating platform with pipe arrangement allows removal of cargo while a ship is anchored in the sea with the help of tugs.
[37] Specialised equipment installed at berths, connected to pipelines that enable transfer of liquid bulk cargo between a vessel and a storage tank. Capacity of an MLA is expressed in tonnes per hour. A specialised liquid berth has 3-5 MLAs.

3.1.1 Low capacity utilization of marine loading arms

For efficient handling, it is imperative that the MLAs have adequate throughput capacity which is higher than the pump capacity[38] of the liquid bulk vessels. The actual discharge rates depend on other parameters like size, distance and height of storage tanks, draft availability at the berths and size of the vessels.

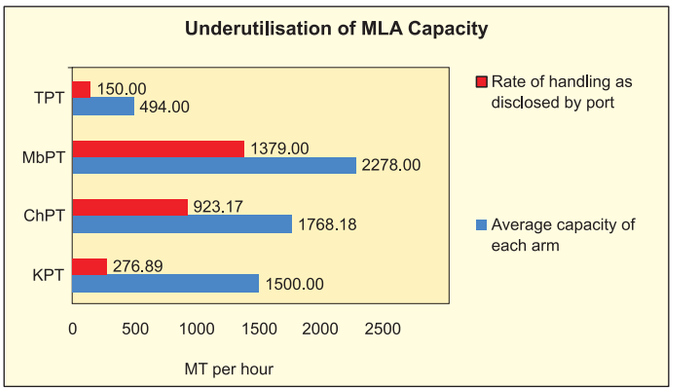


Fig 3.5

It was, however, found that in four out of 11 ports, viz. Chennai, Kandla, Mumbai and Tuticorin, which handled close to 30 *per cent* of the liquid bulk traffic, the actual rates of discharge along MLAs were significantly below capacity (See Fig 3.5).

Underutilisation of capacity of MLAs was 39 *per cent* at Mumbai to 70 *per cent* at Tuticorin, indicating inefficient handling at these ports, resulting in higher TRT. The significant low actual rate of discharge at Kandla was due to the fact that none of the seven MLAs at the liquid berths was in working condition since 2001-02. The six specialised berths at Kandla handled 22 *per cent* (9.59 MT) of liquid cargo in 2007-08 whereas the three SBMs there, handled 67 *per cent* (28.6 MT) at an average of 9.5 MT per SBM. In Mumbai, the actual discharge was low due to the low receiving capacity of the refineries. The Mumbai port, in its reply, accepted (June 2009) the observation and stated that the low discharge rates at certain cases were also due to the pump capacity of the vessels. Moreover, the port could not decide the rates of transfer independently as the users, viz. the oil companies, planned the rates of handling based on their resources and the port was maintaining the system to ensure maximum utilisation.

3.1.2 Inadequate handling infrastructure

It was observed that the installed discharge capacity of the MLAs at all the ports was less than 2000 tonnes per hour except at Mumbai. Further, at Tuticorin, the capacity of the loading arms was significantly lower than that at other ports. Thus, only vessels of smaller size could be handled at these ports. Low discharge capacity of the arms resulted in higher TRT of these vessels during the sample months, when compared to Mumbai, which handled vessels of similar size at berth no JD-2. The details are provided in Table 3.1 below:

[38] For efficient transfer, the capacity of MLAs must match those of the vessel pumps (2500 tonnes per hour (TPH) for mid-sized tankers that commonly call at Indian ports.)

Capacity of Marine Loading Arms and TRT (sample months July 2007 and December 2007)

Port /Berth	Quantity handled in MT	No of MLAs	Capacity of MLAs (tonnes/hr)	Avg size of vessels July 2007(GRT)	TRT in days in July 2007	Avg size of vessels December 2007(GRT)	TRT in days in December 2007
Mumbai/JD-1	3.891	5	2000	34500	2.3	32000	1.91
Mumbai/JD-2	1.29	3	2000	20000	1.9	13000	2.07
Mumbai/JD-3	4.73	5	2000	35000	1.78	34000	2.19
Mumbai/JD-4	13.444	5	3000	62000	1.58	57000	1.57
Tuticorin/B1	0.481	5	275-600	11000	2.38	11000	3.06

Table – 3.1

At the Kolkata Dock System, the liquid bulk vessels were constrained by the low drafts and faced inadequate handling infrastructure. As a result, 72 *per cent* of the handling was occurring at the anchorage and particular locations on the access channel, resulting in high TRT (4.1 days compared to 1.76 days at JNPT) of liquid bulk vessels.

The Ministry replied (August 2009) that the number of vessels calling at some ports was low and there was not much waiting time for such vessels. As the revamping of the MLAs was capital intensive in nature, ports were revamping them according to their requirements. While the Ministry's argument is valid to some extent, it, however, needs to be stressed that in ports like Mumbai where large volume of liquid cargo was handled, investment in revamping of MLAs at berths with low capacity would result in efficiency gains in operation. Further, in ports where the volumes handled are presently low, improvements in handling efficiency are necessary for them to remain competitive.

It was found in Cochin that liquid cargo was being backloaded followed by diversion to other ports. The details are given below:

Backloading of crude at Cochin:

At Cochin port, backloading of crude/POL took place when there was excess receipt of crude oil from the SBM as compared to KRL[39] storage capacity. The excess quantity of crude was backloaded to Mangalore or Mumbai refineries through NTB and COT berths and handling charges at Rs 65 per tonne were fully waived to relieve the port users from making double payments on the ground that wharfage on this account had already been collected at the SBM. The action of Cochin port was not justified as the handling charges collected at the SBM were Rs 25 per tonne whereas wharfage on the quantity backloaded from the berths was leviable at Rs 65 per tonne, resulting in a loss of Rs 40 per tonne. Moreover, the berths were also engaged in multiple handling of the same cargo, already handled once at the SBM.

[39] Kochi Refineries Limited

The port, in its reply, stated (May 2009) that the decision to waive wharfage for backloaded POL was taken to reduce idling at the liquid berth in the post-SBM scenario and ensure revenue from vessel-related charges for additional throughput proposed by KRL. While the port's effort to utilise the idle berth was understandable, the argument regarding additional revenue was not acceptable as the port's revenue expectation of additional throughput at the SBM did not actually materialise.

The Ministry stated (August 2009) that the backloading of cargo was an essential operation and was planned so as to ensure minimum berth occupancy. The fact, however, remains that due to infrastructural constraints, multiple handling had to be done resulting in increased berth occupancy. Consequently, the port also suffered financially due to lower rates allowed for the SBM on one hand and for their inability to use their berths on the other hand.

3.1.3 Draft restrictions compelling shift to SBMs and other ports

At the Haldia Dock Systems at Kolkata, which ranked fifth among the major ports in terms of volume (19.66 MT) of liquid bulk handled in 2007-08, draft restrictions above eight metres at the two oil jetties together with inefficient handling had become serious limitations to smooth operations. The principal user, Indian Oil Corporation Limited (IOCL), shifted (November 2008) its handling operation to Paradip port in Orissa even though the cargo would eventually come to IOCL's storage facilities at Haldia through underground pipelines. The port had failed to take any proactive action to minimise the significant business loss.

Even at Cochin, the single largest customer, KRL, shifted (December 2007) the handling point from the liquid berths dedicated to them since 1986 to the SBM. The shift resulted in reduction of revenue along with idling of the berths. Even the business plan of Cochin port had identified that the port's revenues were linked to the capacity of KRL refinery.

3.1.4 System of measurement of liquid cargo not standardised

For safeguarding the financial interests of the ports and for making inter-port comparisons meaningful, the method of measurement of volume of handling of liquid cargo and the system of billing should have been standardised. It was, however, found that the method varied from port to port as shown in Table 3.2 below:

Names of the ports	Method of measurement/ documents accepted for verification	Figures accepted for billing purposes
Chennai	Ship- Captains' and users' certificates	Manifested quantities in import applications, Outturn Report, bill of lading and approved surveyor report.
Cochin	Requisitions filed by importers	Importers' quantities

Haldia, Paradip, Tuticorin	Ullage[40] report of the independent surveyors	Ullage quantity
JNPT	Bills of lading of Customs and ullage reports of independent surveyors	Higher quantity between BL and ullage quantity
Kandla, Mormugao	Outturn reports of oil companies	Outturn reports of oil companies
Kolkata	Ullage survey	Outturn reports of oil companies
Mumbai	Quantity shown in Import General Manifest	Quantity shown in Import General Manifest
New Mangalore	International standard draft survey	Measured quantity
Vizag	Displacement method (ship figure)	Ship discharge quantities

Table 3.2

The absence of any standard norm for measurement of liquid bulk resulted in discrepancies between the actual cargo handled and the quantities billed. In Chennai, a discrepancy of Rs.87.90 lakh in collection of revenue was noticed during the years 2006-07 and 2007-08. The port, in its reply, accepted (June 2009) the discrepancy, stating that it was due to data entry mismatch, and assured that the differences would be reconciled.

Recommendations

- Ports should address the problem of under-utilisation of existing discharge capacities of Marine Loading Arms. To reduce TRT of liquid vessels, low capacity MLAs should be replaced with high capacity arms.
- Adequate draft for tankers should be maintained to avoid unnecessary diversion of cargo.
- The Ministry should fix a standard system of measurement of liquid cargo and notify a standard document for verification of the quantities handled and claiming of wharfage.

3.2 Dry Bulk

Dry bulk cargo constituted 40.55 *per cent* of the total cargo handled at major ports by volume in 2007-08.

[40] Empty space available inside fuel tanks. The ullage quantity indicates the volume of oil cargo that has been transferred out/into the fuel tank.

The ports on the eastern coast played a predominant role by handling 65.92 *per cent* of this quantity (see Fig 3.6).

In Mormugao, Paradip, Tuticorin and Visakhapatnam, dry bulk cargo constituted 94, 91, 56 and 64 *per cent* of the total cargo respectively.

3.2.1 Large volume handled at non-mechanized berths

For ensuring efficient handling of this type of cargo, it was necessary that specialized mechanised berths[41] were available in the ports. It was, however, found that handling of dry bulk at the ports was predominantly being carried out by non-mechanised means that included multiple handling.

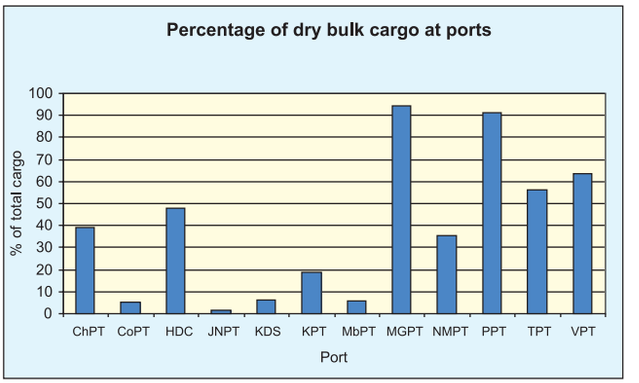


Fig 3.6


Mechanised coal handling at BOT berth at Haldia


Iron ore being loaded at a non-mechanised berth at Haldia

Although dry bulk constituted more than 40 *per cent* share of cargo by volume, only eight *per cent* of the berths were specialised dry bulk berths. In three out of 11 ports handling dry bulk, viz. JNPT, Kandla and Mumbai, there were no mechanised berths. In the eight other ports, there were 19 specialised berths for handling dry bulk, which had mechanised facilities. It was noticed that only 37 *per cent* of the dry bulk cargo was handled at these 19 mechanised berths. In 2007-08, 125 MT of dry bulk cargo was handled at non-mechanised berths.

This indicated significant inefficiencies in the handling of dry bulk at the ports.

[41] Berths fitted with conveyor systems connecting them to stackyards and handling plants. Non- mechanized berths transfer the cargo from the stackyards to tippler trucks to the quays. The material is then aggregated with the help of dozers, picked and loaded on to the ships by the use of the ships' own gear (grabs). Such multiple handling is avoided at mechanised berths.

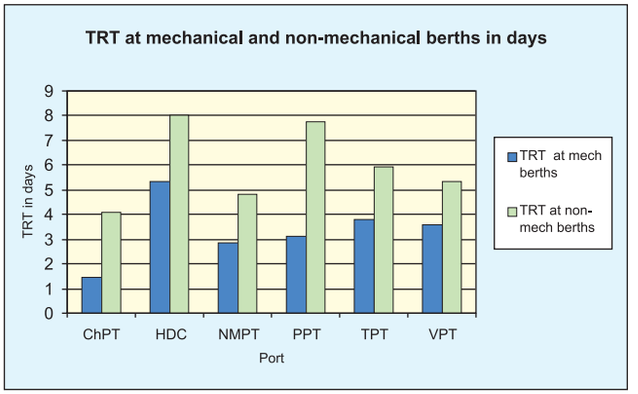


Fig 3.7

Audit scrutiny of six major dry bulk handling ports such as Chennai, Haldia, New Mangalore Paradip, Tuticorin and Visakhapatnam revealed that dry bulk vessels faced higher TRT at non-mechanised berths during 2007-08, as shown in Figure 3.7.

The business plans of three of these ports, viz. New Mangalore, Paradip and Visakhapatnam also identified non-mechanised dry bulk handling as a critical weakness in them. Tuticorin port accepted the audit observation and stated (April 2008) that more mechanised berths were being planned for the future. They also stated that as and when specific proposals for privatisation of bulk cargo handling were received, they would be examined in conformity with the Government's policy on public private partnership (PPP) projects.

Recommendation

- *Dry bulk should be handled exclusively in specialised berths with mechanised handling facilities to arrest the increasing trend of TRT of dry bulk vessels.*

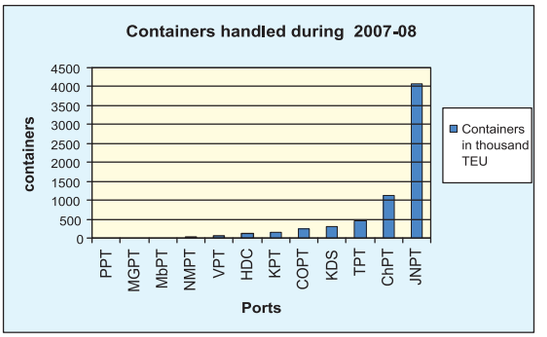


Fig 3.8

3.3 Containers

With the rising global trend towards containerization, the major ports witnessed a significant increase in container traffic by 72 *per cent* during the performance audit period. The volumes were, however, driven by JNPT which alone handled 60 *per cent* of the total containers arriving at these ports during 2007-08 (Fig 3.8)

Three other ports viz. Chennai, Kolkata, and Visakhapatnam also witnessed very high growth rates during 2003-2008. Despite the high growth of containerized cargo, only five ports viz. Chennai, Cochin, JNPT, Kolkata and Tuticorin, handled significant volumes of this emerging variety of cargo. Handling was mostly done at 28 specialized berths at eight out of the 11 ports with the exception of Mormugao, New Mangalore and Paradip. It was noticed that although five ports, viz. Chennai, JNPT, Kandla, Mormugao and Mumbai had planned schemes costing Rs.3079 crore for increasing their container handling capacity by 2009, only one new container terminal[42] at JNPT had come up till March 2009. Construction of terminals at Chennai, Kandla and Mumbai were under progress.

Containers stacked at JNPT yard

3.3.1 High performance achieved in select container terminals

The container handling capacity of a port is determined by several parameters which, *inter alia*, include the number of specialised terminals, the quay lengths of the same, the number of shore cranes, the size of container stack yards and the ratio of shore to yard equipment. The efficiency in handling containers depends on the speed of movement of the cranes and the optimal equipment ratio and is measured in terms of moves per crane hour, TEUs per metre length of quay and the number of vessels handled with the least possible TRT. It was, therefore, imperative that the ports created optimal handling facilities for efficient handling of containers.

Container terminal fitted with Rail mounted cranes at JNPT

It was found that the handling efficiency achieved at some of the container terminals, especially the privately operated ones at JNPT and Tuticorin, compared favourably with international benchmarks.

The status of container handling facilities along with the volumes handled at the five main container ports in 2007-08 is shown in Table 3.3 below:

[42] A contiguous set of berths handling containers collectively known as a terminal.

Table 3.3: Handling performance at the main container terminals at major ports							
Terminals at ports	No of berths	No of quay cranes	No. of yard equipment[43]	Total TEUs handled in 07-08	TEUs handled per berth in 07-08	No of moves per crane hour as per Ministry's report (norm[44] = 25)	TEUs handled per metre quay length as per Ministry's report (norm[45]=1500)
Chennai	6	7	24	1052993	175499	21	1267
Cochin	3	4	11	253715	84572	14.6	469
GTICT[46]	3	8	36	1290862	430287	23.7	1813
JNPCT	3	8	23	1260923	420308	16.2	1756
Kolkata	4	2	16	297287	74322	19.5	NA
NSICT[47]	2	8	35	1508056	754028	23	2513
Tuticorin	1	3	9	450398	450398	27	1283

Only two ports, JNPT and Tuticorin, handled more than four lakh containers per berth as may be seen from Fig- 3.9.

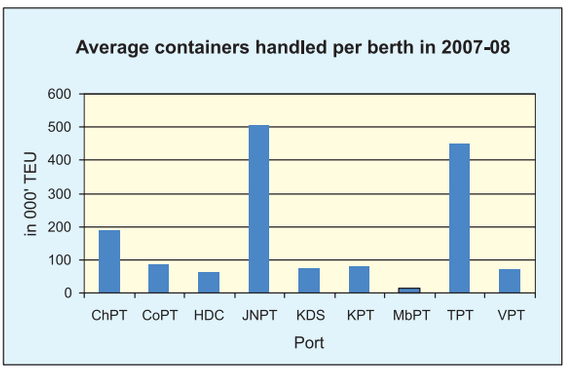


Fig 3.9

[47]The privately operated terminals at these two ports registered higher performance. The port operated terminal at JNPT achieved high handling efficiency. It was noticed that with identical equipment support and larger yard space, JNPCT, the port operated terminal at JNPT, showed 3.38 *per cent* reduction of containers during 2007-08 against 10.96 *per cent* increase at the adjoining NSICT, a privately operated terminal at JNPT. In the case of Cochin, where the container terminal was under private operation, the operational parameters were much below all the benchmarks as seen in Table-3.3. The nature of the agreement[48] with the operator at Cochin also failed to incentivise high standards of performance. It was also noticed that other major container handling ports like Chennai, Cochin and Kolkata registered lower TEUs per berth. An important factor for such low handling was that the terminals at these ports had less equipment support and the equipment ratios per berth and yard were less than that at JNPT or Tuticorin.

[43] Rubber Tyred Gantry Cranes (RTGC), Rail Mounted Gantry Cranes (RMGCs), Reach Stackers

[44] Crane moves per hour norm taken from the Port of Rotterdam Advisory Report, 2007.

[45] TEUs handled per metre quay length, Norm taken from UK benchmark (consultant's study report, Port of Chennai)

[46] Gateway Terminals India Container Terminal - privately operated.

[47] Nhava Sheva International Container Terminal – privately operated.

[48] Deficiencies in the licence agreement at Cochin have been separately commented upon in the chapter on implementation of schemes in this report.

Although Kandla had a good ratio of berth and shore cranes, it handled only 165092 TEU containers during 2007-08. This indicated underutilization of facilities and called for optimization of the container handling operations at Kandla. It was found that Mumbai port suffered a steady decline in the volume of containers handled during the period covered in the report (40.15 *per cent* during 2003-08). The port outsourced its entire container handling operations to a private operator from June 2008 onwards.

3.3.2 Variations in standards for conversion of container TEUs to tonnes

In order to exhibit a port's performance, the number of container TEUs handled is expressed in terms of volume, i.e tonnage handled. Although the Ministry had set a conversion norm where one TEU should be taken as 12.5 MT on an average, different ports adopted different conversion factors, leaving no scope for comparing their performance. Audit observed that during the period from 2003-04 to 2007-08, ports adopted variable conversion factors in determining their performance, as evident from Table 3.4 below:

Table 3.4: Factors used for conversion from TEUs to tonnes

Chennai	Cochin	JNPT	Kandla	KDS	Mormugao	Mumbai	New Mangalore	Paradip	Tuticorin	Visakhapatnam
16	12-13	12-13	14-16	14-17	10-12	12-14	14-16	14-16	11–13	13-16

As a result of adopting different standards, the reported tonnage handled differed from the actual volume of containerized cargo handled by these ports. As per the Ministry's instructions (2002) regarding standardization of definitions and concepts for reporting port performance, the tare weight of containers was not to be included in the commodity-wise traffic handled for export and import except for computing container traffic, where tare weight had been included for estimation purposes. It was, however, observed that at Tuticorin, the tare weight of the containers was being taken into account for computation of the port's performance, resulting in overstatement of cargo by 73977 tonnes and 71329 tonnes in July 2007 and December 2007 respectively. Moreover, due to inclusion of empty containers in the total figure for cargo handling, the total handling was inflated by 4.7 MT during the period 2003-08.

Tuticorin port stated (June 2009) that no specific instructions had been received from the Ministry in this regard. The reply was, however, not acceptable as the practice was in contravention of the Ministry's guidelines and the inclusion of empty containers was against the benchmark for operational efficiency as stated in the consolidated business plan for major ports made by the Port of Rotterdam.

Recommendations

- *With the increasing trend of containerisation of cargo, ports should create facilities of specialised container berths. Possibilities for conversion of existing general cargo berths into such berths should be explored.*
- *Equipment ratios between berths and yards should be enhanced to the levels of JNPT and Tuticorin at ports having significant container cargo.*
- *The Ministry should fix a standard conversion factor for computation of tonnage from TEUs handled at ports so that performance reports are not distorted*.

3.4 Adequacy of Equipment Support

The major ports, so far, have followed a service model[49] orientation where the port authorities have taken upon themselves, the responsibility of cargo handling and maintenance of equipment. All the ports owned and maintained large fleets of equipment which, *inter alia,* included a variety of shore cranes, yard cranes, trucks, pay loaders, and stackers. The numbers of equipment owned were particularly high in the older city-based ports of Kolkata and Mumbai, which had large numbers of general cargo berths.

3.4.1 Old and outlived equipment

As handling efficiency and in turn, the TRTs of vessels depended on the nature of equipment support, it was necessary for the ports to ensure the availability of suitable and well-maintained equipment.

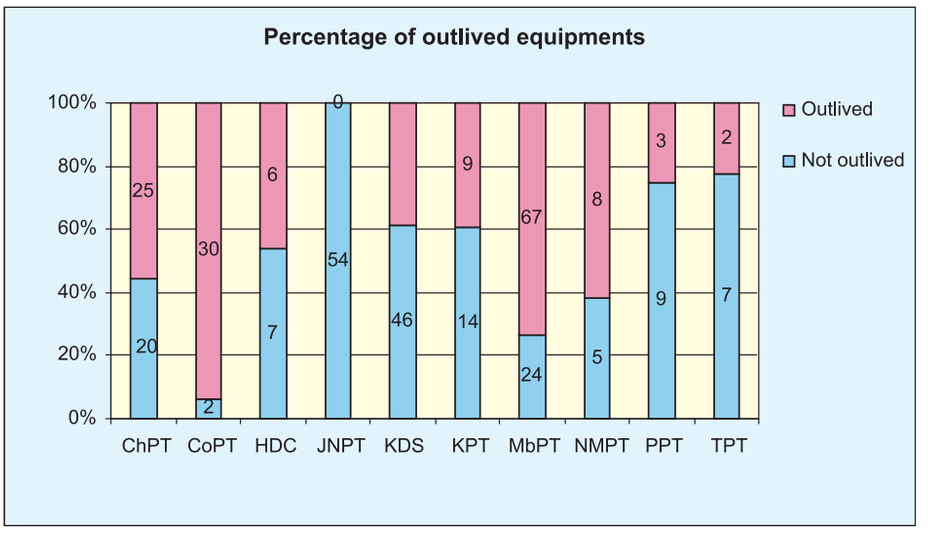


Fig 3.10

[49] A business model traditionally followed by ports the world over where responsibility of all commercial operations like cargo handling, storage etc is taken upon by the ports themselves.


Old equipment at Haldia

It was found that in all the ports except JNPT, 55 per cent of the equipment were existing beyond their economic life. The presence of outlived equipment varied from 22 *per cent* at Tuticorin to 94 *per cent* at Cochin (see Fig 3.10.). The position was far worse in the case of dry bulk cargo handling equipment[50]. Kolkata, Mumbai and JNPT had no ancillary equipment for handling of dry bulk. At Tuticorin, which had one fully mechanized and one semi-mechanized berth for handling dry bulk that accounted for 56 *per cent* of cargo, there was no ancillary equipment other than one grab crane, although dry bulk was the major cargo handled there. The users at Tuticorin were using private equipment for handling. Except for three pieces of equipment in Paradip and two at Cochin, all dry bulk handling equipment in the ports were outlived. In all, 94 *per cent* of the ancillary equipment for handling of dry bulk at ports had crossed their economic life on or before 2007-08.

Table 3.5 :Availability and utilisation of port owned equipment (2007-08)

Major Ports	Average availability (Ministry norm: minimum 90%)	Average utilisation (Ministry norm: minimum 60%)
Chennai	65.00	15.60
Cochin	84.42	15.54
Kandla	94.00	52.00
Kolkata	66.92	26.10
Mormugao	88.60	20.80
Mumbai	79.00	18.00
New Mangalore	96.74	10.75
Paradip	71.60	21.73
Tuticorin	97.19	42.36
Visakhapatnam	90.70	39.52

3.4.2 Low demand for port equipment and hiring from private parties

It was noticed that although the ports were ensuring high availability of shore cranes, yard cranes, pay-loaders, top lift truck, fork lifts etc, their average utilisation was very low in eight ports[51].

This indicated their unsuitability and low demand for port-owned equipment. The availability and utilisation of port-owned equipment during 2007-08 was as shown in Table 3.5 .

It is evident from the table that three ports, viz. Kandla, Tuticorin and Visakhapatnam could ensure compliance with the Ministry's availability norms.

[50]Ancillary equipment for handling dry bulk mainly comprising pay loaders, fork lift trucks, tractors, dozers, etc.
[51]Except Kandla, Tuticorin and Visakhapatnam.

However, utilisation of all equipment belonging to the ports was much below the minimum utilisation norms of 60 *per cent* prescribed by the Ministry.

During 2007-08, the utilization of 26 pieces of equipment at Cochin, Mormugao, New Mangalore and Visakhapatnam was less than 5 *per cent* despite the availability being above 80 *per cent*. In Chennai, two pay loaders were not used even once despite 52 *per cent*[52] availability.

Case Study: Crane utilisation at Chennai

Three 20-tonne gantry cranes were procured and commissioned by Chennai port at a cost of Rs 35.77 crore in 2000. Their utilisation declined steadily as shown below:-

Year	Percentage utilisation
2002-03	18.12
2003-04	4.61
2004-05	1.06
2005-06	0.72
2006-07	0.0

It was found that the users of the port were not willing to hire the cranes as the hiring charges levied by the port were high. The users, instead, preferred to hire private equipment having grabs of higher capacity. Apprehending a safety threat reported by the Inspectorate of Dock Safety, action for disposal of the entire lot was taken by the port in April 2007.The highest offer received was Rs.4.67 crore. The port approached the Ministry in November 2007 for writing off the eventual loss on disposal. Approval of the Ministry was awaited as of February 2009. While accepting the facts, the Management, stated (February 2009) that the primary cause of underutilisation was that the users had the option to use their own or private equipment and the cranes available with the port were unable to work with grabs of higher capacity as preferred by the users. It was further stated that reduction of hire charges below the ceiling rate approved by the Tariff Authority for Major Ports (TAMP) would have only drastically reduced the return on investment (ROI) made on acquisition of the cranes without improving the level of utilisation. The reply was not tenable as the ROI had become very low since 2003-04 due to poor utilisation.

At Haldia, which featured among the top five ports in terms of volume of dry bulk cargo handled, 11 pay loaders had suffered breakdowns and the users were hiring private equipment to carry out operations. The users of Visakhapatnam port indicated that low productivity of port equipment made cargo handling uneconomical. The demand for port equipment was low as they had outlived their economic life.

As port equipment was often unsuitable for meeting user requirements, users at all ports except Cochin, New Mangalore and Visakhapatnam were resorting to hiring of equipment directly from

[52] The availability of these two payloaders was much below the Ministry's norms due to frequent breakdowns.

private vendors. In Cochin, private equipment was not allowed in any of the docks and the users were thus compelled to use old and obsolete port equipment. In Mormugao and Kolkata, the users were hiring container handling equipment. No ports, however, maintained any systematic records relating to the extent of such hiring. The performance of port-owned equipment vis-à-vis private-supplied equipment could not be compared due to the absence of sufficient records.

Equipment maintenance

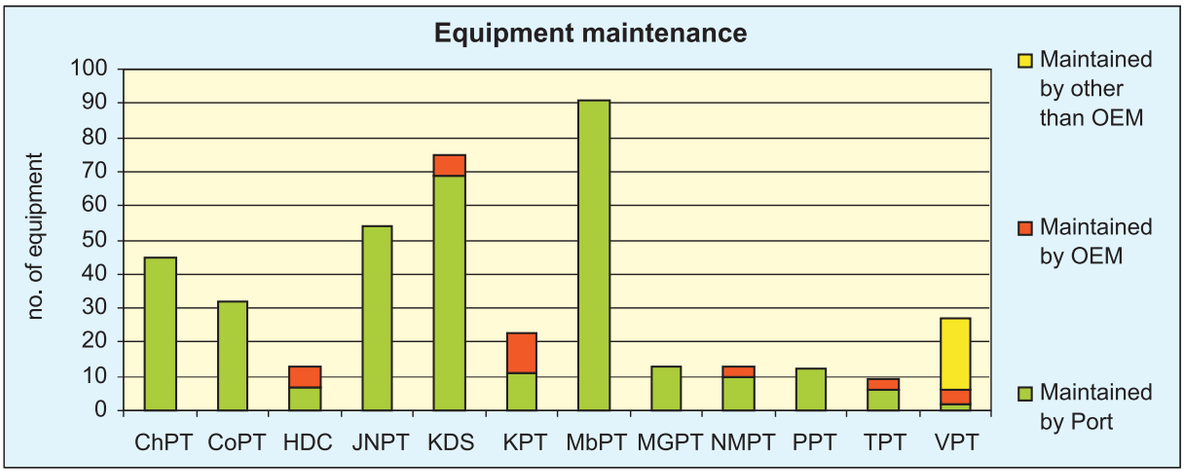


Fig 3.11

Although the demand for port-owned equipment was low and a large share of the fleet was beyond economic life, the ports were found to be incurring substantial expenditure on maintenance. The maintenance policies, however, varied from port to port. The entire fleet was being maintained internally at five ports (Fig 3.11). Only in Visakhapatnam, repairs and maintenance of 73.53 *per cent* of the equipment was outsourced. High-priced modern equipment like RMQC, RTYGC[53] were, however, being maintained by OEM[54] at all ports except JNPT, where equipment availability was more than 90 *per cent*. At Kolkata, which had the largest equipment fleet following Mumbai, with only 26 *per cent* utilisation, the expenditure on the maintenance setup per annum was highest at Rs 22.21 crore. In spite of this, the equipment availability at the port was the least (66.92 *per cent*) among the ports and was far below the minimum availability norms set by the Ministry. At Haldia, although the container traffic was low, the container handling cranes (RMQCs) maintained by OEM registered 32 *per cent* downtime during 2007-08 indicating improper maintenance.

[53]Rubber Tyred Yard Gantry Crane
[54]Original Equipment Manufacturers

3..4.4 Replacement of equipment

Replacement and procurement of new equipment was being done at all ports except Kandla where the port extended the life of nine outdated equipment by two years, leaving Rs.108.33 crore in the Replacement Fund unutilized till 2007-08. In order to synchronise the equipment support with the emerging cargo mix, it was imperative that the ports factored in their own business plans, their traffic projections and preferences of users of equipment. It was found that equipment replacement was being done mostly on immediate need basis and all the factors mentioned earlier were not being taken into consideration. Further, no port was found to have paid attention to the preferences of users regarding procurement or replacement of equipment during 2007-08. Procurement and replacement were not commensurate with the cargo mix handled by the ports, future diversification plans and user preferences as described in the examples given below:

- At Chennai, although the port planned to gradually phase out dry bulk cargo like coal and iron ore, it invested Rs.47.83 crore on installation and operation of a semi-mechanised coal handling plant in 2007. The Management stated (June 2009) that as coal handling was on the rise due to capacity constraints at Ennore, installation of the system had become necessary to control dust pollution. Moreover, due to overall recession in the shipping trade, shifting of coal elsewhere would have affected the port's revenue. The reply is not acceptable as the contention of the port is inconsistent with its long term vision. Further, the argument of recession is not valid as the investment was made in 2007 when maritime cargo in Chennai and in India overall, was witnessing high growth.

- Although dry bulk handling was significant at Haldia (Kolkata port), no dry bulk handling equipment had been procured for the port during the last five years. Instead, six container handling equipment were purchased at a cost of Rs. 71.19 crore, which remained underutilized as container cargo at Haldia remained low.

- At Visakhapatnam, the port did not have adequate equipment to effectively meet user requirements. There were demands from the users for better capacity equipment like mobile cranes of 150 tonne capacity, shore cranes of 40 tonnes capacity, etc which could not be provided by the port.

Further, the ports had reoriented their business models from 'service' port to the new 'landlord' port model under NMDP, framed in 2006. According to the 'landlord' model, a port focuses on trade facilitation by making investments on creation of common user facilities. Commercial operations like cargo handling are undertaken by private players who share revenue with the ports. Under this new model, although the ports were expected to move away from commercial operations like

cargo handling, it was noticed that 41 schemes for procurement and replacement of equipment valuing Rs 1622.67 crore were planned by the ports under NMDP (2005-06).

The Ministry, in its reply (August 2009), did not comment on the need to factor in user preferences, future diversification plans or the decisions to move away from the service model and its impact on equipment procurement. It simply stated that the ports had undertaken major capacity expansion plans that included modernization and addition of cargo handling equipment.

Recommendation

- *Concerted efforts should be made by the ports to phase out outlived equipment. Selection of equipment should reflect the port's business plan, trend and type of major cargo handled, and users' preferences.*

3.5 Labour Engagement

As cargo handling operations had been highly labour- intensive in the past, an assured supply of a large number of dock workers was necessary to provide competitive advantage to ports. In India, Dock Labour Boards (DLBs) had been set up at seven major ports, viz. Chennai, Cochin, Kandla, Kolkata, Mumbai, Mormugao and Visakhapatnam under the Dock Workers (Regulation of Employment) Act, 1948 for ensuring optimum labour utilization. This Act was amended in 1997 to merge the DLB pool with the port labour. This had been achieved in all ports except Kolkata.

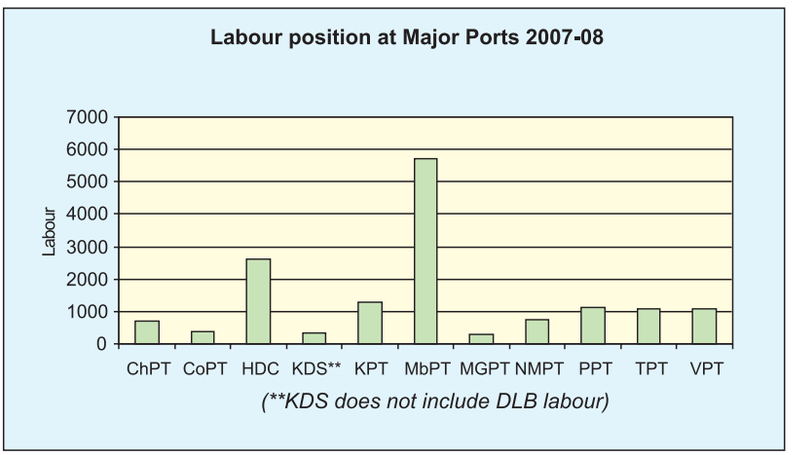


Fig 3.12

The process of handling, however, witnessed increased mechanisation as cargo packaging became more standardised. This led to a sharp fall in labour intensity of cargo transfer operations over the past decade, along with a rise in demand for new skills to operate the mechanised facilities.

Although the legislation governing DLBs was amended in 1997, leading to merger of the entities with the ports, old ports like Mumbai and Kolkata continued to remain heavily staffed organizations, resulting in high cost of services provided. The position of labour at the ports is shown in Figure

3.12. The overall staff positions at newer ports varied significantly with those of the old ports which were heavily staffed at all levels. The DLB at Kolkata continued to remain a separate entity.

3.5.1 Adequacy of labour supply

For ensuring effective and efficient cargo handling operations, it is necessary that the supply[55] of labour by ports is adequate. Audit observed that eight out of 11 ports, except Chennai, Paradip and Tuticorin reported shortfalls[56] in supply. The shortfalls at Kandla (25 *per cent*), Kolkata (30 *per cent*) and Visakhapatnam (59 *per cent*) were particularly high. In contrast, a surplus of 39 *per cent* was noticed at Paradip during 2007-08. The Chennai port business plan identified surplus labour as a weakness of the port. Mormugao was unable to supply enough workmen to operate a minimum of three hook[57] points at the berths. At Visakhapatnam, the shortfall was due to short supply of labour by the DLB. The users of the port indicated that the short supply of labour had seriously hampered onboard operations on many occasions. The users were, therefore, compelled to engage private labour.

The Ministry stated (August 2009) that the Visakhapatnam Dock Labour Board had been merged with the port and Visakhapatnam Port had also implemented the tribunal award on manning scales. This changed scenario could take care of the shortage of labour at Visakhapatnam.

3.5.2 Labour Productivity

To attain high operational efficiency in cargo handling, the ports should ensure that the available labour pool is properly trained, disciplined and productive. Further, the Ministry should also facilitate the laying down of proper standards for productivity assessment under the present equipment and handling conditions. Also, a standard format for reporting of productivity should be put in place to enable monitoring of performance.

The assessment of labour productivity at the ports was being made as per certain standards, viz. manning scales and datum. While manning scales determined the number of persons required for carrying out each type of activity, the datum determined the minimum output of labour per hook per shift, fixed on the basis of 80 *per cent* of the average tonnage handled during previous three years. For proper assessment, therefore, it was critical that the scales and the datum were reviewed and revised on a regular basis as new equipment and handling procedures were introduced in the ports.

[55] The ports supply labour to users on requisition. Deployment is made in terms of gangs for the number of hooks to be operated, and billing is done on the basis of period of engagement.
[56] Shortfall has been measured in terms of number of gangs supplied against number of requisitions.
[57] A location on the berth where cargo is transferred from the vessel by cranes/ grabs etc.

In this regard, Audit observed the following:

- The scales and datum at most of the ports had been fixed long back and had not been revised for more than 10 years.

- At Kolkata**,** an average of Rs 3.55 crore per annum was being paid on overtime allowances. Further, the ports were also incurring substantial expenditure on incentives to workers, as overall cargo volumes had shot up. For example, incentives were being paid in 2007-08 at Tuticorin under the piece rate incentive scheme, 1996 on the basis of datum fixed in 1998, although cargo volume had more than doubled at the port. Consequently, the users were also facing the high cost burden of port labour.

- At New Mangalore, the standards agreed upon in 1974 were being followed without revision, even though large scale mechanisation of handling facilities viz. conveyors, MHCs, etc had been made subsequently at the port. The norms were prescribed at Kandla in 1979, but no revision had been carried out so far. Due to such non-revision, the productivity assessment was distorted. As the manning scales were outdated, the deployment of persons for handling activities was higher, resulting in large overtime payments incurred by the ports.

- The business plan of New Mangalore port noted that the private sector was being forced to make use of the port's labour for cargo handling, which was more expensive. This was identified by its consultant as one of the main weaknesses of the port. The users of New Mangalore port felt that the manning scales for deployment and the datum required downward revision, which would reduce the cost of labour.

During the exit conference, the Ministry accepted (June 2009) the audit observation and stated that the matter of revision of manning scales had been referred to a National Tribunal. As per the recommendations received in 2006, orders were being issued in May 2009 for implementation. The Ministry accepted that with such implementation, the unjustifiable overtime payments would be significantly reduced.

The Ministry stated (August 2009) that the issue of standardization of manning scales and rates was referred to the National Industrial Tribunal in the year 2000, but the award could not be implemented due to a stay by Andhra Pradesh High Court. The stay was vacated in April 2009 and all ports were asked to implement the award. The Ministry felt that the implementation would bring uniformity and also bring down excess overtime payments. It was, however, seen that apart from Cochin, Mormugao, Paradip and Visakhapatnam ports, the other ports were yet to implement the award.

It was also noticed that the nature of reporting of productivity by ports was dissimilar and incorrect. The productivity was being reported in terms of gangs[58] or hooks. As composition of gangs and deployment per hook varied from port to port and also from cargo to cargo, inter-port comparison was difficult. It was further noticed that although the ports stated that they were not engaging any private labour, users at Chennai, NMPT, Tuticorin and Visakhapatnam clearly indicated that they had to engage private labour at additional cost, as the port labour was unproductive, inhibiting efficient handling. The extent of such handling done by private labour was neither being recorded nor segregated by the ports and the entire handling contribution was being attributed to port labour. Thus, the labour productivity reported by the ports to the Ministry was inflated and incorrect. While factoring in such distortions, inter-port comparison indicated that productivity at Cochin was very low. Business plan of Cochin port also identified this as a major weakness. Further, the labour rates at Cochin were substantially higher. The Management of Cochin Port accepted (May 2009) the observation and stated that steps to improve productivity through rationalization were being taken. They further offered to examine the reasons for variation in labour rates.

Reasons for low productivity of labour were mainly lack of training, aging labour force and indiscipline. Port users at Goa, Mumbai and Visakhapatnam stated that the available labour pool was unskilled and the skills of the labourers, especially those who handled steel and project cargo were inadequate. Hence, training was required for them. It was also noticed that the average age of the 5720 labourers at Mumbai was 51 years, which could have been a reason for low efficiency. Users also pointed out that labour indiscipline was inhibiting efficiency at Visakhapatnam. Effective work time in a day was only seven to eight hours there due to erratic punctuality, resulting in higher cost of operations. Visakhapatnam port, in its reply, stated (June 2009) that effective steps had been taken to improve punctuality of the labour. However, the Management also pointed out that delays in handling occurred as untrained hired labour was being engaged by the users in case of shortfall of port labour. At Cochin, the work was affected on 11 occasions in 2007-08 due to unrest by the port's own labour. On three occasions, the work down was extended up to 23 days, 17 days and 37 days, resulting in diversion of cargo. The port communicated to the Ministry that in addition to strikes called by the port's own employees, there were many instances of dislocation of work due to flash strikes, etc called by workers of different stakeholders like steamer agents, Customs agents, truck operators, etc. affecting productivity adversely.

[58] Deployment is made in terms of gangs for the number of hooks to be operated, and billing is done on the basis of period of engagement. Composition of a gang varies from nine to 17 workers.

Recommendations

- *For making correct assessment of labour productivity, ports should revise the manning scales and datum as recommended by the National Tribunal in 2006.*
- *The extent of engagement of private labour and their output should be recorded to distinguish their output from that of port labour, to avoid misreporting to the Ministry.*

3.6 Storage of Cargo

Availability of large storage areas at ports enables larger handling capacities and efficient accumulation of cargo. Moreover, ports earn significant revenue by leasing and renting out storage spaces.

3.6.1 Adequacy of storage area

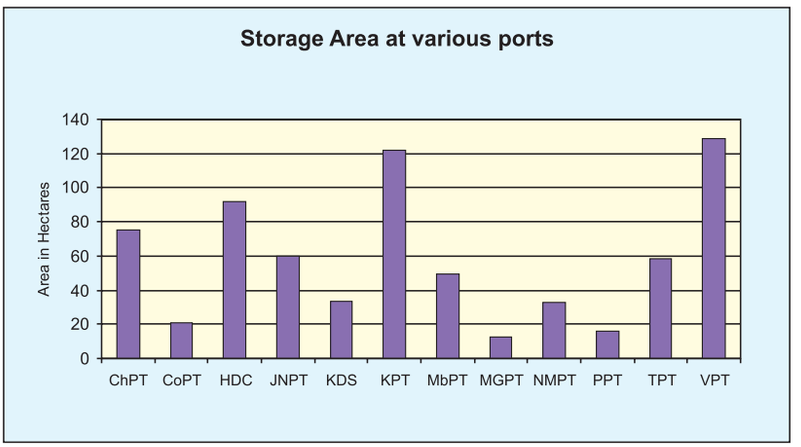


Fig 3.13

To ensure efficient landward transfer of cargo handled at the berths, it was necessary for the ports to have adequate storage areas. It was noticed that the storage areas available at ports, apart from Kandla and Visakhapatnam were less than 60 hectares[59] as shown in Fig 3.13.

Further, the scope of expanding the available storage areas also had its limitations. For example, at JNPT which faced shortage of space, further expansion possibility was limited as the process of land acquisition behind the terminal was fraught with rehabilitation risks.. Unlike international ports like Singapore, the major ports were generally not undertaking expansion by reclamation of land from the sea. Only at Tuticorin, the port had undertaken such reclamation.

[59]Against 60 hectares for three terminals at JNPT, the land availability for four container terminals at the Port of Singapore is 425 hectares.

Revenue earned from storage	
Port	Storage and demurrage receipts 2007-08 (Rs in crore)
ChPT	6.07
KPT	7.06
MbPT	76.97
NMPT	1.72
TPT	6.00
VPT	8.54

Table 3.6

It was also noticed that the revenue earned by the ports from storage operations varied widely as seen from Table 3.6[60].

In spite of having more space, Kandla and Visakhapatnam, which handled the highest volumes of cargo among major ports, earned low revenue from storage services. The business plan of Kandla port also identified sub-optimal utilisation of space around the port, as one of its major weaknesses. The users of most ports felt the availability of storage areas was inadequate.

Faced with scarcity of land for storage and limited scope for expansion, optimal utilisation of storage space was necessary to avoid congestion and to earn more revenue for the ports.

3.6.2 Undeveloped spaces/sheds hindered optimal utilization of storage area

At the ports, while some areas were earmarked for storage of containers and bulk cargo, most of the storage areas were for multipurpose use. Port users felt that the storage areas were of poor quality as detailed below:

- At Cochin, there was no exclusive storage area for foodgrains and other perishable cargo. Users complained about the poor maintenance of covered storage space resulting in deterioration in the quality of wheat stored and heavy losses. Sheds for storing cement were reportedly leaking.

- In Kolkata, the areas available within the port premises were not developed and properly allocated for storage. Port users at Kolkata felt that the hardstands[61] and the storage areas were of poor quality and the lease rates sought for these marshy and unsuitable areas were relatively high. A number of godowns (at Garden Reach jetty) were presently filled with scrap and remained unused. The users felt that obsolete sheds and spaces at a number of locations (like Alifnagar and southern parts of Kidderpore and Netaji Subhash Docks) could be developed into proper storage areas.

- At Mumbai, there was a shortage of covered storage sheds. Consequently, roofless sheds were being allotted for foodgrains. Further, for automobile cargo, the parking area allotted was far away from the berth, causing inconvenience to users in loading, leading to higher TRT. The poor storage conditions also invited damage claims amounting to Rs 1.92 crore.

[60]At MGPT, storage and handling charges are collected together, and cannot be bifurcated.
[61] Built up spaces (concrete surfaces) used for storage.

At Kandla, a joint inspection carried out by Audit along with the port officials, revealed that there was no proper demarcation of plots, the storage areas were not clean and cargo was not being stacked properly as shown in Figure 4.2 that follows:.


Plot No. 1 at KPT


Plot No.7 at KPT

- Verification of records at Mattancherry and Ernakulam wharfs at Cochin for the period 2003-08 revealed that food items such as wheat, soybeans oil, copra cake, etc. were stored in the same shed where chemicals and minerals like calcium bauxite, industrial salt, sponge iron, murate of potash, coal, etc were stored.

- At Haldia, the users indicated that although sheds in the back-up area of Berth no. 9 had been allotted for storing food and agricultural products, these could not be utilised due to handling of iron ore at the berth. Therefore, the foodgrains had to be stored in other sheds.

- Apart from Mormugao and Mumbai, none of the ports had a laid down system for regular maintenance of storage areas. At Mormugao, temporary partitions were being used to segregate cargo**.** In Mumbai, the port had an annual budget of over Rs one crore whereas at Visakhapatnam, less than Rs 15 lakh per annum was incurred during the last three years for maintenance of the storage areas.

3.6.3 Storage policy and review of storage areas

At the ports, allotment of space inside the wharf areas was done by the Traffic Managers and outside these areas, by the Estate Officers of the concerned ports, based on the land policy guidelines issued by the Ministry in 2004.

As per the policy framed by the Ministry, the validity period for allotment of licences inside the port area was 11 months, with an option for renewal by paying five *per cent* escalation charges. Further, the licensees were required to follow all conditions stipulated in the Scale of Rates. Users

of the port at Kolkata felt that the quality of land allotted for storage was poor, compelling the licensees to make substantial investments in cleaning and construction of hardstands for making the areas suitable for storage.

Audit observed that as the validity period of the lease was only up to 11 months, it was a disincentive for making long-term investments and the 11-month ceiling on validity of lease was not in the interest of long -term users of the ports.

It was noticed that storage area plans were being reviewed annually in four ports, monthly at Visakhapatnam and as and when required in three other ports. At Kolkata, there was no system of regular review of storage area plan. At Chennai, it was found that the port had introduced a good practice, i.e if space licensed by a firm was not utilised and kept vacant for a period exceeding two months, the licence issued to it was to be terminated and the firm advised to surrender the space.

Recommendation

- *The 11-month ceiling on storage area licences may be modified in the interest of long-term users.*
- *The Chennai model of storage area review may be adopted at other ports.*

3.7 Cargo Handling and Environment

As handling of liquid bulk (POL, chemicals, etc) and dry bulk (coal, iron ore) carry significant environment pollution risks, it was necessary that the ports ensured compliance with extant regulations and implemented good practices to mitigate them. The issues relating to the environmental risks noticed during audit are described in the succeeding paragraphs.

3.7.1 Precautions for handling oil cargo

To prevent and minimise risks to marine environment posed by the handling of POL[62] cargo, vessels handled at berths should be surrounded by oil booms[63], so as to restrict the spillage of oil.

Further, the Central Pollution Control Board (CPCB) regulations stipulate that ports should install oil sensors, oil spill response equipment, fire sensors, etc, and also periodically report compliance to the Pollution Control Boards.

[62] Petroleum Oil and Lubricants
[63] Protective floating barriers that surround the ship to restrict the impact of spillage of oil.


Oil vessel being handled without using oil booms at KDS


Greasy oil jetty at KDS

Audit observed that at Mumbai port, one of the highest POL cargo handlers in India, marine pollution equipment procured at Rs. 2.63 crore between 1991 and 1995 was not being utilised properly due to the absence of trained staff and proper maintenance. Non- removal of old pipelines also constituted safety hazards. At Tuticorin, there was no oil spill response equipment. Unlike JNPT which had scuppers[64] at the jetty. no such structures were found installed at Kolkata, although significant oil handling was occurring at jetties (at Budge Budge) outside the dock systems. In the absence of these, the oil jetties and installations at Kolkata remained greasy. There was no ballast[65] facility at the berths at Cochin.

Good practices in India:

In Visakhapatnam, oil booms were being placed on all sides of liquid bulk vessels to suck spilled oil. Fire watches were also being placed near the vessels. User charges were being levied for such services. Such booms were also being used at Chennai where an oil recovery vessel was also available. At New Mangalore, de-ballasting facilities were provided for tankers in its premises to avoid pollution. The port was also recovering cleaning charges from users.

3.7.2 Precautions for handling dry bulk

To mitigate the impact of dust, air and noise pollution due to handling of dry bulk, CPCB stipulated that ports should restrict the heights of iron ore and coal stacks; surround them with wind-screens; load vehicles carrying such dry bulk cargo up to the brim and cover them with tarpaulin; install sensors for automatic water sprinkling at dust generating locations and install anemometers[66] to

[64]Openings in side walls allowing draining out of liquids.
[65]Water filled devices used on ships for stability. To avoid marine pollution by introduction of invasive species during ballast discharge from tankers, specific facilities need to be created.
[66]Devices for measuring wind speed.

carry out ambient air quality measurements. Ports were also required to report periodically on a number of air quality parameters to respective State Pollution Control Boards and ensure that air quality indicators like suspended particulate matter (SPM), etc were within prescribed limits.

Audit observed the following:

- The business plan of Chennai identified exposure to dust-filled environment as a serious weakness of the port. A large number of measures had been taken in Chennai to restrict such pollution and independent monitoring was being done by Richardson & Crudass Ltd, a Government of India undertaking.

- At Haldia, although sprinklers and tarpaulin covers were in use, wind protection screens around coal stacks were not found to be in use. Users at New Mangalore indicated high levels of pollution at bulk handling berths like ore and coal berths.

- At Mumbai, the Pollution Control Cell was inadequately manned, there was poor maintenance of pollution control equipment and the air quality was not being adequately monitored.

- Proper procedures were also being followed at major bulk handling ports like Mormugao and Paradip.

- At New Mangalore, the port engaged an independent agency, viz. the National Institute of Technology, Karnataka (NITK), Suratkal for monitoring environmental parameters including ambient air quality on monthly basis. Although the port put in place all the requisite measures, the NITK reports revealed high dust pollution within the port premises in two out of the three months surveyed by them. Critical parameters like SPM and RPM were beyond tolerance limits.

- At Visakhapatnam, the port had introduced some good practices like usage of leak proof grabs, deployment of leak proof dumpers for transportation, etc.

Recommendations

- *Ports should consistently deploy oil booms and other protective measures while handling POL cargo to restrict the impact of oil spillage. Oil sensors to detect spillage of oil in the water front and oil-water separators, skimmers, dispersant spray systems etc. should be used to remove pollutants from water bodies as per international best practices.*

- *Ports should make provisions for levying fines on tankers/vessels polluting harbour waters and berths and recover the cost of consumables used for cleaning operations of oil spillages from the users.*

3.8 Handling and Documentation

In order to ensure minimum idle time of vessels and post-handling detention at berths, it was necessary that the information interfaces between the port, the Customs authorities and the users were efficient. The users of most of the ports mentioned that there were delays due to cargo clearance formalities both at Customs and clearance points at the ports. Users at Cochin mentioned that over 35 sheets had to be filled in for clearances from the Customs and port authorities.

Although all the ports had LAN based information systems and displayed multiple information on their websites, none of the websites had the status of clearances of bills or other information like berthing schedules, etc which were of immediate use to the users. At Mormugao, information on status of refunds being processed by the port was not available to the users. It was noticed in Tuticorin that online procedures did not reduce the burden of manual procedures. Import/export applications, after being filed electronically, had to be also produced physically for processing, defeating the very purpose of e-filing/booking. At Visakhapatnam, erroneous bills were being generated from the online system and the same had to be subsequently corrected manually. Similarly, in spite of having e-booking facilities for berths, users could not get reservations for the berths at once, unlike leading ports in China, Singapore etc. Moreover, ports did not have fixed time limits for processing information requests online. At Paradip, for example, out of eight information requests received online in July and December 2007, two had not been addressed till December 2008, indicating slow response. The port users at Kolkata indicated the need for a friendly information interface between port users, Customs and the ports.

Problems noticed at Visakhapatnam are presented in the box below:

IT interface at Visakhapatnam Port Trust: A system study

At Visakhapatnam, computerization began in 2002. However, several processes remained dependent on earlier manual data generation. The vessel-related inputs for the berthing programme meetings (where agents met the Traffic Manager's staff to decide the day's berthing, unberthing, shifting movements) were not generated through the Visakhapatnam Port Operation and Management System (VPOMS) application. Daily reports like shed position, ore berth position, etc were also not being generated. Berth information was noted in manual registers and conveyed to the control room over phones for data entry into the computerised system, indicating time lags and duplication. Video-conferencing systems supplied to the Traffic Manager and Dock Managers had not been put to use so far. Six levels for approving the bills extant in the manual system continued even after computerization, indicating no business process reengineering. As all the information was not being captured at source, certain bills continued to be generated manually. Problems were also faced in generation of lease bills in the case of new agents who did not have deposit accounts. The processes generated dissatisfaction among users. Agents complained that services were not provided on Saturdays after 12 noon due to server shutdowns.

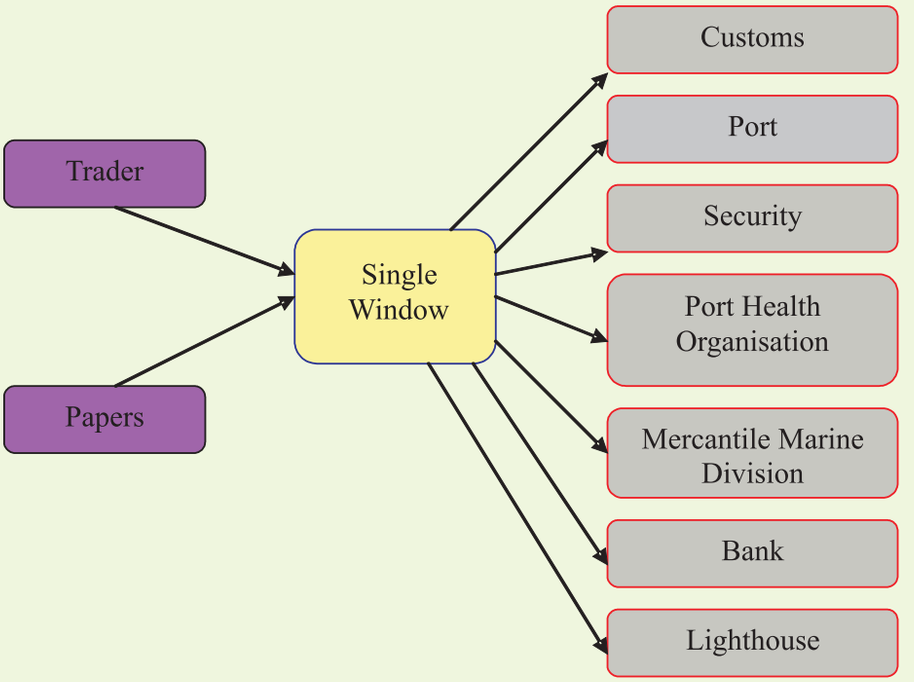
At JNPT, although high operational efficiency in handling was noted, the users, in the absence of a single window system, were required to file papers at different locations, viz. the Marine Department, Operations Department, the Cash Section under the Finance Department as well as at the gate. These points were dispersed, causing delays in transmission of papers and information. An EDI system linking the port, Customs and the container freight stations at the port was still to be fully implemented. Port users felt that Customs clearance was a big hurdle and stated that in spite of computerization, hard copies of documents were being insisted upon. Although information on location of containers at the yard was available online to users and agents due to the implementation of a container tracking system, the users felt the need for more accuracy in the system. They also pointed out that the private container terminals provided quick and accurate responses queries made on their websites. Such procedures made identification of cargo and doing business easier.

The Inter-Ministerial Group constituted by the Committee on Infrastructure had identified information technology (IT) as a strategic tool that would eliminate 23 person-to-person interfaces and 50 minutes in pre-arrival documentation besides 23 hours in import and 15 hours in export documentation. Towards this objective, the Ministry was funding the development of a Port Community System (PCS) for all ports through the Indian Port Association (IPA) complying with the uniform forms as per UN EDIFACT[67] standards. The PCS would enable ordering of berth and pilot services, smooth documentation, acceptance of digitally signed documents, enquiry and tracking, linkage to port authorities and existing port user systems and billing. It was noticed that the PCS was not fully functional till December 2008, in spite of the targeted completion time of December 2007. Moreover, the linkages to the ports and the existing systems of the ports appeared remote in light of the fact that each port had developed its system independently without integration as an objective. For example, the IT systems of Kolkata Dock System and Haldia Dock Complex under the same port authority still remained to be integrated in spite of computerisation plans under implementation since the last 10 years.

[67] United Nations/Electronic Data Interchange for Administration, Commerce, and Transport

Best Practices in documentation:

The Port of Singapore provides a single window environment to users as shown below:



- A user at Singapore files a single document online which is communicated to statutory bodies online for approvals, thus reducing the TRT and labour costs.

- *Port of Rotterdam.com*, launched in December 2000, is one of the most cited instances of how best a port authority can make use of the Internet medium to cater to the diversified needs of various players in a port community. The Rotterdam port's Internet platform consists of a main website with five sub-portals; a news site, a job site, a business index, a database with sailing times and information about the Port of Rotterdam Authority. Additional thematic sub-portals are being planned as more port-related companies develop online applications for their businesses. In addition to the thematic sub-portals, many categories will give access to relevant websites. The site is in many ways, a microcosm of the port itself. Rotterdam is a hub where flows of various goods converge. Cargo such as oil, ore and coal, fruit and dry goods are handled by specialised companies, which are located in designated areas of the port. The online portal reflects this multi-operation/ multi-location character of the port. Various information flows are managed by external business partners but converge in one centrally coordinated site.

- Mundra Port in India has a clear berthing policy displayed on the webpage of its website

The Ministry, in its reply, stated (August 2009) that the ports had been directed to computerise their activities. They assured that the time taken in documentation would be significantly reduced once the PCS system was properly implemented. They also pointed out that the users needed to be properly involved for the new system to be effective.

Recommendation

- To reduce delays in documentation, the ports should strive to achieve single window clearance systems and implement the Port Community System effectively.