UNIT 14 PORT SYSTEMS

Structure

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14.0 OBJECTIVES

After studying this unit you should be able to:

- explain the role of ports in overseas trade of a country
- describe Indian port system
- describe the capacity and traffic throughput at major ports
- assess Indian ports' efficiency and productivity and the problems faced by Indian ports
- describe the policy initiatives taken by the Government for the development of ports in India
- state the Ninth Plan projections and proposed outlay.

14.1 INTRODUCTION

A port is an interface between sea transport and inland transport and as such is considered to be an important sub-system within the total transport system. As a nodal point for exchange of import and export cargoes, the port plays a key role in physical supply and physical distribution management. While the principal function of a port is to provide entry and exit for cargoes (and passengers to some extent), the auxiliary activities at the ports include customs inspection, warehousing, preparation of cargo for shipment, etc. Thus, the ports play a significant role in providing the necessary infrastructure for handling goods traffic and help in increasing the efficiency of the overall transport system of a country. In this unit, you will learn about the Indian ports, their capacity and traffic

throughput, their efficiency and productivity, and policy initiatives taken by the Government to improve their lot.

14.2 PORTS IN INDIA

India, with a vast coastline of about 6,000 km., has 11 major ports and 163 intermediate/minor ports. The coast-wise distribution of 11 major ports is as under:

East Coast	Kolkata/Haldia in West Bengal Paradip in Orissa Visakhapatnam (Vizag) in Andhra Pradesh Chennai and Tuticorin in TamilNadu
West Coast	Cochin in Kerala New Mangalore in Karnataka Mormugao in Goa JNPT (Nhava Sheva) and Mumbai in Maharashtra Kandla in Gujarat.

The oldest Indian ports are Kolkata, Mumbai and Chennai which came into existence in the seventeenth century. The major ports at Vizag and Cochin were set up in 1933 and 1936 respectively. Kandla was commissioned in 1959. After the accession of Goa, the Mormugao port became another major port in 1963. The port of Paradip was added to the list of major ports in 1966. New Mangalore port on the west coast and Tuticorin port on the east coast became major ports in 1980. Haldia port, a setellite to the port of Calcutta, came into existence in 1977. The new port Nhava Sheva (renamed as Jawaharlal Nehru Port (JNPT) was commissioned in 1989.

Development of major ports is the responsibility of the Government of India. The Indian Ports Act, 1908 deals with the safety of shipping and the conservation of ports. It also provides for their management and levying of certain charges on vessels. The Major Port Trust Act, 1963 contains the statutory provisions for the constitution of Port Trust Boards and vesting the administration, control and management of the major ports in the Boards. As for the intermediate and minor ports, the operational and administrative responsibility for their development rests with the maritime states under whose jurisdiction they fall, although technical assistance, wherever necessary, is provided by the Central Government.

Check Your Progress A

1 List the auxiliary activities of a port.

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2 Explain the coast-wise distribution of major ports in India.

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3 Identify the role of minor ports.

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4 Fill in the blanks.

i) The principal function of a port is to provide entry and exist for .....

ii) India has..... .major ports and .....minor ports.

iii) The responsibility for development of minor ports rests with the.,..... ..states.

iv) Development of major ports is the responsibility of .....

v) The oldest Indian ports are ....., Mumbai and Chennai.

14.3 PORTS AS CATALYST TO INDIA'S FOREIGN TRADE

You know that India's overseas trade is heavily dependent on ocean transport. The major ports, therefore, play a prominent role as providers of necessary infrastructure for cargo handling i.e., loading of export cargo in vessels and unloading of import cargo from the vessels. The share of major ports in the total cargo handled at seaports in the country was in the range of 91-93% during the years 1992-93 to 1997-98. Major ports, besides undertaking the cargo handling activity, also provide several other services to ships and shippers. The facilities and services to the ships comprise navigational channels, traffic management (including regulation of movement in channel, pilotage, berthing, communication and towage) dredging, bunkering, repair and dry docking, maintenance of signal stations, provision, fresh water, etc. While the services to shippers or cargo include groupage, transit storage, bagging, weighing, tallying, marking, packing, sanitary measures, reconditioning, rent of equipment, lighterage, stevedoring and delivery of cargo to the ship side for loading of export cargo and *vice-versa* in case of unloading of import cargo.

As for the intermediate and minor ports, these are basically engaged in catering to the requirement of coastal shipping for their limited hinterland. In coastal areas, where rail and convenient road facilities are lacking, the minor ports also facilitate the passenger traffic movement. The contribution of these ports in providing the infrastructural facilities to the requirements of country's overseas trade is very limited. The same ranged between 7% to 9% during 1992-93 to 1997-98 and is, by and large, confined to handling of import cargoes like fertilisers and foodgrains at some ports.

14.4 PORT CAPACITY AND TRAFFIC THROUGHPUT

The capacity of a port depends largely upon the aggregate capacity of individual berths therein and the type of cargoes handled. In addition, the facilities created in terms of handling equipment and cargo servicing have a great bearing on the capacity of a port. Since the beginning of planning era i.e., 1950-51, expansion of port capacity has been an important component of development programmes due to increasing volume of traffic.

14.4.1 Capacity Utilisation

The traffic handled at the ports in 1950-51 was hardly 20 million tonnes but, over the period, the aggregate traffic throughput at the major ports in the country has shown a continuous growth. The increase in traffic throughput since 1984-85 i.e., the end of the Sixth Five Year Plan, has been remarkable. As against that, the port expansion and modernisation programmes have not kept pace with the growing requirement of the traffic throughput. Consequently, the capacity utilisation at Indian major ports is extremely high as may be seen in Table 14.1.

Universally, the ideal norms for capacity utilisation are considered to be around 75-80%. In case of Indian ports, the capacity utilisation of 81% in the year 1984-85 was closer to the ideal norms but, in the subsequent years, it improved considerably ranging between 84% to 116%. Such a high percentage of capacity utilisation at Indian major ports has put them under severe strain leaving practically no time for upkeep and maintenance of the infrastructure and equipment, etc. The situation becomes much more alarming when a comparison is made of the capacities available in respect of major commodity groups and the actual traffic of such groups handled at the major ports as is given in Table 14.2.

Table 14.1 : Total Capacity and Traffic Handled at Major Ports

(In: Million Tonnes)

Year	Capacity*	Traffic Handled	Capacity Utilisation (%)
1984-85	132.7	107.8	81
1985-86	141.9	119.5	84
1986-87	141.9	124.4	88
1987-88	141.9	133.7	94
1988-89	141.9	146.4	103
1989-90	162.8	148.4	91
1990-91	162.8	152.9	94
1991-92	169.2	157.6	93
1992-93	170.2	166.6	98
1993-94	170.2	179.3	105
1994-95	174.0	197.2	113
1995-96	181.2	215.3	119
1996-97	217.3	227.3	105
1997-98	217.3	251.4	116

Table 14.2 : Commodity-wise Capacities and Traffic handled at Major Ports

(In Million Tonnes)

Commodity	Capacity at Major Ports		Traffic Handled at Major Ports	
	1984-85	1997-98	1984-85	1997-98
POL	55.25	96.92	54.37 (98)	102.69 (106)
Iron Ore	41.50	44.50	27.43 (66)	39.26 (88)
Coal	6.25	9.00	4.42 (71)	38.86 (432)
Fertilisers	3.90	5.65	6.51 (166)	9.84 (174)
Break-Bulk Cargo	22.35	47.23	13.74 (61)	37.65 (80)
Container Cargo	3.48	13.91	3.12 (90)	23.14 (166)
Total	**132.73**	**217.21**	**107.59 (81)**	**251.44 (166)**

Note : 1 The capacity for 1997-98 has been taken at 1996-97 level.
2 Figures in the brackets indicate capacity utilisation in percentage.

The traffic handled in respect of various commodity groups, as shown in Table 14.2, clearly indicates that in comparison to 1984-85 the capacity utilisation in 1997-98 has gone up tremendously. This is primarily due to the capacity expansion programme not keeping pace with the growing traffic needs and thereby putting an increasing demand pressure on ports capacity.

14.4.2 Container Traffic

Realising the increasing importance of containerisation in world trade, Indian Ports have also taken up the programmes for development of container handling facilities, as otherwise the lack of such facilities would adversely affect the growth of trade and also the earnings and profitability of ports in the country. Necessary provision was, therefore, made in the plans for the development of container handling facilities at the port of Kolkata/Haldia, Mumbai, Cochin and Kandla. The state-of-the-art technology of Jawaharlal Nehru Port (Nhava Sheva) and modernisation of container handling facilities at Chennai port have further augmented the container traffic handling capacity at these ports.

The growth of container traffic at Indian ports, over the period, has been quite impressive. Look at Table 14.3. You will notice that as against 2.73 million tonnes of container traffic in 1984-85 i.e., at end of the Sixth Five Year Plan, the ports handled 23.14 million tonnes in 1997-98 at Indian ports. Mumbai, JNPT, Chennai, Kolkata, Kandla and Tuticorin are among the leading container handling ports of India. Of course, this activity is gradually coming up at other major ports as well.

Table 14.3 : Growth of Container Traffic at Indian Ports

(In Million Tonnes)

Year	Container Traffic
1984-85	2.73
1985-86	3.97
1986-87	5.22
1987-88	5.10
1988-89	5.55
1989-90	7.29
1990-91	8.04
1991-92	7.63
1992-93	9.01
1993-94	12.25
1994-95	15.13
1995-96	17.61
1996-97	20.45
1997-98	23.14

14.4.3 Break-Up of Traffic into Unloaded, Loaded and Transhipment Traffic

The traffic throughput at the ports can be put into three broad categories viz., unloaded, loaded and transhipment traffic. The transhipment traffic is an attraction for the ports from revenue point of view, but the same is being handled in a limited way at the major ports of Kolkata, Vizag, Mormugao and Kandla. Table 14.4 gives the trend of break-up of traffic throughput at the Indian major ports during the years 1993-94 to 1997-98.

Table 14.4 : Break-up of Traffic into Unloaded, Loaded and Transhipment Traffic

(In 000 Tonnes)

Year	Unloaded	Loaded	Transhipment Traffic	Total
1993-94	96,713 (54)	76,623 (43)	5,925 (3)	179,261
1994-95	110,093 (56)	81,196 (41)	5,916 (3)	197,205
1995-96	120,747 (56)	85,738 (40)	8,752 (4)	215,327
1996-97	129,646 (57)	87,489 (37)	9,998 (6)	227,133
1997-98	143,797 (57)	95,512 (38)	12,130 (5)	251,439

Note: Figures in brackets are percentage to the total.

It is quite evident that there is a shifting trend in the unloaded, loaded and transhipment traffic. Though the overall quantity of loaded traffic has shown a continuous rise in the last five years, its share in the total traffic has declined from 43% in 1993-94 to 38% in 1997-98. As against this, the share of that unloaded traffic comprising imports is on the increase. The transhipment traffic at the ports is also picking up.

The break-up of traffic on the above lines also classifies the major ports in terms of – 'export heavy', 'import heavy' and 'balanced ports.' The major ports which fall in the category of 'export heavy' include Paradip, New Mangalore and Mormugao primarily

due to their being the ore loading ports. The 'import heavy' ports are Kolkata/Haldia, Chennai, Tuticorin, Cochin, Mumbai, JNPT and Kandla. Vizag port, where there is not much difference between the unloaded and loaded traffic, can be put in the category of 'balanced port'

14.4.4 Traffic Forecasts for the Years 2002 and 2005

The traffic throughput at the major ports witnessed a continuous growth. The same trend is likely to continue in the coming years in view of the ongoing move towards liberalised trade policy. Accordingly, the projected traffic at the major ports by the year 2002, the terminal year of Ninth Five Year Plan, and by the year 2005 as per Indian Ports Association is given in Table 14.5.

Table 14.5 : Traffic Projections for the Years 2002 and 2005

(In Million Tonnes)

Commodity Group	Projected Traffic for 2002	2005
POL	131.13	156.45
Iron Ore	33.96	34.48
Coal	50.59	63.33
Fertilisers	8.25	8.59
Container Cargo	46.51	76.14
Others	51.54	67.42
Total	**321.98**	**406.41**

The above projections have been worked out on the basis of the compounded growth rate of 6.28% in the traffic handled at the major ports during 1991-92 and 1996-97. The Ninth Five Year Plan Working Group was, however, of the view that the projected traffic by 2002 will be around 424 million tonnes (see Table 14.7). From these estimates, one thing is very clear that the Indian ports need to gear up in terms of capacity expansion programme so as to cater to the growing requirement of the trade. Major ports are, therefore, required to take up immediately the upgradation of their handling technology, modernisation of their equipment and management, and raise adequate resources both for creation of additional facilities and effecting improvement in the existing ones.

Check Your Progress B

1 Why are the ports catalyst to India's foreign trade?

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2 What is the major cause of improvement in capacity utilisation of ports in India.

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3 Enumerate the progress of container traffic at Indian ports and name the leading container handling ports in India?

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4 State which of the following statements is True or False.

i) Overseas cargo is handled at major ports only.

ii) Intermediate and minor ports handle only the coastal trade

iii) Ore loading ports are the export heavy ports.

iv) Transhipment traffic is handled at all the ports in India.

v) The projected traffic at the major ports, as per Indian Ports Association, by the end of Ninth Plan is 321.98 million tonnes.

14.5 PRODUCTIVITY OF INDIAN PORTS

The various indicators of ports productivity are: (a) number of vessels sailed per annum, (b) average pre-berthing waiting time (days), (c) average turn-around time, (d) output per ship berth day (tonnes), and (e) percentage of idle time to at berth to total time at berth.

It is observed that the number of vessels sailed per annum and average ship berth day output have been continuously improving. But, in the matter of ship turn-around time, the situation is not so satisfactory, as the average turn-around time is 8.5 days as against 2 days in case of other international ports. The average pre-berthing time is also showing an upward trend. It increased from 1.6 days in 1991-92 to 2.4 days in 1996-97.

The break-up of the total turn-around time along with the major reasons is given in Table 14.6.

Table 14.6 : Profile of Ship Turn-around Time

	% of Total Time	Major Reasons
Pre-Berthing	40%	Congestion due to small sized ships at Indian ports and poor level of port support services
Idle Time at Berth	20%	Poor level of port support services
Cargo Handling	40%	Low labour and equipment productivity and lack of containerisation facilities

The higher ship turn-around time at ports has a direct bearing on the cost of operation which may ultimately leads to higher freight cost to the shippers. Similarly, lack of mechanisation at ports and low labour productivity would also add to the total cargo handling cost. The productivity of ports are also affected by the methods of cargo handling and the nature of cargo handled at ports. Not only that, equipment utilisation has been low in most categories of equipment and overaging of installed equipment is another area of concern. Then, wherever the major portion of cargo is in break-bulk and is handled manually, there is bound to be delay in carrying out the cargo work.

It is well known that a majority of Indian ports are, for historic reasons, labour intensive. While these ports offer employment opportunities to a large number of persons, it acts as a hindrance in taking up upgradation and modernisation programme at the Indian ports. Consequently, their efficiency and productivity are not improving at the required pace.

It also needs to be realised that the ports productivity in the Indian context is not just an assessment of the cargo handling time but depends also, to a very large extent, on the productivity of the entire logistic chain which comprises road-rail linkages, inland warehousing facility, custom clearance procedures, etc.

14.6 PROBLEMS FACED BY THE PORTS

Ports in India are facing a host of problems. Some of these are listed below:

1 Long waiting time for ships to get a berth;

2 Delays in cargo handling due to ports being labour intensive;

3 Low productivity resulting in delayed despatch to ships;

4 Outdated equipment;

5 Congestion due to slow movement of cargo as some of the users treat ports as warehouses;

6 Draft restrictions for allowing bigger ships entry;

7 Absence of night navigation at many ports leads to loss of time;

8 Non-availability of proper handling equipment for handling containerised cargo;

9 Inadequate Container Yards (CY) and Container Freight Stations (CFS) and ware housing facilities in the vicinity of port;

10 Absence of maintenance of equipment;

11 Slow modernisation programme;

12 Outdated manning scales;

13 Surplus labour and frequent labour strike;

14 Imbalanced labour-equipment ratio;

15 Absence of proper coordination and cooperation among various departments of port;

16 Cumbersome customs and other formalities for clearance of documents and cargo;

17 Inadequate road, rail transport infrastructure at ports; and

18 Slow computerisation programme.

As per the World Development Report, 1994 (published by the World Bank) India loses about US $ 1.5 billion per year due to the inefficiency caused by the above factors.

Check Your Progress C

1 State the various measures used for assessing the efficiency of ports.

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2 What are the major factors that affect the efficiency and productivity of ports in India?

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3 State which of the following statements are True or False.

i) Low productivity of labour results in delays in carrying out the cargo work.

ii) Rail and road infrastructure at ports is sufficient to cater to the requirements of traffic.

iii) Turn-around time has a direct bearing on the cost of operation.

iv) Berthing capacity has no impact on the productivity at the ports.

v) India loses about US $1.5 billion every year due to the inefficiency in functioning of ports.

14.7 POLICY INITIATIVES FOR THE DEVELOPMENT OF PORTS

Being a vital infrastructure for the country's overseas trade, most of the ports in the world, particularly those in the developed countries, have adopted various strategies for commercialisation, liberalisation, and modernisation of port administration. Taking cognisance of this, the Government of India underlined the need for a bold approach in port sector. The objectives set out as per the policy initiatives taken up for the port sector are:

1 Improvement of efficiency and customer satisfaction;

2 Revenue generation and augmentation of financial viability; and

3 New enterprise culture.

14.7.1 Private Sector Participation

The modernisation and augmentation of capacity at major ports to meet the projected traffic demand require huge investment. With a view to harnessing sufficient resources, ushering in an element of competition and introducing the latest technology and improved management techniques, the Government has opened up the port sector for private participation. The Major Port Trusts Act, 1963 permits private sector participation in port development and, as such, no specific legislation is necessary for ensuring private sector participation in this sector. The issue of private sector participation in ports gained momentum during the Eighth Plan and the focus shifted from leasing of existing assets to creation of new port assets through private sector participation. In order to ensure transparency and uniformity, detailed guidelines have been laid down in respect of the procedures to be followed for inviting private investment. The Government has already awarded the project for construction, management and maintenance of two berths container terminal on BOT basis at JNPT to a consortium headed by an Australian firm. The cost of the project is around Rs. 700 crore to be spent in three years. The new terminal will augment the container handling capacity at JNPT to around one million TEUs annually. Other ports are also preparing/implementing project to augment capacity through private investment.

The policy to encourage private participation in the core sectors, including development of ports, is perceived as an instrument of change to usher in technological upgradation, higher productivity and a means of resource generation. In addition, the private sector is expected to mobilise adequate resources required for capacity augmentation and to introduce improved managerial techniques in the ports sector. The following areas have been identified for private sector participation:

1 Leasing out assets of the ports;

2 Construction and operation of bulk, break-bulk and multi-purpose and specialised cargo berths;

3 Construction and operation of container terminals;

4 Construction and operation of warehouses, CFSs, storage facilities, tank farms etc.;

5 Supply, maintenance & operation of cranage and handling equipment;

6 Dry docking and ship repairing facilities;

7 Pilotage;

8 Dredging;

9 Captive power plant;

10 Captive facilities for port based industries; and

11 Leasing of equipment for cargo handling and floating crafts.

The Government has also decided to provide loan assistance to help tide over the entrepreneur's cash flow problems due to revenue shortfall for non-materialisation of projected traffic for BOT facility, and protection against foreclosure of contracts, etc. The

Major Port Trust Act, 1963 was amended by Port Laws (Amendment) Act, 1997 to provide for an independent Tariff Authority for major ports for fixing and revising the port tariff, and a statutory autonomous regulatory authority 'Tariff Authority for Major Ports' (TAMP) has been set up for regulating port tariff. In order to ensure transparency and uniformity, detailed guidelines in respect of procedures to be followed for inviting private investment have been duly announced. These lay down open competitive bidding, selection based on maximum return to the port, concession period of 30 years, etc. The Government has also changed its fiscal policies to offer the following incentives to the private investors in port infrastructure development:

1 A tax holiday for 5 years followed by 30% rebate on earnings in the next five years to be availed in 12 years of the commission of the project;

2 An Infrastructure Development Finance Company has been floated to provide concessional credits to the private sector;

3 Automatic approval to foreign equity investment upto 74%. However, proposals for 100% foreign equity would need clearance of Foreign Investment Promotion Board;

4 Allow external commercial borrowings;

5 Tax concession of 40% to financial institutions on income from financing infrastructure; and

6 Subscription to debentures or equity shares of companies engaged in infrastructure will qualify for income tax relief for the investors.

Besides these, the maritime states have launched ambitious programme to develop the existing intermediate and minor ports and create new ports through private sector participation under BOT/BOOT/BOST/BOMT principles. Eight coastal states have announced opening of 26 minor ports for private sector participation. The states of Gujarat, Maharashtra and Andhra Pradesh have made significant advancement in this direction. Interest is also being shown by the potential port users to develop captive facilities for the refineries, power plants, steel mills, etc.

Despite the above policy initiatives to attract private enterprises, the corporate sector has not taken much interest in the various port management and BOT schemes. The various impediments in this regard are: (a) requirement of heavy investment, (b) long gestation period due to delays involved in obtaining clearances and completing other requirements, and (c) low rate of return. A majority of ports in India are under the control of the government. This itself acts as a stumbling block for private participation in the port sector. The competing government ports' tariffs are also not based on viable returns on investment. The absence of attractive returns on investment and liability of tax payment on profits are deterring the private enterprise to invest in this sector in a big way.

14.7.2 Corporatisation of Ports

The present organisational structure of the major ports in the form of Port Trusts present many problems. One main problem lies in time lags in decision making. The provisions of the Major Port Trusts Act do not allow operation of services by the Port Trusts on commercial lines. The approval of Central Government is requested in a majority of decisions. Under this restrictive ambit, the ports are unable to operate in a market oriented economy with flexibility in commercial operations. Hence, a move toward corporatisation of major ports is in progress. This involves establishment of a joint stock company for each port under the Indian companies Act. It will impart administrative autonomy which will directly improve the efficiency and viability of operations. As corporate entities Indian major ports would be able to raise resources through equity and debt from the market. Access to institutional finance will also be easy since tangible assets will be available as collateral. Joint ventures with foreign ports and private sector will be smoother and more efficient in a corporatised framework.

14.7.3 Joint Ventures

The government has also decided to permit the setting up of 100% foreign owned subsidiaries in India for down stream investment in the ports sector. The investments have to be in the form of joint ventures with domestic port trusts, the latter holding the

majority stake. The foreign companies will also be allowed to share revenue from the joint venture company up to 49%. This is a substantial deviation from the existing policy according to which the foreign companies are allowed to operate container terminals and cargo handling facilities on a BOT basis. The new policy also allows joint ventures between Indian and overseas ports. The move is expected to provide expertise to the port trusts in tackling various bottlenecks and bringing the ports at par with international standards. It is also expected to attract new technology, introduce better managerial practices, expedite implementation of schemes, faster strategic alliances with minor ports for creation of optimal port infrastructure and enhance the confidence levels of the private sector in the funding of ports.

Check Your Progress D

1 List out four port related activities for which privatisation is being encouraged.

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2 What do you understand by Tariff Authority for Major Ports?

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3 What are the three objectives of the policy initiatives taken by the government for privatisation of ports?

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4 State which of the following statements are True or False.

i) Privatisation of ports is considered necessary for the fast development of port infrastructure.

ii) Private investors have been quite receptive to various port management and BOT schemes.

iii) The maritime states have also introduced schemes like BOT/BOOT/BOST/BOMT, etc. for the development of minor ports.

iv) Privatisation and corporatisation of ports are similar schemes.

v) The new policy allows joint ventures between Indian and overseas ports.

14.8 NINTH PLAN

During the Eighth Plan an outlay of Rs. 3,216 was approved for the ports sector. Against this, the actual expenditure totalled Rs. 1,907.01 crore, of which the major ports accounted for Rs. 1,741.03 crore. The reasons for the shortfall have been the delays caused in sanctioning the schemes, slow progress of work by the contractors, adverse weather conditions, contractual disputes, delays involved in tender finalisation /awarding of contracts and deferment of projects/schemes, etc.

During the Ninth Plan period, port development is expected to keep pace with the

expansion in traffic and changes in the shipping scenaqrio including the size of ships, specialisation and automation, etc. Container facilities would need to be augmented at the ports in line with the developments abroad. Mechanised loading and unloading facilities would need to be developed at certain locations to handle the coal requirements of the existing and new power stations which are likely to be commissioned during the Ninth Plan. However, the funding of such captive facilities would need to be done by the user agencies. Efforts need to be made to improve the POL handling facilities at the ports by planning in such a way that the completion of tanker discharge/unloading operations is achieved within 24 hours. Acquisition of new tankers and special carriers should take note of shipyard capacities and port facilities, available and contemplated. Night navigation facilities would need attention at all the major ports to improve the turn-around of tankers, other vessels and berth utilisation. Before embarking on any major investment in creation of additional infrastructure facilities, the development and modernisation of existing port facilities should receive priority to improve productivity at ports. Besides these, the maintenance of port infrastructure would need to be improved. The port capacity would need to be adequately augmented in view of the projected traffic requirements during the Ninth Plan, with larger private sector participation and development of selected minor ports.

The traffic projections (commodity-wise) during 2001-2002 are given in Table 14.7.

Table 14.7 : Commodity-wise Traffic Projections—Ninth Plan—Port Sector

(in Million Tonnes)

S.No.	Commodity	Estimated Throughput During 2001-02
1	POL	186.7
2	Iron Ore	34.4
3	Coal	93.7
4	Fertilizer	14.2
5	Containers	38.7
6	Other Gen. Cargo	56.2
	Total	423.9

The details of capacity augmentation are given below:

i)	Capacity of major ports as on 31.3.97		215 MT
ii)	Capacity creation in the major ports during 1997-2002 on account of New Schemes of which		122
	a) Schemes to be funded by Ports	35 MT	
	b) Improvement of the capacity of existing Assets	11 MT	
	c) Schemes to be undertaken through Private Sector	45 MT	
	d) to be created by captive users	31 MT	
iii)	Capacity accrual on account of spillover schemes of 8th Plan which are under Implementation		37 MT
iv)	Additional capacity expected on account of productivity increase in major ports and contributions by development of minor ports.		50 MT
Total			424 MT

The aggregate capacity at the major ports at the end of Eighth Plan was 217 million tonnes which, on completion of spill over schemes now under execution, is expected to go upto 252 million tonnes. Hence, additional capacity to be developed by the terminal year of Ninth Plan will be of the order of 172 million tonnes.

The Ninth Plan, however visualises an actual physical capacity addition of about 209 million tonnes which include capacity addition of 122 million tonnes on account of new schemes depicting an annual growth of 19.4 per cent. The major increase in capacity will take place at JNPT, Kandla, Mormugao, New Mangalore, Mumbai, Chennai and Paradip, mainly to handle POL, coal and container traffic.

The role of minor ports is increasingly assuming importance owing to the development of coastal shipping and is viewed as an alternative to the over-congested major ports. Therefore, there is an urgent need for the concerned States to provide adequate funds for the development of minor ports so that they can effectively cater to coastal and sailing vessels and thereby serve as instruments for the development of hinterland. The Ministry of Surface Transport, Government of India, as major policy initiative, set up a Committee for Navigational Safety in Ports (NSPC) to take care of all aspects of navigational safety, navigational aids, pilotage, hydrographic survey, etc., covering new and existing minor/ captive/private ports. The Ministry of Surface Transport has also set up a Maritime States Development Council under the chairmanship of the Minister for Surface Transport with Transport/Port Ministers from Maritime States as members with a view to coordinating the developmental activities of minor ports. However, for proper development of port infrastructure and to check wasteful duplication of port facilities, an integrated approach will be evolved in the Ninth Plan to ensure utmost coordination among the major and minor ports.

An outlay of Rs.8,800 crores has been proposed in the Ninth Five Year Plan (1997-2002) for the ports sector for funding of various projects to be taken up by the Port Trusts. In addition to Plan allocations for major ports, resources to the extent of Rs. 8,000 crores are likely to be available for development of ports. A major portion of this investment is expected from the private sector.

14.9 DREDGING CORPORATION OF INDIA

The Dredging Corporation of India (DCI) was created in 1976 to provide integrated dredging services to the major ports, minor ports, etc. The DCI has a modern fleet of seven trailer suction hopper dredgers, two large cutter suction dredgers with pipelines, one ocean going tug and three inland dredgers and other allied crafts.

It was projected that 131 million cubic metres of capital dredging would be undertaken during the Eighth Plan period. Against this, only 46 million cubic metres of capital dredging has been actually carried out. During the Eight Plan period, DCI spent Rs. 88.43 crore on the dredging related activities.

The Ninth Plan proposals have been formulated keeping in view the following needs: (a) replacement of DCI dredgers which are more than 15 years old, (b) augmentation of dredging capacities to meet the maintenance requirements of major and minor ports, (c) meeting the emerging needs of IWAI for Inland dredgers, and (d) providing for ship-repair facilities for DCI dredgers. The projected dredging, requirements during the Ninth Plan period is estimated to be around 534 million cubic metres comprising of capital dredging of 142 million cubic metres and maintenance dredging of 392 million cubic metres.

14.10 LET US SUM UP

Port is an interface between land and sea transport and as such is considered to be an important sub-system within the total transport system. While the principal function of a port is to provide entry and exit for cargoes, other auxiliary activities of the ports include customs inspection, warehousing, preparation of cargo for shipment, etc.

India, with nearly 6,000 km. long coastal line, has 11 major ports and about 163 intermediate and minor ports. The major ports are under the Central Government and cater to transport requirement of country's overseas trade to the extent of about 93%. The intermediate and minor ports are under the administrative control of the respective maritime states where they are located and cater primarily to the requirement of the coastal trade.

For handling the traffic, the ports need capacity in terms of berths equipped with necessary handling equipment. In the past, the major ports had improved their capacity but the growth in traffic has been much more than the available capacity. As against a capacity of about 217 million tonnes, the ports handled a total traffic of about 251 million tonnes, which means over-utilisation of capacity and thereby putting the ports under severe strain leaving practically no time for upkeep and maintenance of the

infrastructure and equipment there. The distribution of traffic handled in the year 1997-98 in terms of major commodity groups was: 103 million tonnes of liquid bulk, 87 million tonnes of dry bulk, 23 million tonnes of containerised cargo and 38 million tonnes of other cargo.

The projected traffic, as per Indian Ports Association, for the years 2002 and 2005 will be of the order of 322 million tonnes and 406 million tonnes. One thing is clear from the above that ports need to take up capacity expansion programme in a big way with a view to cater to the requirement of growing traffic.

Port performance depends largely on the efficiency and productivity of the ports for which various parameters such as ships sailed in a year, average pre-berthing waiting time (days), average turn-round time (days), output per ship berth day (tonnes), etc. are taken into account. In case of major ports, there is need to bring in a lot improvement by taking up upgradation and modernisation programme. In fact, the ports have already taken up programmes for capacity expansion through modernisation, but their labour intensive nature happens to be the major bottleneck.

Then, ports are facing a lot of problems in effecting the desirable improvement in efficiency and productivity. Some of the pressing problems are the over-worked capacity of major ports, outdated equipment, inadequate labour- equipment ratio, lack of container handling facility, dredging operation, labour strikes, slow upgradation and modernisation programme, outdated manning scales and slow computerisation programme. Hence the existing norms of productivity are being stepped up, manning scales rationalised and mechanical aids and cargo handling techniques introduced.

The government has also come out with some policy initiatives by amending certain sections of the Major Ports Act for effecting improvement in the port functioning so as to make them capable of handling the growing traffic requirement efficiently. For this purpose, private sector participation in the port sector is being invited in the identified areas like leasing of assets, establishment of container yards and container freight stations, installation and operation of handling equipent, dredging operation, pilotage, etc. Various types of fiscal incentives have been provided for encouraging private sector investment on BOT or such schemes. In case of minor ports as well, the maritime states have come up with similar types of investment schemes to encourage private sector participation in the development of ports. Besides, the new policy encourages foreign company participation through joint ventures and even the foreign ports are allowed to have joint ventures with Indian ports.

The Ninth Plan Working Group on Ports has projected a traffic of 424 million tonnes by the end of the plan. An outlay of Rs 8,800 crores has been proposed for the port sector, in addition to the investment likely to flow in through private sector participation.

14.11 KEY WORDS

Berth : A place at wharf for ships cargo work.

BOT: A scheme of private participation on Build Operate and Transfer basis.

BOMT: A scheme of private participation on Build Operate Maintain and Transfer basis.
BOOT: A scheme of private participation on Build Own Operate and Transfer basis.
BOST: A scheme of private participation on Build Operate Share and Transfer basis.
Dredging: Clearing the mud or silt from a harbour or river.

Leasing: Giving a fixed asset on rent for use during a specified period.

Loaded Traffic: Export cargo

Throughput: The quantity (tonnes) of cargo put through per unit of time.

Transhipment Traffic: Cargo traffic (including containers) meant for re-export.

Unloaded Traffic: Import cargo

14.12 ANSWERS TO CHECK YOUR PROGRESS

A4 (i) cargoes (ii) 11, 163 (iii) maritime (iv) Government of India (v) Kolkata

B4 (i) False (ii) False (iii) True (iv) False (v) True

C3 (i) True (ii) False (iii) True (iv) False (v) True

D4 (i) True (ii) False (iii) True (iv) False (v) True

14.13 TERMINAL QUESTIONS

1 "The efficiency of ports not only helps in increasing the efficiency of the overall transport system of a country, but also reduces the cost of transporting goods from source of origin to the point of ultimate destination." Comment and discuss the constraints faced by Indian ports in providing efficient service to users.

2 "Overworked ports suffer from low level of efficiency and productivity and so have become costly ports from the users point of view." Discuss the statement in relation to the working of Indian ports.

3 Give a brief account of ports capacity and traffic throughput at the major ports in India.

4 Write short notes on :

(a) Productivity of Indian ports

(b) Privatisation of ports

(c) Need for corporatisation of ports and progress thereof

(d) Dredging Corporation of India

(e) Joint Ventures

5 Keeping in view the traffic projections for ports sector, what are the provision made in the Ninth Five Year Plan for development of ports.