REPORT
OF
THE WORKING GROUP
ON
INLAND WATER TRANSPORT
FOR
NINTH FIVE YEAR PLAN
(1997-2002)

GOVERNMENT OF INDIA
MINISTRY OF SURFACE TRANSPORT
SEPTEMBER 1996

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FOR 9TH FIVE YEAR PLAN

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INTRODUCTION

In order to formulate 9th Five Year Plan (1997-2002) on Inland Water Transport,Planning Commission has constituted a Working Group under the Chairmanship of Secretary (SFT).

2. In order to examine the issues in detail the Working Group constituted the following Sub-Groups :-

a) Sub Group-I:-

Item 2,3,13 and 15 of the Terms of Reference.	Under the Chairmanship of Chairman, Inland Water-ways Authority of India.

b) Sub Group-II:-

Item 8,9,10 and 14 of the Terms of Reference.	Under the Chairmanship of CMD,Central Inland Water Transport Corporation Ltd.

c) Sub Group-III:-

Item 4 and 11 of the Terms of Reference.	Under the Chairmanship of CMD, Dredging Corporation of India.

d) Sub Group-IV:-

Item 1,5,6,7 and 12 of the Terms of Reference.	Under the Chairmanship of JS(P).

The constitution and proceedings of the Working Group are at Appendix.

3. The reports of the Sub Groups were discussed in detail by the Working Group in the meeting held on 24.06.1996. Based on the deliberations of the meeting and the reports of the Sub Groups, the report of the Working Group on Inland Water Transport has been prepared.

CHAPTER -1

EXECUTIVE SUMMARY

1.1 Working Group on Inland Water Transport for formulation of 9th Five year plan (1997-2002) was set up by the Planning Commission during November 1995. The Group consisted of 25 members with Secretary, Ministry of Surface Transport as Chairman.

1.2 Four separate Sub Groups were set up for an indepth study of the IWT related issues and to make specific recommendations for strategy to be adopted during the 9th Five Year Plan. The Sub Groups have gone into the various aspects of IWT, its problems, issues and prospects. The recommendations of the Sub Groups have formed valuable inputs based on which the Working Group has made its recommendations.

1.3 The recommendations of the Working Group set up for the 8th Five Year Plan were adopted as the starting point of reference. Detailed analysis of the proposals made for 8th Five Year Plan, allocations made by the Planning Commission , funds provided in the consecutive Annual Plans and the actual expenditure incurred indicate wide gaps between the projections, provisions and utilisation. This is specially so in relation to the two Central Government organisations, the Inland Waterways Authority of India(IWAI) and the Central Inland Water Transport Corporation Ltd.(CIWTC) which together constitute the basic machinery for bringing about a visible growth of the IWT sector. The Working Group has observed that while there has not been any substantial improvement in the cargo carried by the CIWTC during 8th Plan , the private operators in Goa have maintained a steady upward trend in terms of iron ore movement by IWT and the private operators in Calcutta have made considerable progress in increasing their tonnage during the same period. The total inland cargo in 1991 was of the order of 838 billion tonne Km.,out of which the share of the road was 567 billion tonne Km ,the share of rail was 250 billion tonne Km. and the share of IWT was less than 1 billion ton km corresponding to less than 0.1% of the total inland cargo.

1.4 Inland Water Transport is a cheaper mode of transport as compared to road and rail specially in view of the fuel savings it can generate . The Working Group took note of the recent study by National Council for Applied Economic Research wherein the economic benefits of the IWT mode have been clearly brought out. As against the transportation cost of Re. 1 per tonne km by road, the IWT cost of transportation works out to Rs. 0.55 per tonne km. The above figures are inclusive of the Vehicle Operating Cost (VOC) and the User Cost. The Working Group also noted that with 6% GDP and anticipated 12% industrial growth, the cargo estimated to be moved by inland water transport by 2000 AD would be to the tune 1200 billion tonne km. The Working Group also noted that the present transport modes i.e., the road and rail, have been stretched to their limits and the bottlenecks in

the transportation system are already playing havoc, causing major hindrances in achieving the targetted growth in economy, specially in the industrial sector. The Working Group also took note of the advanced stage of development of IWT sector in countries like USA, China, Netherlands , Russia etc. It was observed that in these countries where the IWT mode has received equal attention as the other modes of transport in terms of development and funding, IWT has come to play a major role with a share of 8-20% of the total inland cargo. In India , however, this sector has not received proper attention.

1.5 With the above background the Working Group came to the conclusion that for the purposes of planning, the IWT should not be viewed as a sector comprising IWAI and CIWTC only but an area where the private sector has a major role to play in future.

1.6 IWAI have conducted a study of the issues inhibiting the growth of IWT and have identified the components to be provided to make the IWT a viable mode of transportation in India. IWAI's Action Plan of 1994 was a useful document for the sub groups in identifying the constraints and suggesting solutions/strategy for the 9th Five Year Plan. To make the IWT an acceptable mode of transportation the basic requirements identified are reduction in cost of transportation, reduction in time of transpotation, and enhancement of safety and reliability of the cargo. To achieve this fairway, fleet, terminals and navigational aids are prerequisites. IWAI Act 1986, (Section 14) defines the scope,functions and powers of the Inland Waterways Authority of India . Taking into account the statutory obligations of the IWAI the Working Group came to the conclusion that it is the responsibility of the Govt.to provide necessary infrastructure through the IWAI and for this, adequate funding should be made through the Plans.

1.7 The concerned Sub Group's study on cargo potential has brought out the capacity of the waterways declared as National Waterways in particular and other waterways in general. The total cargo which can be moved by the IWT is estimated to be of the order of 50 billion tonne kms by the year 2005. If necessary infrastructure are provided and the reliability of the IWT operations is demonstrated, a shift of mode from road to IWT will be automatic propelled by market forces. A shift of 20 billion tonne Km to the IWT would result in an annual fuel saving of about Rs. 500 Crores and with the reduction in cost of transportation as brought out in the NCAER Report, the annual savings on cost of transportation for the 20 billion tonne km shift would be to the tune of about Rs 900 crores.This is in comparison to the cost of transportation by road . The additional transport capacity by IWT would supplement the existing transport infrastructure needed for the industrial and economic growth of the country.

1.8 Taking the above factors into account the Working Group has set a modest target of 20 billion ton km. by IWT mode during the 9th Five Year Plan. To achieve the above target, component wise requirement and strategy have been identified.

The fairway, terminals and navigational aids are the basic infrastructural facilities and unless these are provided, the IWT will not be able to provide the inherent advantages it has in terms of cost of transportation and fuel saving. In this sector it is unlikely that agencies other than Government would come forward at this stage of IWT development to put up sizeable investment as return on investment in such infrastructure today is not clearly discernible. In these circumstances, it is imperative that creation of these facilities should be undertaken by the Government and thereafter, it is axiomatic that market forces will take over.

1.9 The recommendation of the Sub Groups with regard to provision of infrastructure covering hardware and software, equipment and machinery, manpower, managerial resources etc. are given in Chapter-11. Investment required for provision of infrastructure for the three National Waterways works out to Rs. 464.00 crores and the anticipated expenditure for development and provision of infrastructure in other potential waterways (which are yet to be declared as National Waterways) works out to Rs.442.00 crores. For development and modernisation of CIWTC activities, Rs. 272.00 Crores are proposed. While working out the infrastructural requirement specific attention has been paid to the positive economic and financial rate of return brought out in the Techno Economic studies carried out with respect to most of the new waterways under consideration.

1.10 For a target of 20 billion ton km the anticipated requirement of fleet would be to the tune of about 1200 inland vessels of average 600 t capacity. This would pose a great challenge to the ship building industry in India. With the growth in demand for transportation by the IWT from sectors like oil, power, cement, it may not be possible to wait for construction of such ships in India alone. In this case there would be a need to import inland vessels to meet the cargo movement requirements.

1.11 The CIWTC with a fleet of over 100 vessels of average 600 Tons corresponding to approximately 60,000 DWT has moved only 111 million ton km in 1992-93. This is against the cargo, moved in Goa, of 1125 million ton km with 64 vessels,40000 DWT aggregate. The above figures would clearly bring out that the private sector should play a major role in the future IWT. If sufficient fiscal incentives are given such as development rebate, investment allowance, ship building subsidy etc. as was given to the shipping sector in the early period of its development, it is expected that adequate investment will flow in from the private sector. The Working Group is of the view that the fleet requirement for the 9th Five Year Plan should be met by the private sector and to facilitate flow of funds from the private sector the Government should provide fiscal incentives and a total support package.

1.12 India has over 14500 km of navigable waterways out of which about 5700 kms are navigable by mechanised vessels. If the

full potential of IWT mode is to be exploited the growth of IWT wherever navigable waterways enjoy natural advantage, should be treated as a priority. The State Governments should also play a major role in the development of prospective waterways. The present scheme of 50% loan given to the State Governments has generated results in states like Kerala, Goa and West Bengal. The issue of the Centrally Sponsored Schemes was examined by the Working Group.It has been suggested that not only the existing CSS in the IWT sector should continue but also, if possible 100 % loan under this should be extended to the State Government. Suitable recommendations, to this effect may be made to the Finance Commission.

1.13 Investment in IWT sector from the first plan period to 8th plan period has been of the order of Rs 680 crores as against Rs 17,188 crores and Rs 63,655 crores invested in road and rail sectors respectively. In the initial years of infrastructural development investment was not always linked with a positive internal rate of return. Very often it was considered as a social requirement and funds were provided accordingly. In the present scenario Plan Funds are scarce and investments are made based on financial and economic criteria. The criteria for the rate of IRR for IWT infrastructure investment should be made more realistic considering the nascent stage of the sector.

1.14 To augment the resources efforts should be made to pitch and pool funds through the user agencies who would be greatly benefitted once IWT becomes fully developed . The Public Sector Undertakings dealing with oil, coal, cement, fertilisers, power etc. are examples in this regard. Wherever the internal resources permit, these agencies should make liberal investment in IWT sector either as soft loan or as capital investment which would be recoverable either directly or indirectly over a period of time.

1.15 Yet another avenue to be explored for funding for the IWT project would be the External Resources. Investment in potential waterways as turn key package with external assistance or investment should be explored as part of privatisation.

1.16 Human Resource Development in IWT has not received the desired attention. The Working Group has noted that there has been an effort to set up a National Inland Navigational Institute for the past 6-7 years. This has not materialised. With the target of 1200 vessels for the movement of 20 billion tonne km cargo the number of specialised inland crew required would be of the order of 10,000. For management and operation of IWT sufficient number of personnel with special skills would be required. With the above background the Working Group has recommended immediate augmentation of Human Development Programme by setting up of a National Inland Navigation Institute, 5 Regional Navigational Institutes and 5 Regional Crew Training Centres.

1.17 Total projections for the 9th Five Year Plan for the activities envisaged to achieve the 20 billion ton kms. shift to the IWT sector by the end of 9th Plan are given below:-

(RS. CRORES)

(A) NATIONAL WATERWAYS (IWAI SCHEMES)		
National waterway No.1 : 220.00		
National Waterway No.2 : 109.00		
National Waterway No.3 : 135.00		
Sub Total : 464.00		464.00
(B) NEW WATERWAYS :		
(a) IWAI SCHEMES : (Sunderbans, Godavari, Goa, Brahmani & Mahanadi, ECC, DVC Canal, Narmada, Kakinada - Madras, Barak, protocol routes & extns. of NW-3).		198.00
(b) CENTRALLY SPONSORED SCHEMES (Mumbai IWT, Kosi & Gandak, Mizoram & NE Rivers, Ghaghra etc.)		244.00
(C) FARAKKA BARRAGESCHEMES		142.00
(D) OTHER ACTIVITIES :		
(a) IWAI SCHEMES : (Tech. studies, Trg. Instt., Res. Comples at NOIDA, Check posts etc)		45.00
(E) R & D SCHEMES		3.00
(F) CAPITAL SUBSIDY SCHEMES :		
a) Ship Building Subsidy	600.00	
b) Subsidy for State Sector Schemes	47.00	
c) LISS	50.00	
d) IWT Development Fund	50.00	
		747.00
(G) CIWTC SCHEMES		272.00
(H) STATE SECTOR SCHEMES		40.00
TOTAL		2155.00

1.18 The above figures do not include the cost of the vessels which would be of the order of Rs 3600 crores. This is expected to be mobilised from private sources after providing the fiscal incentives as proposed above.

1.19 Out of the total requirement of Rs 2155.00 crores for infrastructure development the Working Group has recommended a resource mobilisation of about Rs. 1000 crores from the beneficiary Public Sector Units , external aid, introduction of special cess to be charged on fuel and tax free bonds.As regards the balance of Rs 1155.00 crores it has been recommended that the same may be provided from the Plan Funds.Given the necessity and urgency to develop IWT as an alternate mode of transport perhaps there is no option but to inject heavy doses of funds at the initial stages so that the process of development gains in momentum and becomes a self -propelling force.

****

CHAPTER - 2

REVIEW OF PHYSICAL AND FINANCIAL PERFORMANCE OF THE IWT SECTOR UPTO THE 8TH PLAN PERIOD.

(A) ANALYSIS OF PROGRESS OF IWT SECTOR FROM FIRST TO SEVENTH PLAN

A brief analysis of progress of schemes under various Plans is made in the succeeding paragraphs.

2.1 First Five Year Plan:(1951-1956)

In this Plan, hardly any work relating to inland water transport was taken up. The importance of inland water transport as an integral part of the overall transportation system was, nevertheless, appreciated and a few schemes were formulated for implementation in the subsequent Plans. However, the Ganga-Brahmaputra Water Transport Board acquired a number of crafts in connection with the Pilot Projects on rivers Ganga and Ghagra and conducted regular hydrographic surveys on the Ganga and Brahmaputra rivers and its tributaries. It also carried out river conservancy in these rivers where necessary. The total expenditure for the development of inland water transport during the First Plan period amounted to Rs 33.00 lakhs.

2.2 Second Five Year Plan:(1956-1961)

The important scheme taken up during this Plan was the construction of an Inland Port at Pandu in Assam. Action was also taken for the purchase of a survey launch for the Ganga and Brahmaputra. Expenditure of Rs. 72.34 lakhs was incurred in Central Sector against the provision of Rs. 143.32 lakhs.

2.3 Third Five Year Plan:(1961-1966)

The provision made was of Rs. 548.00 lakhs consisting of Rs.400.00 lakhs in the Central Sector and Rs 148.00 lakhs in the State Sector. Major part of the provision in the Central Plan was for certain Centrally Sponsored Schemes, for which the Central Government agreed to give 100% financial assistance to the State Governments in the shape of loans. The total expenditure in the Third Plan was Rs. 252.33 lakhs in the Central Sector and Rs.55.07 lakhs in the State Sector.In addition, ways and means loans amounting to Rs.231.00 lakhs were advanced to the Rivers Stam Navigation Company (R.S.N. Co.).

2.4 Annual Plans 1966-67 to 1968-69 :

During these three years, provision of funds was made from year to year only for completion of spill-over schemes. The main scheme taken up during these Annual Plans was the construction of second riverine port of Jogighopa in Assam in addition to the inland port at Pandu. The Central Inland Water Transport Corporation was set up in 1967 to take over all the assets and liabilities of R.S.N. Co. Ltd. as the Company. closed down its

business of operating river services between Calcutta and Assam after the Indo-Pak hostilities in 1965. During the three Annual Plans, a sum of Rs. 538.76 lakhs was spent against a provision of Rs. 553.19 lakhs.

2.5 Fourth Five Year Plan:(1969-74)

A provision of Rs. 500.00 lakhs was made for Central Schemes, Rs. 400.00 Lakhs for Centrally Sponsored Schemes and Rs. 300.00 lakhs for State Schemes during this Plan. Under the Central Sector, a sum of Rs. 450.00 lakhs was for investment as grants to the CIWTC for schemes including expansion of the Rajabagan Dockyard, Kulpi Workshop and running of river services in Calcutta and Assam. Against this provision, an amount of Rs.361.84 lakhs was advanced to the CIWTC during the five year period. The other Central Schemes included in the Plan were the expansion of the technical organisation at the Centre, training, establishment of ancillary, terminal facilities at Pandu and Jogigopa Ports, surveys and running of river services on Ganga, for which a provision of Rs.50.00 lakhs existed, but only an amount of Rs. 8.05 lakhs was spent. Against the provision of Rs 500.00 lakhs in the Central Sector, an amount of Rs.369.89 lakhs was spent. Under the Centrally sponsored programme, 19 schemes estimated to cost Rs.597.00 lakhs were taken up and loan assistance amounting to Rs. 303.91 lakhs was released to the state Govts. for these schemes as well as for the spill-over schemes of the Third Plan.

2.6 Fifth Plan:(1974-78)

The provision for Fifth Plan was Rs. 2492.18 lakhs i.e. Rs. 1392.18 lakhs for Central Schemes and Rs.1100.00 lakhs for Centrally Sponsored Schemes. The important Central Schemes included in the Plan were capital repairs to vessels of CIWTC, development of Rajabagan Dockyard, construction of mooring buoys and river services on the Ganga. In the Central Sector, an amount of Rs.539.82 lakhs was spent. Under the Centrally Sponsored category, seven schemes were completed during this Plan period, and an amount of Rs.446.86 lakhs was released to the State Governments for these schemes as well as for the spill-over schemes.

2.7 Annual Plans 1978-79 and 1979-80:

During the period 1978- 80, seven self-propelled barges were acquired and five mooring buoys were laid by CIWTC. Minor Ports Survey Organisation undertook the hydrographic survey of the river Ganga and Sunderbans area. The total expenditure on the above schemes during the period 1978-80 was Rs.170.86 lakhs. During 1978-80 there were 12 continuing Centrally Sponsored Schemes and funds amounting to Rs. 86.25 lakhs were released to the State Governments as Central loan assistance for implementation of these schemes.

2.8 Sixth Five Year Plan:(1980-85)

In the Sixth Plan IWT was given a high priority and major schemes of inter-state and national importance for development of IWT were taken up. These included improvements of stretches of waterways on Ganga-Bhagirathi-Hooghly waterway on its declaration as National Waterway, replacement of overaged vessels and modernisation of dockyard. The schemes for grant of interest subsidy to IWT entrepreneurs for acquisition of mechanised vessels and modernisation of the existing crafts including country crafts were floated in the Sixth Plan. To support all these programmes, a provision of Rs. 71.66 crores was made including an outlay of Rs 45.00 crores in the Central Sector. The expenditure is estimated at about Rs.70.00 crores. While progress of Central Schemes was by and large satisfactory, the execution of Centrally Sponsored Schemes did not achieve same degree of satisfaction. Though a very high priority was accorded to the replacement of overaged vessels belonging to Central Inland Water Transport Corporation, it still had 57 overaged vessels by end of the Sixth Plan. The erstwhile IWT Directorate and its regional offices were strengthend to meet the requirement for development works between Haldia and Allahabad on Ganga-Bhagirathi-Hooghly river system. Under the Centrally Sponsored Schemes, State Governments were given assistance.

2.9 7th FIVE YEAR PLAN: (1985-1990)

Total outlay of Rs. 155.00 crores was approved for 7th Plan for Central Schemes and Centrally Sponsored Schemes. Out of this provision, the outlay for Central Schemes was Rs. 141.67 crores, and for Centrally Sponsored Scheme, Rs. 13.33 crores. The expenditure during 7th plan for central scheme and CSS were Rs. 128.92 crores and Rs. 2.93 crores respectively .

2.9.1 One important activity of 7th plan was setting up of Inland Waterways Authority of India as an autonomous body under Ministry of surface transport . The Authority was set up by IWAI act 1985 (82 of 1985) on 26.10.86. IWAI is responsible for development, and regulation of Inland waterways for shipping and navigation. The important CIWTC schemes were acquisition of vessels (6th plan & 7th Plan) and modernisation of Rajabagan dockyard. Under IWAI schemes some continuing schemes of sixth plan such as hydrographic surveys on waterways, acquisition of survey launches and development of NW-1 were taken up.

2.9.2 A pilot project for introduction of regular river services between Patna and Allahabad was conducted in Patna-Allahabad sector of NW-1. with Dutch Govt. assistance.

2.9.3 The stretch between Dhubri and Sadiya (891 kms) was declared as national waterway in December 1988. Due to non availability of any sanctioned post, practically no field work could be done during 7th five year plan.

2.9.4 Proposal for declaring West Coast Canal along with Udyogmandal canal and Champakara canal as national waterway was finalised during 7th plan and the bill for declaration was put up to the Parliament.

2.9.5 R & D schemes including prototype study of Ferro cement Catamaran boat was taken up during the plan. Some important Centrally Sponsored Schemes taken up during the plan are, construction of slipway at Pandu/ provision of navigational aids in Goa rivers improvement of Udyogmandal canal and Champakara canal etc.

2.10 ANNUAL PLAN (1990-91)

Total outlay of Rs. 57.00 crores was approved during Annual Plan 1990-91. Out of this provision , the outlay for Central Schemes was Rs. 53.85 crores and for Centrally Sponsored Scheme Rs. 3.15 crores . The expenditure during Annual Plan (1990-91) for central schemes and CSS were Rs. 13.85 crores and Rs. 0.58 crores respectively.

2.11 ANNUAL PLAN(1991-92)

During this plan total outlay of Rs. 50.00 crores was approved. Out of this provision the outlay for central schemes was Rs. 47.48 crores and for centrally sponsored scheme, Rs. 2.52 crores. The expenditure during Annual Plan (1991-92) for central scheme and CSS were Rs. 8.82 crores and Rs 1.50 crores respectively .

2.12 8th FIVE YEAR PLAN (1992-97):

Approved outlays for 8th plan are summarised below :-

(Rs. in crores)

	On going Schemes	New Schemes	Total
i) CIWTC Schemes	58.10	38.00	96.10
ii) Central Schemes (IWAI & CIWTC*)	26.75	109.00	135.75
iii) Research & Development Schemes	-	1.00	1.00
iv) Centrally Sponsored Schemes	4.15	3.00	7.15
	89.00	151.00	240.00

(* Including Central Schemes to be executed by CIWTC for Rs. 4.55 crores)

2.12.1 The provision of Rs. 240 Crores made for the IWT Sector was against a sum of Rs.725.50 crores recommended by the Working Group for the 8th Five Year Plan. Against the Plan allocation of Rs. 240 crores the budget allocation for the IWT sector for each year of the planning period has been Rs. 30.00 crores, Rs.30 crores, Rs.20 crores, Rs. 20 crores and Rs. 30 crores respectively. The actual expenditure for the corresponding years have been Rs.5.42 crores, Rs.5.41 crores, Rs.17.25 crores and Rs.11.59 crores respectively.

ANALYSIS OF PERFORMANCE

2.12.2 From the above it may be seen that there has been wide gap between the recommendations of the 8th Plan Working Group, Plan allocation for the 8th Plan, Annual Budget Allocation and actual expenditure. Scheme wise and year wise performance of IWAI and CIWTC during 8th Plan may be seen at Annexure-2.1.

2.12.3 Cargo Movement

Statistical data of cargo moved on IWT during the end of 7th Plan and 8th Plan is given at Annexure-2.2.

The cargo figures would clearly indicate that there has not been any substantial improvement in the IWT cargo movement in India during the 8th Five year Plan.

a) By CIWTC : CIWTC is the prime operator in the eastern and north eastern sector of the country. The Corporation is operating on different routes in N.W.1 and N.W.-2 including the protocol routes through Bangladesh, between Calcutta and Pandu and also on Calcutta-Karimganj route.

b) By M/s. Vivada Shipping.

M/s. Vivada Shipping based at Calcutta own a fleet of self propelled oil tankers. They are operating on Haldia-Budge Budge route.

c) Goa barge operators:

In Goa the entire iron ore export from mines to Mormagao Port is carried out by inland water transport. There are a number of private barge operators engaged in this transportation.

2.12.4 Fleet Status:

a) CIWTC - CIWTC has a fleet of vessels comprising Tugs, Self Propelled cargo Carriers, Self Propelled oil Tankers, Dumb barges etc. These are of different sizes and capacity. Details are placed at Annexure-2.3

b) Goa Barge Operators: As per the statistics of 1991-92 there were 9 major barge operators. There were 64 no. of barges with capacity ranging from 150 to 1700 tonnes deployed during 1991-92. Details are given in Annexure-2.4

c) Others States: Details given in Annexure-2.5

2.12.5 Freight Earned

CIWTC - Freight earned by CIWTC from cargo operation on various routes during 1990-91 to 1993-94 is as follows:-

PERIOD	FREIGHT EARNED (Rs in Lakhs)
1990-91	580.86
1991-92	427.38
1992-93	640.35
1993-94	552.43

Goa - Freight earned by cargo operation in Goa during 1990-91 and 1991-92 is as follows:

	Period	Freight Collected (RS.Lakh)
i)	1990-91	728.62*
ii)	1991-92	864.32*

* Excluding V.S. Dempo & Co. Ltd. and Sessa Goa Ltd.

Details given in Annexure- 2.6

2.12.6 Total IWT Cargo Movement :

The total IWT cargo movement by CIWTC, private operators and State Agencies are given below:

Name of Org.	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
1. CIWTC	385412	289438	311587	242466	298941	292524
2. Vivada Shipping	-	-	-	-	355901	196176
3. GBOA	4357212	4832743	-	-	15709354	12995463
4. Other States	-	-	-	-	-	-

Share of IWT in Inland Cargo movement:

The share of IWT in the total inland cargo split as per the 1991 data is less than 1 billion tonne km. While the share of road has increased ten folds from 58.5 billion ton km in 1966 to 567 billion ton km in 1991, the share of rail increased from 117 billion ton km to 250 billion ton km for the same period, the share of IWT has remained almost stagnant at a dismal figure of about 1 billion ton km.

2.13 SUMMARY OF ANALYSIS

2.13.1 A major portion of the fund allotted to the CIWTC was for acquisition of inland vessels. A list of CIWTC vessels as on 1st January 1992 is given at Annexure-2.3. Details of cargo carried by the CIWTC are given at Annexure-2.2. These indicate that there has not been any substantial increase in the CIWTC tonnage. The cargo moved by the CIWTC has also not shown any upward trend. In comparison to the fleet cargo ratio of the Goa operators, the CIWTC performance especially the fleet capacity utilisation, needs urgent improvement.

2.13.2 A table indicating the IWAI scheme provisions in 8th plan, Annual Budget provision and expenditure is given at Annexure-2.1This would indicate that many schemes for infrastructure development on national wayterways have not been implemented or progressed as planned for the 8th plan.

2.13.3 An outlay of Rs.3.88 crores for two ongoing schemes and six new schemes for IWT related R & D were proposed by the 8th Plan Working Group against which approved outlay was Rs.1.0 crores and expenditure for first four years of 8th Plan was Rs.0.03 crores.

2.13.4 In the state sector out of the total outlay of Rs.7.15

2.13.4 In the state sector out of the total outlay of Rs.7.15 crores, expenditure upto March 1996 is Rs. 1.33 crores.

2.14 Target for 9th Five Year Plan:

Performance of the IWT sector in general and CIWTC and IWAI in particular has not matched with the objectives/targets set for the 8th Five Year Plan. To make the IWT viable and acceptable, certain conditions are to be fulfilled. These relate to the cost of transportation, time of transportation, safety and reliability, fairway development with sufficient depth and width, 24 hrs. navigation, terminals with mechanical loading facility, access and egress and waterway safety etc. Whereever possible a long term cargo assurance would improve the load factor and hence profitability. A modest target of at least 2% of the Inland cargo to the IWT must be set for 9th Plan corresponding to 20 billion ton. Kms. A comprehensive and systematic development strategy has to be evolved for achieving this target.

(B) ASSESSMENT OF PERFORMANCE OF CENTRAL INLAND WATER TRANSPORT CORPORATION LTD.(CIWTC).

Statement indicating the 8th Plan proposal, approved plan outlay and expenditure details with respect to the CIWTC Schemes is given at Annexure 2.1.

Against a sum of Rs. 142.85 crores proposed by the 8th Plan Working Group an outlay of Rs. 96.10 crores was made in the 8th Plan provision. Against this, annual outlays of Rs. 18 crores, Rs. 19.3 crores, Rs.12.11 crores and Rs.12.60 crores were provided during the first 4 years of the Plan period. The total expenditure incurred up to March 1996 is only Rs. 16.00 crores. Against the Plan provision of Rs.10 crores for acquisition of Hovercraft no expenditure has been made as this scheme was subsequently dropped.

In the 8th Plan as against the proposal of Rs 84 crores for acquisition of vessels a provision of Rs. 38 crores was made against which the expenditure incurred upto 31st March, 1996 is Rs. 4.6 crores only.

CIWTC has incurred expenditure against certain items which were not originally envisaged in the 8th Five Year Plan. Such expenditure includes an expenditure of Rs. 7 crores on account of capital repairs of vessels and Rs. 30 lakhs for installation of weigh bridge.

2.15 ON GOING SCHEMES

2.15.1 Acquisition of 7th Plan vessels : The original sanctioned scheme includes 63 vessels. So far 47 vessels (7 tugs out of 15, 7 self propelled carriers, 1 oil tanker and 32 dumb barges out of 40) have been received. The scheme will spill over to 9th plan and an amount of Rs. 5.0 crores will have to be provided.

2.15.2 Modernisation of Rajabagan Dockyard:

A revised cost estimate for initial cost of Rs. 71.34 crores has been sanctioned in Dec.,1992 for modernisation of only ship repair facilities at Rajabagan Dockyard under Indo-Dutch bilateral assistance project. The project is to be implemented in phases. Initially, upgrading of the ship-repair facilities is being made alongwith training and development of personnel under the Minimum Investment Plan. Dutch financial assistance grant for Rs. 9.9 crores for works and equipments and Rs. 7.9 crores for development of procedures methods and system and training of personnel will be available. During the 8th Plan Rs.18.60 crores including Rs. 8.50 crores of Dutch Assistance is expected to be received against the outlay of Rs. 48.10 crores. The scheme will spill over to 9th plan.

2.15.3 Acquisition of hovercrafts:

The corporation has decided to drop the scheme in view of encouraging response from private agencies to operate Hovercraft or high speed boats in the Hooghly river.

2.16 New Schemes.

2.16.1 8th Plan Vessel Acquisition Scheme: The Govt. has sanctioned acquisition of one oil tanker for CIWTC at a total cost of Rs. 4.82 crores. The vessel is under construction at Rajabagan Dockyard on which so far Rs. 4.60 crores have been spent.

2.16.2 Details of earnings of Central Inland Water Transport Corporation from 1990-91 to 1993-94 as reproduced from the Transport Research Division Document on Inland Water Transport are given at para 2.12.5. Both from the tonnage and ton km. carried by the CIWTC (as given in Annexure 2.2 & 2.3), their performance is not considered commensurate with the infrastructure at their disposal especially the fleet capacity.

2.16.3 Based on the traffic study reports, the cargo forecast for the National Waterway No.1 from Haldia to Allahabad and Calcutta -Assam route through National Waterway No.2 and the protocol route through the Bangladesh including the cargo for Karimganj which are the major routes for the CIWTC operation is given at Annexure 5.1(Chapter V). There are no waterway restrictions for the Calcutta -Pandu route and Haldia- Farakka route

while there are depth restrictions for the Farakka-Allahabad and Calcutta-Karimganj route during certain period of the year. Aggressive marketing and operation availability of the vessel can improve capacity utilisation of the CIWTC.

2.16.4 After examining the physical and financial performance of the Central Inland Water Transport Corporation (CIWTC) and the specific role it plays to maintain a transportation link between Calcutta and the north-east through Bangladesh protocol route, the sub-group made the following recommednations :-

(a) The organisation should improve its general performance to make its presence felt in the IWT sector and act as a leader which should inspire confidence in private investors to come forward and invest in this sector. For this, suitable restructuring of the Corporation should be done to increase its productivity.

(b) Urgent steps to be taken to improve the capacity utilisation of the CIWTC both in terms of the vessels as well as the facilities for ship building and ship repair.

(c) Since the CIWTC fleet form only an insignificant portion of the tonnage which is planned for the 9th Five Year Plan, major future investment in creation of inland fleet tonnage should ideally come from the private sector.

(C) PERFORMANCE OF INLAND WATERWAYS AUTHORITY OF INDIA INCLUDING CENTRALLY SPONSORED SCHEMES

Detailed breakup on proposed outlay, approved outlay, budget and expenditure for the year 92-93, 93-94, 94-95 and, 95-96 for the IWAI schemes are given in the statement at Annexure-2.1

2.17 I. IWAI SCHEMES.

2.17.1 A. ONGOING SCHEMES.

i)Loan Interest subsidy scheme: During 8th plan, provision of Rs. 3.00 crores was made for this scheme against which Rs. 2.95 crores have been incurred during 8th plan upto 1995-96.

During 8th plan, 14 entrepreneurs had availed this facility upto Jan.,96 and further new claims were pending as on March/April, 96. The existing provision is found insufficient for clearing the running cases.

ii). Terminal facilities at Karimganj: This scheme is being implemented by CIWTC. The revised cost estimate of Rs. 4.55 crores has been sanctioned by the Govt. During 8th plan, Rs. 1.55 crores were released till 1995-96 and the scheme is expected to be completed by March,1997.

2.17.2 NEW SCHEMES (for 8th Plan)

i)Terminal facilities between Haldia and Patna: A provision of Rs. 70.50 crores was recommended by 8th plan working group, against which approved outlay for two schemes i.e. Rs. 4.90 crores for terminal at Gaighat, Patna and Rs. 10.00 crores for terminal on Ganga-Calcutta was provided during 8th plan. The expenditure during 8th plan up to 1995-96 was Rs. 0.28 crore and Rs. 0.58 crore respectively.

ii) Infrastructural facilities between Patna and Allahabad:

Eight plan working group proposed an outlay of Rs 15.00 crores for schemes under this head against which approved outlay was Rs 10.00 crores. No expenditure has been incurred under this head during the 8th plan.

iii) Navigational facilities on Ganga-Bhagirathi-Hooghly:

An outlay of Rs. 4.00 crores was proposed by 8th plan working group under this head, against which approved outlay for the plan was Rs. 8.00 crores but due to various reasons the scheme could not be implemented and no expenditure was made during 8th plan under this head.

iv)Intermodal terminal at Varanasi: 8th plan working group suggested an outlay of Rs. 10.00 crores for this scheme but the approved outlay was nil and consequently no expenditure has been incurred on this during 8th plan.

v)River conservancy work between Haldia and Allahabad:

For the schemes under this head 8th plan working group had proposed an outlay of Rs. 30.00 crores. Outlays of Rs. 7.50 crores and Rs.1.10 crores were approved for two schemes namely river conservancy works on Ganga and Infrastructural facilities between Haldia-Farakka. Expenditure during first four years of 8th plan were Rs. 6.31 crores and Rs. 0.20 crores respectively.

vi). Technical studies: For various technical studies on National Waterways and other waterways, 8th plan working group had proposed an outlay of Rs. 2.0 crores against which approved outlay was Rs. 1.20 crores. The pre-requisite studies/ investigations like hydrographic survey and techno-economic feasibility studies completed in progress are: Kollam -Kovalam stretch of West Coast Canal, cost effectiveness of IWT on Ganga, integrated development of Mahanadi and Brahamani delta system & East Coast Canal covering the tidal portion including waterway link to Dhamra, DPR for river training works on Ganga, DPR for improvement of terminals on NW-1, development of canal system connecting Kakinada and Madras and Hydrographic survey on Goa waterways. Studies for development of river Barak and DVC canal, environmental study for movement of POL/Dangerous cargo on NW-1 and review of techno-economic feasibility studies for Kottapuram-Kasargod and Trivandrum -Kollam sectors of West Coast Canal are being taken up .

vii) Strengthing of IWAI

8th plan working group recommended strengthing of IWAI but no outlay was approved and therefore expenditure during 8th plan on this head was nil.

viii) Office & Residential complex for IWAI

8th plan working group proposed an outlay of Rs. 10.00 crores for office and residential complex for IWAI but no outlay was approved. Another scheme namely construction of office-cum-R&D complex (which was a 7th plan scheme) was however taken up during the 8th plan. The scheme cost for this was Rs. 4.57 crores and expenditure during 8th plan upto 95-96 was Rs. 2.72 crores.

ix) National Inland Navigation Institute (NINI)

An outlay of Rs. 3.50 crores was proposed by 8th plan working group but no outlay was approved. Consequently scheme

was made for it but no expenditure could be made during the 8th plan for NINI.

However an outlay of Rs. 1.0 crore was approved for a scheme during the 8th plan namely 'training of IWT personnel and an expenditure of Rs. 0.08 crore was made during the 8th plan upto the 95-96 under this scheme.

x) Development of river Brahmaputra including its maintenance

An outlay of Rs. 35.00 crores was recommended by 8th plan working group under this head, against which three schemes namely river improvement works on NW-2 (approved outlay of Rs. 7.50 crores), navigational aids on Bhramaputra (approved outlay of Rs. 5.00 crores) and terminals on Brahmaputra (approved outlay of Rs. 4.80 crores) were taken up during the 8th plan and expenditure of Rs. 2.71 crores, 0.15 crore and 0.20 crore respectively were incurred on the schemes during the first four years of 8th plan.

xi) Development and maintenance of West Coast Canal (WCC) (NW-3)

Working group for the 8th plan recommended an outlay of Rs. 48 crores for development of WCC (NW-3) against which approved outlay was Rs. 62.00 crores. Expenditure for the first four years of the 8th plan on various schemes for NW-3 was Rs. 2.66 crores.

xii) River Conservancy Works on Sunderbans

Proposed outlay for the scheme for 8th plan was Rs. 8.20 crores but due to delays in declaration of the waterway as national waterway no expenditure has been incurred.

xiii) Development and Maintenance of river Godavari

An amount of Rs. 5.00 crores was recommended by the working group for development of Godavari, but no outlay was sanctioned for these works and consequently no expenditure has been incurred in the first four years of the 8th plan.

xiv) Development and Maintenance of waterways in Goa

8th plan working group recommended an outlay of Rs. 4.00 crores for development of Goa waterways. No outlay was however approved and therefore expenditure for first four years of 8th plan was nil.

xv) Development of river system of Mahanadi and Brahamani: Outlay of Rs. 8 crores was recommended by the 8th plan working group. The expenditure for first four years of 8th plan is nil.

xvi) Hydrographic surveys on river Mahanadi & other waterways:

Provision of Rs 3 Crores was recommended by 8th plan working group. No expenditure incurred during first four years of 8th plan.

xvii) Aerial Surveys an alluvial rivers: Provision of Rs. 2.00 crores was recommended by 8th plan working group but no outlay was approved and no expenditure incurred during first four years of 8th plan.

xviii) Acquisition of floating crafts for IWAI: Outlay of Rs. 116.20 crores was recommended by 8th plan working group for acquisition of floating crafts for IWAI but only Rs. 0.20 crores was approved . No expenditure has been incurred under this head in the first four years of 8th plan.

xix) Capital repairs of floating crafts of IWAI: 8th plan working group proposed an outlay of Rs. 1.60 crores for capital repairs of floating crafts of IWAI against which no outlay was approved and hence no expenditure was incurred in first four years of the plan.

xx) IWT development fund and IWT subsidy scheme :
Working group for 8th plan, proposed an outlay of Rs 10.00 crores. An outlay of Rs 5 crores was approved for this scheme against which Rs. 1.23 crores have been incurred during the plan upto March'96.

A scheme for introduction of experimental cum promotion operation on NW-1 by private operators was approved by the Govt. of India at a cost of Rs. 84.00 lakhs during March, 93 . As per the scheme, 2 vessels of 600T capacity each were hired from CIWTC and given to Goa Barge Entrepreneurs Association for operation,free of hire charges, to run the vessels in NW-1. Operation was completed in August'95.

Another scheme at a cost of Rs. 5.00 crores to pay compensation @ 10 paise per river tonne km of the cargo moved for non availability of infrastructural facilities on NW-1 & 2 was sanctioned by the Govt. of India in May '93 and since then the scheme is under implementation.

In addition to above, other activities like organising seminars & conferences, advertisement in newspapers, publishing of pamphlets & booklets, installation of hoardings, video coverage of IWT activities etc, have also been taken up with a view to popularise and to create awareness for IWT in the country.

xxi) Research and development schemes: An outlay of Rs. 3.88 crores for two ongoing schemes and six new schemes for IWT related R &D was proposed by the 8th plan working group against which approved outlay was Rs. 1.00 crore and An o

expenditure for first four years of 8th plan was Rs. 0.03 crores.

2.18 II., CENTRALLY SPONSORED SCHEMES

During the 8th plan provision of Rs. 7.15 crores was made for Centrally Sponsored Schemes against which an expenditure of Rs. 1.33 Crores has been made upto March,1996.

Details are as follows:-

i) Hydrographic survey on river Gandak and Kosi

During 8th Plan, no provision was made for these schemes and Rs. 0.02 crore have been incurred during the plan upto March'96. This scheme involves conducting hydrographic survey on river Gandak for a distance of 300 Kms at a cost of Rs. 30.738 lakhs and on river Kosi for about 160 Kms at a cost of Rs. 16.388 lakhs.

ii) Hydrographic survey and techno-economic feasibility on river Ghagra

During 8th Plan, no provision was made for this scheme and Rs. 0.04 crore have been incurred during the plan upto March'96. The scheme was to undertake Hydrographic survey from Manjighat to Faizabad for a distance of about 300 Kms. Hydrographic survey was completed by IWAI in June 91. During March 95, the State Govt. have taken up a traffic study which is in progress.

iii) Development of waterway between Bhadbut & Bharuch in river Narmada

During 8th Plan, provision of Rs. 2.47 crores was made for this scheme against which no expenditure has been incurred during the plan upto March'96.

This scheme is for providing landig facilities at mouth of river Narmada, bank protection, dredging, reclamation, providing sheds, navigational aids etc. State Govt. completed hydrographic and land survey by Nov.92. During Feb.'94 State Govt. informed that they have decided to drop the scheme as a CSS and they do not desire to include this scheme as a plan scheme.

iv) Capital dredging in Mandovi,Zuari & Mapusa rivers of Goa

During 8th Plan, provision of Rs. 0.55 crore was made for this scheme against which Rs. 0.20 crore have been incurred upto March'96. This scheme involves investigation, subsurface exploration and dredging of 1.25 lakhs cub. mtr. in river Mandovi & 1.1 lakhs cub. mtr. in river Zuari. The tripartite aggrement was signed on 22.8.89 between Govt. of Goa, DCI and IWAI wherein

DCI was a contractor and IWAI a consultant. IWAI was engaged for supervision, monitoring and control of dredging operation. Dredging work in river Mandovi was completed by M/s DCI. Due to dispute with M/s DCI, the work in Zuari was terminated. After retendering, dredging work in river Zuari was awarded to M/s Mitha Dredging by State Govt. on 23.6.95. The work is in progress.

v) Construction of 5 terminals across river Hooghly

During 8th Plan, provision of Rs. 1.13 crores was made for these schemes against which Rs. 0.53 crore have been incurred during the plan upto March'96. At Botanical garden site , the work was delayed due to delay in receipt of site clearence from CPT Authority. Now the work is completed and some rectification work is going on. At Strand Road site, pontoon & gangway etc. have been constructed and work on installation is yet to be done. At Nimtatal site, pontoon & gangway have been constructed. However due to non-receipt of site clearance from CPT, installation work is yet to be completed. At site Panihati & Konnagar work is yet to be started and site clearance is also yet to be received from CPT. State Govt. during Feb.'96 informed about the change in cost of project to Rs. 4.07 crores due to time and cost over run. During visit of Joint Secretary (Transport), Govt. of West Bengal to IWAI on 22.2.96, he was requested to submit a detailed project report to MOST for sanction which is awaited.

vi) Improvement of Champakara canal

The scheme was sanctioned for 7th five year plan and completed in Dec'91. This scheme involved earthwork and masonry protective works etc. at an estimated cost of Rs. 226.337 lakhs. The balance central share of Rs 0.03 crore was incurred during the 8th plan from savings from other schemes. Subsequent upon declaration of West coast canal alongwith Champakara & Udyogmandal canals as National Waterway, the developmental works are being executed by IWAI as per National Waterway standard.

vii) Improvement of Udyogmandal canal

This scheme was sanctioned for 7th five year plan and completed in June'93. This scheme involved preliminary works, earth work, bank protection work etc. at an estimated cost of Rs. 299.929 lakhs. During 8th Plan, an expenditure of Rs. 0.18 crore have been incurred for spillover portion of the scheme from savings from other schemes. Subsequent upon declaration of West coast canal alongwith Champakara & Udyogmandal canals as National Waterway, the developmental works are being executed by IWAI as per National Waterway standard.

viii) Modernisation of 55 jetties for ferry services in Kerala back waters

During 8th Plan, provision of Rs. 3.00 crore was made for

this scheme against which an expenditure of Rs 0.33 crore has been incurred upto March'96. Scheme was sanctioned for 55 jetties. Out of which 40 jetties were completed and work on 2 jetties is in progress. Work on remaining 13 jetties is yet to be started by State Govt. though scheme was scheduled to be completed by March'93.

2.19 In general there has been delays in conceptualisation and execution of the schemes and in achieving the physical and financial targets set for the IWAI and the CIWTC.

2.20 There is clearly a need for empowerment and strengthening of the organisation to meet the ambitious targets set for the 9th plan and to facilitate quick revival of the IWT mode.

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CHAPTER -3

CONSTRAINTS IN OPERATION OF WATERWAYS AND SUGGESTED MEASURES TO COUNTER THEM

3.1 Inland Water Transport (IWT) is widely accepted as the least cost and most fuel efficient mode of transportation, ideally suited for low value, high volume, non-perishable bulk cargo. Unfortunately, exploitation of the potential offered by the rivers, canals, creeks and backwater channels in India in this respect has so far been insignificant. Out of the present estimated inland traffic of 838 billion tonne kms. moved by different transport modes in 1991-92, the rail and road virtually take the entire load and IWT carries a meagre 1 billion tonne kms. Even this IWT traffic is primarily due to the movement of iron ore in the Mandovi/Zuari river System in Goa. Other IWT operations are limited to a few stretches in the Bhagirathi-Hooghly river system, the Brahmaputra river, the backwaters in Kerala and in the delta regions of the Godavari-Krishna rivers. The passenger traffic is virtually limited to ferries operating at river crossings.

3.2 Most of the major river systems in India offer ample scope for development of IWT operations. However, due to various reasons, operation of this mode has not been efficient. Some of the reasons are as follows:-

i) With the diversion of water for irrigation, industrial and other needs, the flow in the rivers has depleted resulting in availability of less water depths for navigation. The situation has further worsened by excessive silt loads from erosion of uplands (a result of bad catchment management and increased deforestation). Very little has been done to check this process of deterioration of the waterways especially the Ganga.

ii) Insufficient water depths due to lack of conservancy measures, resulting in hold ups and detetion enroute.

iii) Non-availability of adequate navigational aids resulting in hold-ups and restricted times of sailings.

iv) Inadequate vertical and horizontal clearances across the waterways.

v) Terminal facilities at the loading and unloading point are non-existent and where existent, inadequate.

vi) Vessels are outdated and thus are not so efficient for economic operation.

3.3 The rivers in the plains having gentle bed slopes, artificial reservoirs and backwaters offer navigability prospects almost in their natural state without requiring large investment in regulatory measures of civil constructions. Rivers having steep slopes attain high velocities in the flood season, while in the dry season, there is very little water, exposing the rock outcrops, rapids, and the like and, therefore, invariably require water level control measures like construction of dams, weirs, training works, etc. The regulatory civil constructions are expensive, and therefore, could not solely be justified for only navigational purposes. But when other beneficial users of water introduce these measures, navigation becomes smoother.

3.4 All major rivers which traverse the country are a vital part of the national water resource system. The flexibility of the system can be greatly increased by conservation of the water and better management control. Construction work for conservation and management of the water resources and measures taken for flood control should automatically form the way for a smooth water transport system in a well coordinated management. In many developed countries, a navigable river system was borne as an outcome of effective flood control or irrigation system.

3.5 The major problem faced by the IWT is due to shallow water or inadequate depth for navigation. For safe and organised navigation, sufficient year-round water depths and relatively low current velocity are two basic requirements. The Ganga-Brahmaputra-Sunderbans system, waterways in Goa, West Coast Canal and the delta region of the East flowing rivers to a.greater extent posses this natural potential. However, increasing water withdrawal for irrigation and loss of ground water due to adverse environmental conditions caused by indiscriminate deforestation pose a continuous threat to the availability of water in the waterways.

3.6 Setting up of the Inland Waterways Authority of India (IWAI), a statutory body for the regulations and development of navigation and shipping in the inland waterways has been a major landmark in the IWT development in India. The Authority since its inception, has conducted extensive studies on all the 3 declared waterways. The hydro and techno-economic studies have clearly broughtout the hydro-morphological aspects of these waterways and such studies and data would be of immense value for formulation of appropriate schemes for navigation development in these waterways.

3.7 The Ganga and the Brahmaputra are tropical alluvial rivers. The present level of discharge in these rivers, below Patna in case of the Ganga and below Dibrugarh in case of Brahmaputra, is considered sufficient for development of navigational channel with 2 mtr. depth and 45 mtr. width with bed regulation techniques. Talweg surveys have been carried out in both the rivers for the past 6 years and rise and fall of the river bed with discharge variation, formation of shoals and effectiveness

of the conventional river conservancy techniques such as bandalling, channel marking using bamboos have all been experimented and by improving the present techniques and its effects and timely implementation, provision of 2 mtr. depth fairway in these stretches is now considered within the reach of the Authority. In case of Ganga, above Patna upto Allahabad, a Pilot Project Study was undertaken with the assistance of the Government of Netherlands. This Study report has brought out the development strategy of this river reach as the traffic upto Patna gains momentum.

3.8 Navigation in inland waterways throughout the year becomes difficult due to various reasons such as unfavourable weather conditions, strong current and rapid formation of shoals. To improve the IWT reliability, efforts for river conservancy should aim at providing navigation ultimately throughout the year. For such reliable operation, additional techniques would be required. The existing methods of bandalling will have to be suplemented by dredging. Different types of dredging like surface dredging will have to be introduced to improve the flexibility and effectiveness of river conservancy operations. These are the salient features with reference to the constraints in navigation in Ganga and Brahmaputra.

3.9 With respect of the West Coast Canal, it is a tidal waterway. By land acquisition and dredging for deepening and widening the fairway, land acquisition and excavations for widening the fairway, this waterway can be designed and maintained to any reasonable size and capacity. The size to be governed by the traffic, the capacity required and the expenditure involved for such development.

3.10 Apart from the depth and width, the second requirement for efficient shipping is facilitated for safe berthing, loading & unloading of the cargo. For this the committee notes that inspite of sufficient provision in the 8th Five Year Plan, no new terminals have been provided by the IWAI in any of the waterways. This is an area of concern which should be well addressed to, if the IWT operations in the waterways are to pick up.

3.11 The third requisite for viablity of IWT is a facility of navigation through day and night. For this, navigational facilities are to be provided for all waterways.

3.12 A comprehensive study on the inland water transport in India analysing every components of inland water transport including the constraints in navigation and requirement of infrastructure was made by the IWAI during March 1994. This document had identified the basic components required for navigational development, a fairway, fleet, terminals and navigational aids to be provided to facilitate growth of the IWT as a safe and reliable mode of transportation at a cost substantially lower than the other modes.

3.13 Presently the guidelines for the national waterways are as proposed by the NTPC 1980. The depth proposed is 1.5 mtrs. and the width proposed is 45 mtr. While identifying constraints in navigation, the traffic capacity and the traffic requirement and the pace of development required to match the cargo growth are the essential factors to be taken into account. It may be possible to have a waterway with even reduced dimension than those proposed by the NTPC to be a viable IWT system. The depth criteria should be chosen in such a way that the fairway capacity utilisation is planned for a long term development. Like in China, an attempt is to be made to classify the waterways into different types depending upon their size, economic capacity, navigational constraints. Smaller waterways with adequate cargo capacity may also be consideration for development as national waterways. In major waterways which can have depth more than 1.5 mtr. with a reasonable level of development/maintenance cost, higher depths should be provided so that larger vessels can operate which would make the cost of transportation by IWT even more attractive. A review of the standard parameters proposed by the NTPC and efforts to classify the indian waterways as done in China, may be made.

3.14 With regard to infrastructure in inland waterwways, facility provided should be functionally suitable to reduce the IWT cost of transportation on one hand and to improve the IWT efficiency on the other. This is applicable particularly in case of Terminals. China moves an annual cargo of 540 million tonnes by IWT. The technical advancement made in countries like China and USA must be adopted for a faster development of IWT in India. This aspect should be looked into and adequate funds provided for the long pending need of construction of terminals both in the Ganga and Brahmaputra.

3.15 As mentioned earlier the Action Plan document of the IWAI brought out the constraints in smooth operation of inland water transport in India and also the specific requirements in terms of fairway, fleet, terminals and navitational aids in particular. The development strategy proposed in the Action Plan, if implemented, would find solutions for removing the physical constraints in navigation and shipping in the inland waterways. While the open river navigation would be the first stage of IWT development, long term planning for conservation of water and level of discharge in the indian rivers should also be given an consideration.

3.16 Construction of dams/barrages is closely interlinked with irrigation, power generation, flood control and environment. An integrated study and action plan are required for effective management of the water resources. Construction of barrages/dams at intermediate locations will improve the depth upstream for navigation. However such permanent measures will alter the natural conditions of the river. Due to huge diversion of water for irrigation, the availablity of water down stream gets considerably reduced and also siltation takes place due to low discharge. It is essential to keep minimum required flow in the rivers round

the year for navigation, industrial/domestic use, pollution control, environmental preservation, etc.

3.17 In the initial stage of fairway development in Ganga and Brahmaputra, the present level of discharge would be sufficient to maintain a depth of 2 to 2.5 mtr. Long term measures for training of the rivers by stabilisation and rectification of the rivers would facilitate better navigational conditions, deep straight navigable channel, reduction in river distance and better safety conditions. Studies in this regard should continue and pilot projects taken up during 9th plan.

3.18 While emphasis is laid on fairway improvement and navigational aids, design of IWT crafts is also important. Terminals with mechanised cargo handling facilities, berthing, bunkering, storing, repair and maintenance facilities and communication facilities are essential for smooth movement of the vessels/cargo. However, selection of sites and design and construction of terminals in river systems will require extensive studies in view of the changing pattern of the channel and the water level variation ranging upto 10 to 12 mtrs. Detailed studies based on satellite imagery and hydrographic surveys, improved data acquisition and processing facilities for river maps are the activities to be progressed. Hydrographic survey and hydraulic studies such as cross section surveys, current observation, sedimentation studies and effect of siltation and bank erosion near the terminals will have to be continued for effective maintenance of the infrastructure facilities.

3.19 Transportation by IWT cannot be planned in isolation from other modes of transport. A very close interaction and involvement of the road and rail sectors and coastal shipping are needed so that cargo movements by river can be integrated with other modes of transport. Towards this, IWT terminals should be interlinked with rail and road and the river systems connected with major ports.

3.20 **MEASURES RECOMMENDED FOR REMOVAL OF CONSTRAINTS**

In its Action Plan document prepared during March, 1994 the IWAI has brought outthe components necessary to make IWT a viable mode of transportation; the IWT should provide transportation at a lower cost, in reasonable time with reliability and safety.

2. IWT cost consists of operation cost on account of fuel, crew wages, berthing and loading, repair and maintenance,depreciation, interest etc. With unsafe, uncertain fairway and restrictions on speed, the fuel cost goes up. Lack of berthing facilities and access/egress to the berth makes berthing and loading difficult and expensive. Poor fairway conditions, frequent groundings and limited expertise of the crew result in high repair/maintenance cost. High steel price and ship building cost on the other hand increase the capital cost of the vessels.

3. Time of transportation has four components namely waiting time for charter, loading time, sailing time and berthing/unloading time. Demand for IWT determine the waiting time for charter. Proper berth and loading/unloading facilities will reduce the loading time while unrestricted and well defined fairways with day and night navigation facility will reduce sailing time.

4. Reliability of services depends on maintaining the sailing schedules without breakdown or hold ups enroute and efficient cargo receipt and delivery. proper up keep of the vessels and management of the waterway are the components determining the reliabiliy of services.

5. Safety of cargo involved safe storage facilities at origin and destination, handling and storage on board the vessel and safety from theft, pilferage.

6. Following are the reguirements in this regard :

(i) Unrestricted and well defined fairway with adequate depth, width and under keel clearance for round the year operations.

(ii) Facility for sailing during day and night (24 hours navigation)

(iii) Berthing facility at all stages of river with minimum vertical and horizontal transfer at reasonable cost.

(iv) Access/egress to trucks at river terminals.

(v) Manual and mechanical loading facility at reasonable cost.

(vi) Storage, bunkering and repair facilities at terminals.

(vii) Reduction in IWT distance by river training, rectification and stabilisation of the river.

(viii) Discharge regulation of flow conditions.

(ix) Provision of assistance to vessels (River notice, Pilotage, tugs and Communication).

(x) Fiscal incentives like subsidy for inland vessel construction, tax concessions and tax holiday, exemption from import duties etc.

7. Action plan recommended for the simultaneous improvement in facilities needed for fairway, terminals and navigational aids during 9th plan is as follows :

(i) Dredging for improvement in depth.

(ii) Improvements to existing concrete jetties at Farakka, Patna, Haldia, Pandu and Karimganj.

(iii) Provision of pontoon jetties with crane at many locations in Ganga and Brahmaputra.

(iv) Semi-permanent low level jetty as pilot project at Patna, Ballia and Tezpur.

(v) Provision of lighted buoys in Sunderbans,Calcutta-Farakka and Dhubri - Pandu streches and West Coast Canal.

(vi) Development of Karimganj- Silchar waterway and Badarpur Terminals and also Godavari and its canal system.

(vii) Improvement in Navigation facilities in Bangladesh along the protocol route for unrestricted fairway and night navigation.

(viii) Technical studies for declaration of more waterways like Bombay IWT, river Yamuna and Krishna system and Brahmani system.

(ix) Pilot project in river training in the Ganga and vegetative technique of bank protection in West Coast Canal.

(x) Training facility in Inland navigation, hydrography and dredging.

(xi) On the job training and HRD.

(xii) Creation of consultancy wing and assistance to State Govt.

(xiii) Incentive oriented schemes for optimum fleet utilisation of CIWTC and increasing the involvement of NGO/Private Agencies in IWT operation.

(xiv) Enforced cargo, liaison with concerned Ministries.

(xv) Terminal facilities at Calcutta, Haldia, Farakka, Patna, Munger, Pandu, Tezpur, Dibrugarh, Cochin, Allepy and Quilon.

(xvi) Night navigation facilities in Farakka, Patna, Pandu, and Tezpur.

(xvii) Navigation Lock and Channel at Jangipur to open Padma - Jamuma route to Assam.

(xviii) Stabilisation and rectificaion of river for removal of shoals at all shoal zones.

Permanent measures : Calcutta - Farakka

Semi permanent measures: Farakka-Patna & Dhubri-Pandu

(xix) Inland Port at Malda, Semaria for Nepal Cargo.

(xx) Development of waterways to Mizoram and North Eastern rivers.

(xxi) Deepening and widening of the West Coast Canal and its extension to Kovalam and Badagara and provision of terminals.

(xxii) Development of Yamuna in Delhi, Bombay IWT, Krishna system, Brahmani waterways - Fairway, fleet and terminals .

(xxiii)Revival of DVC canal for navigation.

(xxiv) Repair and maintenance facilities at Patna, Guwahati and Dibrugarh.

(xxv) Upgradation of safety arrangements on Inland vessels.

(xxvi) R&D on ship design, Remote sensing applications, low cost terminals.

(xxvii)Thrust on passenger services in IWT - identification of specific routes and special provisions, amenities, high speed vessels and convenient connections.

3.21 The above specific measures which have been translated into schemes in the succeeding chapters to make the IWT a viable mode facilitating a substantial shift of the inland cargo to the IWT sector.

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CHAPTER 4

POLICY FRAME WORK FOR IWT FOR THE 9TH PLAN

BACKGROUND

4.1 IWT mode is fuel efficient, generally cheaper, eco- friendly, labour intensive and requires low capital investment as compared to other modes of inland transportation. IWT is a regular mode of transportation in many countries like USA, Netherlands, and China etc. where it has a substantial share of Inland cargo.

4.2 IWT mode in India has been dormant for almost a century (except in areas like Goa),presently accounting for less than 0.1% share of inland cargo of India.

4.3 In the past when railways did not exist and road network was not extensive, Inland waterways were important means of transport. With the development of rail and road systems, the revival and development of Inland Water Transport has become dependent upon its competitive strength. There are areas where Inland Waterways enjoy natural advantage. A coordinated policy and commensurate investment decision for the development and maintenance of the important waterways of the country for the purpose of physical realisation of a substantial shift of inland cargo to IWT mode of transport are therefore essential.

4.4 Since independence, Govt. of India have been considering revival of IWT mode. Various committees have gone into the IWT related issues. These committees considered the difficulties and problems of river transport in the country and were of the opinion that IWT should form part of National Transport.They recommended various technical, organisational and financial measures to develop it. The National Transport Policy Committee (NTPC) was set up in 1978 by the Government to study various modes of transport and suggest policies for their development. This Committee also analysed the inland water transport and submitted its report in 1980. The Committee was of the opinion that declaration of certain important rivers as National Waterways would help in their uniform development for navigational purposes. The Committee also recommended that future traffic potential for waterway must be assessed and the amount of traffic presently carried need not be given undue weightage at the time of declaration of a waterway as National Waterway. The NTPC was of the view that the growth of the traffic would depend on the development of infrastructure and industrial locational policy pursued by the State and Central Governments.

4.5 In accordance with the recommendations of the NTPC, Government of India set up the Inland Waterways Authority of India (IWAI) by an Act of Parliament with the primary objective of regulation and development of inland waterways for the purpose of shipping and navigation.

4.6 Notwithstanding the efforts of the Govt. in this regard and the existence of the Authority for the development of IWT in India for the past 9 years, the IWT share of the inland cargo continues to be insignificant i.e.0.1% of the total inland cargo. This is in contrast to the IWT sector in other countries such as the USA, China, Russia and the Netherlands, to name a few, where the IWT has a respectable share of the inland cargo ranging from 8 to 20% of the total inland cargo.

4.7 River navigation is one among the many uses of water resources. National Water Resource Committee has defined the broad priorities for various competing uses. These are :

1. Drinking Water

2. Irrigation

3. Hydro-power

4. Navigation

5. Industrial and other uses.

It may be seen that navigation has been given only the 4th priority. Nevertheless, if meaningful development of inland waterways as a supplementary mode of transport is to take place, it is essential that the existing flows should be maintained because it is axiomatic that without adequate water level there cannot be any water transport. In this regard one important factor to note is the unchecked run off of Indian rivers during flood season. If checked by means of discharge regulation techniques such as series of dams, barrages, weirs etc. with navigation locks, a substantial part of the water can be used for each of the above mentioned use during lean water level periods. Therefore, the integrated policy frame work should necessarily project the importance and need of the discharge regulation techniques on all major Indian rivers.

4.8 Rail and road have been developed over a period of more than 100 years, when the criterion of economic viability was not considered as the essential aspect of investment decisions relating to infrastructure development. Now-a-days economic and financial considerations form the basis for taking investment decisions. Comparison of a fully developed mode of transport like railways with the IWT which is at an infant stage may not be realistic.Social benefits and the need to create transport infrastructure should also be taken into consideration while evaluating project proposals for economic viability. Further many potential waterways have lost their traditional traffic to road and rail.The major industries have also been shifted to rail and road corridors. Hence, liberal incentives are needed to step up the pace of development of inland water borne traffic

4.9 It is the integrated transport network comprising all modes namely the IWT, road, rail and coastal shipping that can shoulder the traffic needs of the next decades. The investments in the transport sector in general and IWT in particular have to be made to match with investments in the transport generating sectors like industry power, agriculture, etc. Besides, the long gestation period of investment in transport infrastructure also calls for creating capacity ahead of the demand to avoid bottlenecks in economic development. These investments have to be based on real resource costs in the light of overall benefits to the national economy. Inland water transport as one of the promising modes with substantial potential has to be seen in this light for investment purposes. The Steering Committee on Transport Planning (1988) has recommended that IWT should receive the treatment of a nascent industry as it is conceivable that some of the waterways may not be financially viable in the initial period.The Working Group also shares the same view.

POLICY RECOMMENDATION

4.10 The following measures are recommended for making IWT an effective and vibrant mode of transport:

a) **Liberal investment of Plan Funds for IWT Sector:**

Cumulative plan fund investment for the road and rail from 1st Plan to the 8th Plan has been to the order of Rs. .63655 crores for railways and Rs. 17188 crores for road. The investment in the IWT Sector for the corresponding period has been a meagre sum of Rs. 680 crores. The present share of the IWT in the total inland cargo of 1 billion ton KM. which corresponds to only 0.1% of the total inland cargo can be attributed to the insignificant level of investments made in this sector. A modest target for the the 9th plan set is for 2% of the inland cargo corresponding to 20 billion ton Kms. A shift of 20 billion tonne Km. to the IWT mode would result in annual saving on crude oil import to the tune of about Rs. 500 crores and annual saving in cost of transportation to the tune of about Rs. 900 crores. This benefit to the national economy has to be taken into account while plan fund allocations are made for the IWT sector.

b) **Declaration of IWT as an Industry:**

One of the pre-requisites for inviting private investment in a sector is that return on investment in such sector should be attractive.It is,therefore recommended that IWT should be declared as an industry thereby facilitating the announcement of attendant fiscal incentives.

c) **Declaration of IWT as a Priority Sector :**

It goes without saying that the development of IWT sector has far reaching beneficial fall out .It will not only save precious foreign exchange and cut down expenses on fuel ,but will also decongest rail and road modes which are presently heavily strained.Besides, it will also usher in development of backward and tribal belts in the hinterland.It is,therefore,recommended that IWT should be declared as a Priority sector and attendant concessions as considered necessary may be given.

d) **Long Term Cargo Assurance :**

IWT in an inter-modal network can effectively transport bulk commodities like coal, cement, foodgrains, petroleum, steel products, paper, ODCs, tea, fertiliser etc. It would be desirable that Public Sector Undertakings controlling such bulk cargoes should encourage IWT mode.Needless to say, such organisations by resorting to IWT mode will be able to cut down, to a large extent, expenses on transportation cost. Assurance of cargo support on long term basis will go a long way towards generating private participation in IWT sector.

e) **Joint Venture Participation :**

Various agencies such as power sector, agriculture sector, coal sector, oil sector, steel sector etc. would stand greatly benefited if they join IWT sector as joint venture partners.Such agencies who invest in IWT sector should be given liberal fiscal concessions and tax benefits.

f) **Level Playing Field for IWT :**

In the total scenario of the transport systems, IWT is rather a nascent mode in the modern commercial sense. Railways and roadways systems have developed in the last one century by substantial state funding. At present, they have already attained certain heights in the area of commercial activity and have become capable of sustaining on their own. There are, sometimes, various internal cross subsidies as well. For example, in the case of railways, certain commodities are carried at lower freight rates than cost of operation in the larger social interest and the system is compensated by other commodities where appropriate tariffs can be levied.

In the case of road transport, the rates for carriage do not take into account the capital cost that has gone into the construction of roads and other facilities. However, in the case of IWT, at the time of appraisal of schemes, the user cost has to be demonstrated to stand on its own and all the elements including infrastructural building cost are taken into account in such calculations. At times, these rates may not be found to be profitable.

The comparative situation is of unequal stages of development of systems as well as a lack of opportunity to cross subsidies within the IWT system itself coupled with the cost of infrastructure entering the cost analysis.

The suggestions, therefore, are

i) That while appraising the viability of IWT projects in the initial stages, cost of infrastructure development should not be taken into account. Norms for Internal Rate of Returns as indicated for other projects may also be relaxed.

ii) Subsidies, whatever they are applicable to transportation by railways, like the Transport Subsidy to North East, should be automatically applicable for IWT mode also.

iii) Since the IWT sector is in some respects analogous to the shipping industry, the incentives and concessions available to the shipping sector should also be made available to the IWT sector as may be applicable.

The policy support should thus ensure favourable conditions for the growth and development of IWT as an additional and alternative mode of transport in the context of the pressures that are building up on the environment and other transport systems.

g) **Restrictions of investment in road/rail sectors :**

Considering the advantages of the IWT mode over other modes a conscious decision should be taken to restrict investments for road and rail line capacity creation in areas where IWT enjoys natural advantage. Corridors along the Ganga and the Brahmputra are examples in this regard.Steps should be takento set up a coordinated agency in the Planning Commission to work out the modalities.

h) **Chartering of Inland Vessels :**

Indian Companies may be allowed to acquire Inland Vessels through bare boat charter cum demise. These bare boat charter vessels should be treated as Indian flag vessels for all practical purposes.

i) **Ship Building Subsidy :**

The IWT system would require 1200 to 1400 vessels for a shift of 20 billion tonne km to IWT. Presently so many vessels are simply not available in India. The Indian shipping industry is also not geared up for such a time bound mass production. In such a scenario restrictions on import of Inland vessels need to be relaxed. Simultaneously the Indian shipbuilding industry should also be encouraged to meet the growing demand with vari-

ous incentives. Ship building subsidy is an example in this regard.

j) **Development Rebate :**

Under this scheme an individual operating vessels in the National Waterways can keep a certain percentage of its profit for developmental purposes without attracting any tax liability.This scheme existed for inland barges till 1977 and was subsequently replaced by Investment Allowance.With the requirement of over 1200 vessels during the 9th. Five Year Plan this facility is critical for the growth of inland shipping. It is proposed to extend this facility for a period of 10 years for acquisition of inland vessels for cargo and passengers, inland dredgers and other supporting vessels.

k) **Investment Allowance :**

Investment allowance for the inland barges existed till 1991. Withdrawal of this scheme has adversely affected the IWT Sector. While the development rebate reserve is proposed for all inland vessels for operation on the National Waterways only, the Investment Allowance is proposed for all waterways. It is proposed to reintroduce this concession for inland vessels for carriage of cargo and passengers including maintenance vessels such as dredgers. This concession would result in private sector investment in IWT fleet throughout the country.

l) **Tax Free Bonds :**

Various infrastructure sectors like Railways etc. have been permitted to raise funds in the form of the tax free bonds. The IWAI is functioning with the grants received from the Government. In such a situation it may not be possible for the IWAI itself to go in for a bond because of the lack of internal resources at the present stage. The IWT once developed will have sufficient internal resources in the form of levies and charges which would be collected for the services to be rendered by the Authority. Taking these factors into account it is for consideration whether some of the profit making Public Sector Undertakings who would be the main beneficiaries of developed IWT system in the country should raise fund in the form of tax free IWT infrastructure Bonds and divert the funds to IWAI/IWT as long term concessional loan.

m) **IWT Subsidy:**

With a view to ensuring optimum utilisation of inland waterways an IWT subsidy scheme to give subsidy on transport costs on the movement of raw materials and finished products by IWT to the users should be introduced.This scheme will go a long way in giving due fillip to the IWT sector.

n) **IWT Development Fund:**

This scheme was approved by the Govt.during May 1993.Under this scheme ,a compensation @10 paise /km of the cargo moved is admissible for movement in NW-1 and NW-2.This subsidy is on account of non-availability of infrastructural facilities.It is recommended that this scheme should be extended to NW-3 as well during the 9th.Five year Plan.

o) **Enhanced rate of Depreciation:**

It is proposed that depreciation may be allowed @40 % of all types of inland vessels.

p) **Passenger Ferries:**

Special efforts need to be made for providing passenger ferry services in regions where IWT is an important mode of transport for public. Incentives should be extended to encourage private participation in passenger ferry services by using modern vessels with modern facilities, timely services etc. The existing LISS for procurement of passenger vessels must continue. Subsidy for construction of vessels like Catamarans and Hovercrafts must be considered to promote the industry.

q) **Waterways in Urban Centres:**

In certain metropolitan cities and urban centres, there are possibilities of utilising waterways as supplementary mode to other modes of transport to relieve congestion on roads and rail. The local bodies need to be encouraged to take up such projects. Such schemes should be given priority under Centrally Sponsored Schemes.

r) **Integrated Development of River Valley Projects:**

In multi purpose river valley projects, the interests of each sector namely irrigation, navigation, domestic and industrial use flood control etc. are to be safeguarded. Close coordination among these different water uses is essential. **In this regard, a multi disciplinary river basin management body may be set up in which IWAI and state IWT organisation may be given due representation.**

s) **Interlinking of Waterways and Ports:**

Several river systems in India hold out good prospects of inter linking waterways and ports with coastal shipping. In this regard the Ganga-Brahmaputra-Sunderbans river system can be integrated with Haldia-Calcutta Ports, the Brahmani-Mahanadi river system with Paradip Port, Krishna-Godavari-Buckingham Canal with Kakinada Madras Ports, West Coast Canal with Cochin Port,

the Mondavi Zuari Cumberjua waterway with Mormugao Port, the Tapi with Surat and the Narmada with Bharuch. The development of the inland routes for the Port hinterland traffic will augment the transport infrastructure for the maritime trade. Participation of the shipping industry and ports in IWT development especially in joint venture project should be encouraged.

t) **Private Participation:**

IWT is an area where operation of transport services should be freely permitted to state agencies and private agencies. To encourage operators, certain incentives such as concessional finance for capital investment may be allowed. Even for maintenance works on waterways, the emergence of private entrepreneurs who could provide a host of ancillary services including riverine dredging operation of cargo vessels, construction and maintenance of terminals, provision and operation of cargo handling facilities, navigationals aids etc., should be encouraged.

u) **100% Assistance For Centrally Sponsored Schemes:**

A review of implementation of Centrally Sponsored Schemes in the past Plans reveals tardy progress due to a number of factors including lack of adequate financial resources with State Governments. Presently the central loan assistance for such schemes is limited to the extent of 50% of the cost of the schemes. While the development of National Waterways is the responsibility of the Central Government, other waterways are to be developed by the States. There are many rivers/canals which serve more than one State and therefore coordinated financial and administrative support becomes difficult. In view of this and to achieve expeditious development of important waterways other than National Waterways, it would be necessary to extend the central assistance of 100% grant for special category of IWT schemes under Centrally Sponsored Schemes.

v) **Loan Interest Subsidy Scheme :**

The Loan Interest Subsidy Scheme (LISS) was sanctioned by the Govt. in 1980 and modified in 1983. Under this scheme loan is granted to IWT entrepreneurs by banks/financial institutions for acquisition of vessels at subsidised rate of interest. The subsidy given is the difference between the market rate of interest and 5.5% . During the 8th Five Year Plan, 14 entrepreneurs have availed of this facility upto February 1996 and further new claims of 11 entrepreneurs amounting to Rs. 4.75 crores are under scrutiny.

It has been observed that major beneficiaries of the scheme since its inception have been the barge operators in Goa. Even after declaration of three waterways as National Waterways, there have been practically no requests for this subsidy from operators for acquisition of vessels for operation in National Waterways.

The Govt. of India have appointed a Committee to review the existing provisions of the Loan Interest Subsidy Scheme. The above committee have made certaint observations and recommendations for modification of the existing Loan Interest Subsidy Scheme as under :-

i) Because of high initial cost of new acquisition and lack of cargo assurance in most cases this was not found attractive by new entrepreneurs except in Goa.

ii) It has been suggested to extend LISS for acquisition of indigenous / imported second hand vessels, dumb barges, tugs with certified life of at least 10 years etc.

iii) It has therefore been proposed to include modernisation including conversion/ modification/ jamboisation of mechanised vessel/dumb barges under the scheme.

iv) It has been proposed to include acquisition of new dredgers for exclusive use on inland waterways under this scheme.

v) Though provision for acquisition of new country boats and also their mechanisation exists in the existing scheme no proposal has been received in this respect till date. As country boats play a vital role in the IWT system, it is proposed to extend the facility for undertaking major repairs to existing country boats.

vi) For proper growth of quick IWT service, it is proposed to extend the scheme for acquisition of new/second hand amphibian craft with 10 years certified life such as hovercrafts, hydrofoils etc.

vii) It is recommended not to allow the facility for acquisition of second hand vessels/dumb barges/ tugs if the same was originally procured by availing LISS.

viii) As per existing provision the scheme was applicable for the vessels which are engaged on transportation of passengers/ cargo. Since there are other kinds of vessels which are engaged in different functions like hydrographic survey, inspection, dredging, supply and other allied works on inland waterways, it is proposed to include such vessels in the scheme. Further as per the existing provisions vessels were to be registered under Inland vessel Act 1917(1 of 1917). As IV Act has not been adopted by all states registration under equivalent Inland Navigation Acts like the canals Act/ Ferries Act etc. has been proposed for inclusion.

ix) The loan portion eligible for subsidy needs to be enhanced. The committee has recommended removal of this clause and provision of a higher equity-debt ratio to all categories.

x) The Committee has recommended that seed money so provided by the State Government should be reimbursed to the State Government by the Centre.

xi) In order to ensure that more and more vessels are put to service in the national waterways, the committee have recommended to accord priority for request for LISS for procurement of vessels for operator on national waterways.

It is proposed to permit private entrepreneurs to set up terminals/ berths/procurement of cargo handling equipments/ installation of cargo transfer machines to be used at terminals in National Waterways. A separate recommendation to consider subsidy of interest for loans obtained to create such facilities in National Waterways is also made by the Committee.

The Committee was also to review the existing pattern of Central assistance to the State Government under Centrally Sponsored Scheme (CSS). The Committee is in favour of continuing with the existing 50% Central Govt. loan for the Centrally Sponsored Scheme in IWT. However, the Committee has recommended reimbursement of the full cost of technical studies and investigations of waterways in the States and also for preparation of detailed project reports for development of the State Waterways.

The Committee also examined the feasibility of total package of incentives to be provided to the IWT entrepreneurs for a larger private sector participation in the IWT Sector. The committee has made recommendations to introduce fiscal concessions such as development / depreciation rebate, investment allowance for making investment in IWT sector for procurement of vessels and ship building subsidy to the extent of 30 %.

The Working Group supports the recommendations of the above Committee and recommends liberal allocation of plan funds for infrastructural development to facilitate growth of IWT as a viable mode of transport.

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CHAPTER 5

IDENTIFICATION OF AREAS AND COMMODITIES FOR IWT SECTOR

BACKGROUND:

5.1 From various studies conducted by the Govt.of India from time to time since independence on IWT related issues, it has been established that IWT is cost effective, eco-friendly, labour intensive, fuel efficient and safe mode of transportation particularly for non-perishable bulk items and over -dimensionel cargo. Yet it is a fact that IWT has been dormant in India and has not achieved its due share in Indian Inland Water Transport. Only 0.1% of total Inland Cargo, which accounts for just 1 billion tonne kms. is moved in India by IWT and almost entire Inland cargo is moved by Rail and Road.

5.2 Based on the recent study by the NCAER, the per tonne km cost of transportation by IWT (VOC + User cost) is around Re. 0.55 compared to Re. 1.00 by road in the Ganga corridor. With the advantage in transportation cost it would be in the overall national interest that the potential of IWT Sector is exploited fully . Various committees who studied the IWT systems in India have highlighted the need for infrastructural development in potential waterways so that a portion of the cargo available in waterway corridors can be shifted to IWT mode.

5.3 For a systematic development of IWT the first step would be to identify the areas and commodities for which the IWT has natural advantage. For identifying the areas and commodities for IWT sector for 9th Plan the group considered various Studies conducted by the IWAI on existing and potential waterways. Inputs received from organisations like CIWTC, FCI, Petrolium sector, Fertilizer Corporation of India etc. have also been made use of.

9TH PLAN TARGETS

5.4 The group after considering various aspects of identification of cargo and commodities for IWT sector is of the opinion that efforts are to be made for a shift of about 2% of Inland Cargo to IWT by 2000 A.D. The likely cargo figure correspnding to 2% of the total Inland Cargo would be in the range of 20 to 25 billion tonne kms by the end of 9th plan.

5.5 The proposed shift of 20 b.t.km cargo by IWT mode is based on the identified cargo potential of various waterways. Three national waterways together will have a cargo of about 20.2 million tones or 17.052 billion tonne Kms approx. by 2000 A.D. If the other waterways like Sunderbans, Barak, Godavari, DCS Kakinada - Madras Canal System, East Coast Canal with Brahmani & Mahanadi Damodar Valley Canal,are developed they would contribute approximately 10.826 Billion ton Km by 2000 A.D.

5.6 In general, bulk commodities are best suitable for IWT. Ideal situation would be when origin and destination points are located on or near water-fronts. IWT would enjoy distinct advantages and would be highly cost effective in such cases. Movement of POL products from Haldia Refinery by river upto Budge-Budge oil terminal and movement of iron ore on Goa rivers are example where both origin and destination points are located on the waterfront. However, such ideal situation cannot be expected in all cases. In such cases, it is felt that the solution lies in creating dumps or warehouse facilities at the inter-modal transfer points. For example, movement of cement is one such item where cement moves from the cement factory by railway wagons upto Shalimar (near Calcutta) railhead from where it is transported by road transport to storage godown on the river bank. IWT vessels are subsequently loaded from this storage godown and moved between Calcutta and north-eastern and other destinations by river routes. Movement of foodgrains, from FCI's godowns situated on the waterfronts, by a river route to north-east is yet another example where opening a dump on the waterfront helps inter-modal transport by IWT. Special efforts are required to identify locations where dumps of bulk commodities like foodgrains, coal, fertilizers, cement, limestone, etc. may be set up along main waterways. This planning should be done in consultation with major cargo owners/ suppliers/ distributries of these commodities in each area.

ANALYSIS - COMMODITY & ROUTE WISE

5.7 IDENTIFIED COMMODITIES FOR IWT MODE

The main bulk commodities which are considered suitable for IWT movement are discussed below commoditywise.

i) COAL: Coal from Margheritta or Lido mines of Assam can easily move by road upto Saikhoa/Dibrugarh/Neamati and from there to Bangladesh and Calcutta by IWT through NW-2, B'border protocol routes and Sunderbans. Presently North Eastern Coal Fields mine the coal at these locations and the coal is being transported by road to Bangladesh, West Bengal, Bihar etc. IWT can easily cater to this coal. Coal from Meghalaya coal mines is brought to Pancharatna by road where it crosses the river and brought to Jogigopha site by country boats and from Jogigopha to various distribution points by road to Bangladesh/West Bengal/Bihar. This coal also can be transported by IWT mode from Pancharatha/Jogigopha. Coal dumps can be created at places like Saikhao, Dibrugarh, Neamati, Pandu and Pancharatna/Jogigopha.

Other identified coal movements for considering after setting up intermodal facilities at various IWT terminals on important waterways are:

a) From Talcher to Paradeep to the tune of 10 million tonne (1997-98), and 20 million tonne (2000-2003).

b) Coal for thermal power stations along NW-1 including from Lalmatia mines near Rajmahal in Bihar.

c) Identified coal for movement on NW-2 in the range of 0.4 million tonne by 1999-2000 and 0.52 million tonne by 2004-2005.

d) Coal on Calcutta-Karimganj route to the tune of 0.45 million tonne by yr. 2000.

e) 0.2 million tonne by year 2000 and 0.5 million tonne by year 2005, on Godavari

f) 0.35 million tonnes by year 2001-2002 and 0.44 million tonne by year 2005 on Kakinada-Madras Canal Route.

ii) IRON ORE: Movement of iron ore by IWT is confined to Goa only where approximately 15 million tonnes per annum is moved presently through 'Goa Barge Owners Association. Potential iron ore for IWT in the range of 5 to 7.5 million tonnes has been identified for East Coast Canal and Brahmani & Mahanadi rivers.

iii) POL: POL is presently moving as a regular traffic between Haldia and Budge Budge.There is a heavy shortage of crude oil in N.E Region to the extent of 0.85 MTPA in 1996-97 to 1.20 MTPA by 1999-2000 and for Barauni it is to the extent of 1.00 MTPA during 1996-97 which is expected to decrease to 1 lakh tons per year from 2000 AD onwards by which time a new pipeline is expected to be commissioned between Haldia and Baruani. This can be moved by IWT.

IOC has approached IWAI with a proposal for POL movement in Haldia-Bhagalpur stretch by IWT. Also there is a scope of movement of 0.5 MTPA of POL from Haldia to Patna /Semaria. Possibility of approx. 1 MTPA POL products movement from Haldia to Jogigopha /Bongigaon by IWT is also indicated by OCC.

Approx. 20000 tonne of bulk LPG (BY 1998) is expected to be moved by IWT from Haldia to Patna/ Allahabad /Varanasi which is expected to increase to around 1 lakh tonne by 2000 A.D.

Identified POL movement in WCC (NW-3) is to the extent of 2.99 lakhs tons during 1999-2000 which is likely to increase to 4.00 lakh tons by 2004-2005. In addition, projected movement of Naphtha for the Kayamkulam Thermal Power Plant is of the order of 0.6 MTPA.

iv) FOOD GRAINS: Food grains is the most important item for movement between Calcutta & North Eastern States by riverine transport. The river route from Calcutta to North Eastern States offers good scope for cost effective transportation whose potential has not been fully exploited.

It was felt that separate food grain handling terminals should be created at Karimganj in lower Assam for feeding the states like Mizoram, Tripura, Manipur etc.immediately. Infact, a food grain depot on the river front at Budge Budge has already been created along with loading facilities for loading of foodgrain into IWT vessels.

Similar river side terminal can also be created at Tezpur (NW-2) for feeding upper Assam & Arunachal areas. Food grains could also move through IWT from Patna along (NW-1) Ganga. For this purpose it would be necessary to develop terminals at Patna, and Varanasi along with railway siding facilities.

FCI transport vast amount of food grains from / to various parts of the country using basically road mode for which they spend hundreds of crores of ruppes annually. If IWT system is available along with intermodal network a substantial part of FCI foodgrain can be transported through various waterways in the country.

v) FERTILISER: Movement of fertiliser by IWT on NW-2 from Calcutta to Pandu is already being done intermittantly. Potential fertiliser cargo by IWT as identified by various studies is furnished below:

a) 0.44 mtpa in the year 2000 and 0.57 mtpa in the year 2005 on NW-1.

b) 45,000 T by 1999-2000 and 57000 T by the year 2004-2005 on NW-2.

c) 8000 T by 2000-2003 and 10,000 T by 2007-2008 on East Coast Canal/Brahmani and Mahanadi.

With the development of waterways with intermodal facilities, the fertiliser cargo originating from various fertiliser plants in the vicinity of the waterways can be diverted to IWT mode easily.

Movement of fertiliser on West Coast Canal (NW3), particularly from Cochin to the destinations in south and north would be substantial once NW3 is developed alongwith infrastructural facilities like terminals, night navigation, assured depth etc.

vi) LIMESTONE AND DOLOMITE: There are rich deposits of these commodities in Meghalaya. After development of intermodal terminal at Pandu and Jogigopha, IWT traffic of these commodities in substantial quantity is envisaged. 0.38 mtpa for 1999-2000 and 0.48 mtpa for 2004-2005 have been projected in DPR for NW2

vii) CONTAINERS: Container cargo handled at ports can also become an important item for movement by IWT, for which intermodal terminal with container handling facilities should be provided at selected locations. Studies conducted on various

waterways have projected potential of containerised cargo at selected locations of waterways.

Containers loaded with tea are already being carried by railway wagons from Amingaon (just on opposite bank of Pandu) in Assam for export through Haldia. To divert this container cargo by IWT mode construction of one container handling RCC jetty at Pandu was started by CIWTC through fund provided by NEC. But unfortunately in 1991 when the construction work was in progress, it collapsed. Since then a study group has been formed with officials of IWAI, CIWTC, MOST, CWPRS, NEC etc. to go into the details of this failure and suggest remedial measure. As such provision of one RCC Jetty with container handling crane at Pandu can immediately result in shift of container cargo to IWT from Pandu to Haldia.

The Sub group is of the opinion that imported container consignments for Nepal, can become a regular cargo for IWT along NWI upto Patna. For this, a suitable terminal at Patna alongwith necessary handling equipment is to be created.

viii) CEMENT: Transportation of cement through IWT is a distinct possibility in almost all waterways because this commodity is required in every nook and corner of the country. Most of the cement is now transported by Rail and road . With development of waterways with inter modal terminals large quantities of cement can be transported in all waterways as river transportation could be cheaper. Projections for some of the waterways is given below (years in brackets).

NW1 - 129,000 T (2,000), 168,000 T (2,005)
NW2 _ 165,000 T (2,000), 211,000 T (2,005)
Calcutta - Karimganj - 45,000 T (2,000), 55,000 T (2,005)
Krishna - 140,000 T (2000), 140,000 T (2005)
ECC- 1000 T 14,000 T (2005)

ix) CONSTRUCTION MATERIAL: In addition to cement, other construction materials like sand, bricks, stone agregates etc. particularly for the large projects in or along the rivers (like Dams, Barrages, bridges etc.) also potential commodities for IWT. These commodities are required in bulk, are not perishable and therefore suited for IWT mode.

x) STONE BOULDERS: Another bulk IWT commodity is stone boulders which are required to be transported in areas where boulders are not available. Here a specific mention is made for the boulder movement from Assam to Sirajganj in Bangladesh for a large Jamuna Bridge project which is being constructed by a Dutch agency under World Bank financial assistance. Boulders to the tune of 2 to 3 million tonnes are required for this project. Since Bangladesh does not have boulders to this tune they are being brought from verious places by every mode including from Assam and Bhutan through NW 2.

xi) PAPER: Three paper factories exist in Assam at places Panchagram (Silchar), Jagiroad and Jogighopha. The raw materials (except bamboos) come from Calcutta side and finished paper is transported to all parts of country including Calcutta and Bihar. Daily production rate of Jagiroad and Panchagram paper mills is three houndred tonne per day each and of Jogighopha mill is 50 tonnes per day. The finished paper from these mills meant for transportation to Calcutta and Bihar can be diverted to IWT route.

xii) OVER DIMENSIONAL CARGO

For ODC for industrial complexes being set up on or near waterways ,IWT is the ideal mode since due to their size and/or environmental impact it becomes very difficult to transport most of the ODC by road or rail . If IWT is not available altogether the ODC, are moved after dismantling or with very special efforts. With the avalibility of IWT mode where restrictions in size as compared to road & rail mode are not there, ODCs can be transported by IWT without any problem and at much lower cost.

One such indentified cargo is, ODCs for Numaligarh refinery which is under contruction at Numaligarh on the bank of Dhansiri river, a tributory of Brahmaputra.

ODCs for this project are expected to be brought by IWT mode from Calcutta/Vizag to Numaligarh at a distance of about 2000 km in 1996-97 itself.

xiii) OTHER COMMODITIES : Other identified commodities for IWT mode are as given below:-

National Waterway -I: Raw Jute, Sugar, non-perishable consumer goods like soap, detergent, coke (for Malvika steel plant at Jagadishpur), petro-coke for industries at Barauni etc.

National Waterway-II: Tea, Iron and steel, Jute, forest products, Salt, Sulphur, Bitumen.

National Waterway-III: Pracel and piece goods, heavy goods, chemical and fertilisers, POL etc.

SUNDERBANS: Bitumen, wax, wood and wood based products, tea, steel, POL like HSD/LDO/ furnace oil, container traffic, etc.

KRISHNA: Clinker, Gypsum, Laterite etc.

GODAVARI: Paddy, Chillies, Tabacco, Pulses, forest products, general Merchandise etc.

ECC/BRAHMANI/MAHANADI : Iron ore, Salt, manufactured products, tyres and tubes, sea food, Industrial raw material, Industrial products etc.

KAKINADA-MADRAS CANAL : Parcel and piece goods, chemical and fertilisers, bulk goods, heavy goods.
Identified cargo upto 2005 for major waterways is given at nnexure.

5.8 IDENTIFIED ROUTES WITH COMMODITIES : The group also deliberated on various areas/routes of major waterways for identification of routewise prospective commodities. Input for these were received from CIWTC, petroleum sector etc. as well as from reports of various studies got done by IWAI from time to time. The important routes on major waterways are described below alongwith the main commodities identified.

A) CALCUTTA - CACHAR VALLEY - CALCUTTA : Essential commodities and articles mentioned below, required for the states of Tripura, Mizoram and the Barak Valley district of Assam are being moved by CIWTC. This route does not fall under NW II, but assumes special importance in the transportation systems in North Eastern Region.

i) FOODGRAINS : The future IWT traffic primarily depends upon the capacity and the level of service to be provided by CIWTC. It is expected that about 15% of Mizoran requirement and about 50 percent demand of two districts of Assam in this area will be carried by IWT in future. Thus the estimated foodgrains movement by IWT from Calcutta in future years (considering CIWTC as only operator) will be as given the table below :-

(Quantity in Tonnes per month)

Year	Rice	Wheat	Others	Total
A. Without Manipur				
1999-2000	2,225	482	425	3,132
2004-05	2,450	535	456	3,441
B. With Manipur				
1999-2000	4,757	1,442	695	6,712
2004-05	5,000	1,635	756	7,391

Thus the total annual traffic of IWT (6 months operation only) will be as given below :-

(In Tonnes)

Year	Without Manipur	With Manipur
1999-2000	18,792	40,272
2004-05	20,646	44,346

ii) IRON, STEEL AND CEMENT : Department of Public works, Public Health Engineering (PHE) and Irrigation and Flood Control require above materials in large quantity. Apart from these departments, iron and steel and cement are also needed by general public for construction purposes. ONGC is another consumer of Iron and Steel in this sector.

Brahmaputra Board has plans to construct an irrigation cum power generation dam at Tipaimukh on Barak River. The accessiblity by road to this area is either via Dimapur in Nagaland (NH-39) or via Silchar in Assam (NH-53). As some consigments are expected to be huge and some would be of over dimensional nature (ODC), it will be extremely difficult to transport them by road transport. These commodities, the present annual requirement is as given below :

(in Tonnes)

	Assam (Cachar Distt.)	Manipur	Mizoram	Total
Iron & Steel	110	538	5,756	6,404
Cement	10,700	42,500	14,710	67,910

The future requirement of iron and steel have been projected as follows :-

districts of Assam	Manipur	Mizoram	Brahmaputra Board	Total Without BPB	Total with BPB	Excluding Manipur and BPB
1999-2000	325	9,650	10,400	21,900	20,375	42,275	10,725
2004-05	500	12,900	14,800	7,300	28,200	35,500	15,300

iii) CEMENT: with respect to the requirement of cement the concerned agancies of the states of Assam, Mizoram and Manipur have shown interest to avail IWT services for transportation of cement. The estimated annual requirements of Cement in the year 1999-2000 and 2004-05 are stated below :-

(In Tonnes)

Year	Cachar Districts (Assam)	Manipur	Mizoram	Brahmas Putra Board	Total Without BPB	Total With BPB	Exclu Manip & BP
1999-2000	55,750	63,250	36,000	8,250	1,555,000	1,63,250	91,7
2004-05	71,500	76,950	57,000	2,750	2,05, 450	2,08,200	1,28,5

It is envisaged that IWT can transport 0.50 lakh tonne in 1999-2000 and 0.65 lakh tonne in 2004-05

iv) COAL TAR/BITUMEN : The demand of Cachar valley for Bitumen is being met by Hindustan Petroleum Corpn., Haldia. 50% of the Bitumen for Mizoram is procured from Calcutta and remaining 50% from Guwahati. As far as Manipur is concerned Bitumen comes from Digboi while the Coal Tar is transhipped at Guwahati and transported to Imphal by road. The projected requirements in the

year 1000-2000 and 2004-05 are :-

1999-2000	3,850	10,700	7,000	-	21,5500	21,550	10,850
2004-05	6,225	14,325	9,000	-	29,550	29,550	15,525

It is estimated that IWT can carry about 50% in the year 1999-200 i.e. 0.06 lakh tonne and in the year 2004-05-0.08 lakh tonne per annum.

v) FERTILISERS

The overall requirement of Nitrogenous fertilizer even upto the year 2004-=05 will be met by the production from the fertilizers firms located in upper Assam. Moreover, the production of this firm is also sufficient for other four states in North Eastern regions. However, the demand of phosphatic and Potassic fertilizers in this sector will have to be met by the imported fertilizers from other states. At present fertilizers are moved from Calcutta to Guwahati by rail and road and then further distributed in the region by road transporters, particularly, to Agartala in Tripura, Dimapur in Nagaland, Silchar in lower reach of Assam. Silchar, primarily serves as a major distribution centre for Karimganj and Cachar district in Assam and Mizoram states. Dimapur is the major distribution point from Nagaland and Manipur.

Considering the fact that fertilizer factories are located in upper reach of Assam, It will be desirable to meet the fertilizers requirement of the Cachar Valley situated in the lower reach of Assam with IWT connection from Calcutta Port, through import and by utilising IWT, from the logistic angle. The estimates of traffic are 0.11 lakh tonne in the year 1999-2000 and 0.24 lakh tonne in the year 2004-05.

vi) TEA GARDEN CARGO

There are about 103 gardens in Cachar districts which are under operation. These gardens require cement for construction of houses and other maintenance works, fertilizers pesticides/insecticides, heavy machinery, spare parts etc.

The projected requirement has been estimated as follows :

(in tonnes)

Year	Machinery	Cement	Generator Parts	Fertilisers	Chemical	Total
1999 to 2005	100	618	100	10,258	103	11,1792

vii) INDUSTRIAL RAW MATERIAL

Hindustan Paper Corporation Ltd. has set up plants at Panchagram in lower Assam and at Tuli in Nagaland. The

Panchagram factory is 6 km away from CIWTC Badarpur river terminal. The paper plant at Cachar requires following raw materials which can be carrried by IWT during 6 months operational period.

30,000 tonnes of coal
60,000 tonnes of lime
24,000 tonnes of common salt
12,000 tonnes of alum
18,000 tonnes of caustic soda

1,44,000 tonnes in 6 months OR 1.44 lakhs Tonnes.

Down Stream Traffic

Tea

A substantial part of tea produced in gardens at Cachar valley can be transported outside the states by IWT. The estimated traffic is 2000 tonne in 1999-2000 and 2200 tonnes in the year 2004-05.

viii) JUTE

Jute produced in the lower reach of the Assam are expected to be available for transportation by IWT. The estimated quantity is 15000 tonnes per annum in the year 1999-2000.

FOREST PRODUCTS/BAMBOO/BAMBOO PRODUCT)

Forest and other products like timber bamboo, broomsticks cane etc. from Cachar districts, Manipur Mizoram, and Tripura to the tune of 0.50 lakh tonne per annum are expected to be moved by IWT.

ix) FINISHED PAPER

Transportation of about 45,000 tonnes of finished papers in operational period of 6 months from Hindustan Paper corpn. is expectd to be assigned to IWT since HPC will be benefitted by utilisating this service.

B) NATIONAL WATREWAY NO. 1 (Ganga)

Among the various commidities transported in Calcutta-Allahabad- Calcutta route (NW-1) the following items are suitable for IWT.

i) FOOD GRAINS

Large volume of foodgrains are moved by rail between the major production centres in the North and the deficit regions in East. Calcutta is a principal destination and large stockpiles are maintained here.

One distributiion alternative which could ease the demand for rail coaches would be to transport grain, either in bags or in bulk to Patna where it would be stockpiled and then moved by the river or other modes to various distribution points.

Estimated quantities for transportation by IWT are :

2000 - 2001 - 2.45 lakhs tonnes
2004 - 2005 - 2.65 lakhs tonnes

ii) CEMENT

Both Bihar and West Bengal are deficit states and have to transport cement from elsewhere. The U.P. Cement Company in Chunar can establish a major centre at Patna for distribution by IWT in smaller storage points in the Eastern Part of Bihar and in Calcutta. The projected cargo is
1999 - 2000 - 0.32 lakhs tonnes
2004 - 2005 - 0.70 lakhs tonnes

iii) FERTILISERS

Phosphate Fertilisers:-Hindustan Lever at Haldia produces two lakh tonne per annum out of which about 0.84 lakh tonnes are destined for river front districts and could utilise IWT.

NITROGENOUS FERTILIZERS :- In N.W. I this commidity originates mainly at the plant of IFCO near Allahabad. IFCO officials have already approached CIWTC about use of IWT for distribution of a part of its output.

iv) NEPAL FERTILIZER IMPORT

This traffic moves from Calcutta Port to Kathmandu by Road, Officials of Nepal Government have expressed preferance of IWT and this alternative can be made available by inclusion of this mode under Indo Nepal Treaty for Transit & Trade.

The estimated volume of fertilisers for IWT are :
1999 - 2000 4.4 lakh tonnes
2004 - 2005 5.71 lakh tonnes.

v) POL PRODUCTS

Transportation of 100% POL products through pipe line is not feasible because of capacity constraints on pipe lines and secondly the imcompatability of certain products transportation by a common pipe line.

Accordingly an alternative mode like IWT is strongly desired to cater this need.

Hindustan Petroleum Corporation has expressed its preferance to use IWT between Haldia and Semaria, over the existing road

transport. The current volume is 1.60 lakh tonnes.

The projected volume of cargo are :-
1993-2000 2.95 lakh tonne
2004-2005 3.77 lakh tonne.

Haldia-Budge Budge :

A significant quantity of POL products is being transported by IWT from Haldia to Budge Budge. The Budge Budge installation is playing a vital role for movement of POL products in the Eastern Region and there exists a tremendous potential for development of IWT mode of transport for POL products in the Eastern zone of the country. , The projected annual POL movement as envisaged by OCC from 2000-2005 is 21.78 lakh tonnes per annum.

vi) CRUDE OIL

Indian Oil Corpn. Ltd. intends to move crude oil from Haldia to Barauni by using IWT. The cargo projected for 1996-97 to 1999-2000 is about 10 lakhs tonne per annum. However, this traffic may go down once the proposed pipeline from Haldia to Barauni is commissioned. Under the situation it is expected that after 1999-2000 about 1.0 lakh tonne crude oil per annum will be available for transportation through IWT even after commissioning of pipeline.

vi) STONE

There are two major stone quarrying centres along the river, the first one is in Pakur near Farakka and the second is in Monghyr in Bihar. From Pakur at present 12 lakh tonne stone per annum is despatched mainly for Calcutta, Monghyr stones are delivered to Patna and Calcutta. A large chunk of Indian stones are envisaged to be exported to Bangladesh for construction of Yamuna bridge in Bangla desh.

Stone is ideally suitable for IWT mode and projected cargo volume are :
1999-2000 : 19.20 lakh tonne
2004-2005 : 21.00 lakh tonne.

viii) JUTE

Jute is grown in West Bangal and north eastern Bihar. Approximately one third of total production in these states is being controlled by Jute Cproporatioin of India. JCI maintains stock piles in Calcutta and all jute is transported by truck to Calcutta for processing.

Calcutta jute mills are located along the river and are having own jetty for loading/unloading. JCI is intersted in utilising IWT with the assurance of providing competitive and quality services. The expected volumes of cargo are :
1999-2000 : 3.4 lakh tonnes
2004-2005 : 3.98 lakh tonnes

ix) INDUSTRIAL RAW MATERIAL

Industries located in the river front are interested in IWT for movement of raw materials. Recently CIWTC has received some enquiries and the major industries interested for bulk cargo movement are

- Malvika Steel Ltd. - Movement of coke, coking coal, and scrap from Haldia to Ballia. Projected volumes from 1997-98 onwards are :

Coke : 1.60 lakh tonne
Coking Coal : 2.20 lakhs.
Scrap : 1.00 lakh.

- RPG Industries Ltd. - movement of coal from Haldia to Sarisa-tolli to Budge Budge/ Balgarh, estimated quantity is 20.0 lakh tonne coal per annum from 1997-98 onwards.

- IPP Ltd. - movement of raw materials, finished products and fly ash of the proposed paper plant at Hazinagar Naihati.

- National Thermal Power Corporation Ltd., Farakka movement of furance oil from Haldia/Budge Budge to Farakka.

C) NATIONAL WATERWAY-2:

In Brahamputra valley over North-East the input of cement, Iron/ steel and coal is presently being supplemented by certain commodity dumps from where goods are serviced to specific areas. Iron and steel items from SAIL are being dumped at Jogighopa, Pandu, Dimapur and Dhramnagar and from these dumps materials are served to all states in North-East. Taking advantage of the existing commodity dump IWT can play a major role by way of quickening the transportation and reducing cost. Keeping in view over a benefit of NE region and considering extension of IWT services to upper Assam, commodities ideally suitable for IWT are;

Calcutta-Pandu - Foodgrain, cement, fertilizer, Bitumen Iron & Steel and Industrial Raw materials.

Pandu-Calcutta - Break bulk/containerised Tea, jute, Meghalaya coal, paper, lime stone, Dolomite;

Calcutta-Tezpur - Cement, Foodgrain

Tezpur-Calcutta - Tea

Calcutta- Disangmukh - ONGC pipes and Equipments.
Calcutta- Neamati - Tea Garden stores, cement and foodgrain
Neamati-Calcutta - Fertilizers, Tea
Calcutta- Dibrugarh- Cement foodgrain, timber, Packed Lube oil, Bitumen
Dibrugarh-Calcutta - Tea, coal(Margherita coal) parafin wax plywood.

i) FOODGRAINS : During the recent discussions, Food Corpn. of India indicated that movement of foodgrains to Pandu and upper Assam to the extent to 1,20,000 tonnes per annum would be made.

ii) CEMENT : North Eastern states in Bramhaputra valley which will be benefitted in integrated rail-cum-river services for transportation of cement are Assam, Meghalaya, Arunachal Pradesh and Nagaland. These State governments and other agencies like, IOC, North Eastern Electric Power Corpn., Border Roads Organisations, etc, will be interested with CIWTC'S services. The projected volume of cargo during the 9th plan period varies between 0.10 Lakh tonnes per month initially and 0.20 Lakh tonnes per month on extension of services in upper Assam.

iii) INDUSTRIAL RAW MATERIALS :

The prospective organisation which will be interested in transportation of raw materials through IWT are Hindustan Paper Corpn., I.O.C., ONGC etc. Expected volume of cargo from Hindustan Paper Corpn., Nagaon Plant will be.

Caustic Soda	-	4,000 Tonnes p.a.
Lime	-	1,20,000 Tonnes p.a.
Alum	-	3,000 Tonnes p.a.
Common Salt	-	16,000 Tonnes p.a.
Coal	-	60,000 Tonnes p.a.

iv) FERTILISER: Transportation of fertiliser from Haldia Unit of Hindustan Lever Ltd. is expected to be materialised to the tune of 2,500 tonne per month.

Fertilisers will have to be moved from Namrup Plant of Hindustan Fertiliser Corporation to Calcutta through IWT-Cum-Road services, The quantity envisaged for this purpose will be about 0.30 lakh tonne per annum.

v) BITUMEN: About 8000 tonnes of Bitumen is being transported per month to North East from IOC, Haldia Refinery. The Bitumen dump of the HPCL is located at Pandu Terminal and, therefore, it

is very convenient for both the organisations to transport Bitumen from Haldia to Pandu to avail the direct IWT services. Transportation of about 1 lac tonne p.a.has been projected during the 9th plan period.

vi) LUBE OIL : Packed lube oil of around 1000 tonne per month is being carried to North East by IOC. CIWTC intends to transport this material through waterways.

vii) IRON AND STEEL : The states of Assam, Arunachal Pradesh, Nagaland and Meghalaya will require about 2.70 lakh tonne of Iron and Steel materials by the turn of this century and IWT is expected to share about 25% or 0.70 lakh tonne.

viii)CRUDE OIL : Oil Coordination committee has indicated a demand of crude oil transportation from Haldia to Jogigopha by IWT for Bongaigaon refinery to the tune of 0.85 million tonne in 1996-97 and 1.20 million tonnes by 1999-2000. In the return journey POL products of M/s. BBRPL can be transported to Haldia/Budge Budge.

ix) TEA: Tea is being moved mainly by rail and road. However, by by linking IWT in the inter modal system both the industry and the transporter will be benefitted in all respect. The extension of IWT service to upper Assam is necessary for this purpose. Out of expected despatch of about 4.0 lakh tonne about 1.0 lakh tonne is projected for movement by IWT.

x) JUTE : Jute product in Brahmaputra valley is being transported mainly to Calcutta for Jute Corporation of India and other private organisations. The expected volume of cargo is 1.40 lakh tonne per annum in 2004-05.

ix) COAL : Coal from Meghalaya is brought to dumps near Dispur, New Guwahati and Jogighopa. Moreover, high quality coal mined from Margherita coalfields in Tinsukia District in upper Assam is being despatched from Dibrugarh/Tinsukia Division, The total Amount of coal despatch varies from 7 to 8 lakhs tonne per annum. North Eastern coalfields is very much eager to avail IWT services if transportation can be arranged through inter-modal network. The estimated quantity of coal to be transported by IWT is 1.5 lakhs tonne per annum.

xii) PAPER: A significant quantity of finished paper of about 0.5 lakh MT from Nagoan establishment of Hindustan Paper Corporation is expected to be brought to Calcutta through waterways.

xiii)LIME STONE AND DOLOMITE: (Mined in Maghalaya) About 0.5 lakh tonne of minerals are expected to be moved per annum by IWT.

xiv) PLYWOOD : Plywood factories are located in Assam, Arunachal, Nagaland and Meghalaya state. At present the total production volume is about 9.0 lakh tonnes and transportation through IWT for about 1.00 lakh tonne is expected.

xv) FOREST PRODUCE AND OTHERS: A large quantum of sawn timber, about 4.0 laks tonne, moves from North Eastern Region. The ideal despatch mode for these is IWT which will be in a position to carry about 1.0 lakh tonne per annum. Other items like paraffin wax and petrolium coke from ICO's factories are also expected to be made available to IWT within few years time.

D) CALCUTTA-BARAK VALLEY & CACHAR VALLEY ROUTE

IWT services in Barak valley of Assam have special importance so far as overall transportation network of NE region is concerned, Traffic items suitable for this sector are;

Calcutta-Karimganj- Foodgrain, cement ,fertilizer, steel, bitumen for the state of Tripura.

Karimganj- Calcutta- Paper from Hindustan paper corpn, HPC LTD Jute, bamboo products and forest products of Tripura,

Calcutta-Badarpur - Foodgrain, cement for Mizoram, industrial raw materials of HPC bitumen and steel for Mizoram, pipes for ONGC.

Badarpur-Calcutta - Paper of HPC, coal(Meghalaya, origin) forest products of Mizoram.

E) NATIONAL WATERWAY NO.3:

Identified cargo for transportation on NW3 are foodgrains, parcel and piece goods, heavy goods, bulk goods, chemical fertiliser, and POL products. Identified potential quantities of each cargo for 1994-95, 1999-2000 2004-2005 and 2009-2010, origin and destination wise are shown in Annexures 5.2 and 5.3

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CHAPTER - 6

RESEARCH AND DEVELOPMENT IN IWT SECTOR

6.1 BACKGROUND :

6.1.1 R & D is essential for the development of any sector so as to keep pace with the ever changing technology. River transport requires more attention in R&D due to the infant stage of its development in India. It has been realised in the past also and hence, all the Five-Year Plans and Auunal Plans had a provision, though small, for R&D activities. In the Sixth Five Year Plan there has been an expenditure of Rs. 0.10 crore against the provision of Rs. 0.20 crore. In the Seventh Five Year Plan, the expenditure incurred was Rs.0.02 crore against the provision of Rs. 1.00 crore. In Eighth Plan a provision of Rs. 3.80 crores was proposed and an expenditure of Rs 0.01 crore was incurred upto 1995-96 against the approved outlay of Rs. 1.00 crore.

6.1.2 At present R&D schemes are executed through research/educational institutions after getting the approval of the R&D committee of Ministry of Surface Transport. The reasons for low utilisaion of the fund are :

(a) reluctance of the leading research/educational institutions to take up new R&D schemes due to the existing heavy workload and lack of assurance of continuity of R&D assignments.

(b) non-existence of separate cell in the leading educational institutions to pursue R&D schemes sponsored by various agencies; and

(c) non-existence of an exclusive set up in IWAI to pursue R&D activities.

6.1.3 One of the responsibilities of the IWAI is to conduct research on subjects relating to IWT including development of craft design, mechanisation of country crafts, techniques of towage, landing and terminal facilities, port installation and survey techniques. It would, therefore, be appropriate that the Authority sets up a separate cell to deal with R&D proposals, ensure timely sanction of these schemes and monitor progress periodically by having close interaction with concerned institutions like CWPRS, Indian Institute of Technology, NSDRC and Universities with adequate research & development facilities and capabilities.

6.2 RECOMMENDATIONS

The working group has made a broad identification of the areas where R&D work should be undertaken during the 9th plan. It recommends to continue the on going R&D schemes taken up during 8th Plan in addition to new schemes.

ON GOING SCHEMES

a)Prototype Study of Ferro Cement Catamaran

This scheme is an ongoing scheme of 7th plan. In 8th plan proposal, an amount of Rs. 0.12 crores was suggested for the scheme. The scheme was taken up for implementation in two phases viz.,(i) design and feasibiliy study and (ii) construction of proto type of ferro cement catamaran for riverine passenger traffic.

The phase-I was completed in February 1985. Phase-II however could not be commenced as IIT, Kharagapur did not agree to associate Shri. P.K. Kulkarni, Consultant suggested by IWAI. CWPRS which was subsequently approached, also expressed inability to take up the project as this was a new area outside the periphery of its activities and interest. Since the project aims at use of alternative cost effective materials for reverine passenger vessels, it is recommended that the scheme be continued during the 9th plan with a provision of Rs.0.10 crore

b)Remote Sensing/ Image Processing :

This scheme aims at application of remote sensing techinque for speedier measuement of depths through aerial survey, particularly at the time of recession of floods, the objective being study of morphological systems of rivers for identification of potential for IWT. Although a provision of Rs. 1.00 crore was made during the 8th plan for R&D which includes this scheme, the expenditure upto 31st March,1996 was only Rs. 0.03 crore. Considering however the importance of the subject, a provision of Rs. 0.20 crore is recommended for this scheme in the 9th Plan.

c)Fuel Efficiency in IWT :

This scheme was not included in the approved outlay of 8th plan. However, a study on fuel efficiency of IWT on Ganga was undertaken through NCAER at a cost of Rs.0.17 crore. Such studies on other waterways may also be taken up for which an outlay of Rs. 0.20 crore is recommended.

d)Design of Standard Vessel and Performance Assessment for West Coast Canal :

The 8th plan, approved outlay of Rs. 1.00 crore for R&D schemes covers this project also. The subject was entrusted to I.I.T., Madras, at an estimated cost of Rs. 0.067 crore. Expenditure incurred untill March 1996 was Rs.0.018 crore and that anticipated during 1996-97 is Rs. 0.01 crore. This scheme is yet to be completed. A provision of Rs. 0.05 crores is recommended during 9th plan.

e)Design of Low Cost & Shallow Draft Vessel :

This is one of the schemes covered under the 8th plan outlay for R&D schemes. No expenditure was incurred on this untill March,1996. It is recommended to continue the scheme during the 9th Plan with an outlay of Rs 0.20 crore.

NEW SCHEMES

f)Study for Improvement of River Crafts :

In 8th plan, an R&D scheme for undertaking study for improvement of river crafts including special method of propulsion and steering in restricted channels was proposed. This scheme was proposed to be implemented through CIWTC Ltd & CWPRS, Pune. However, in final allocation of 8th plan outlay, this scheme was not included. This R&D is proposed to be executed during 9th plan at an anticipated cost of Rs. 0.20 crore. Hence an amount of Rs. 0.20 crore is recommended in 9th plan.

g)Study of Surface Bandalling :

In 8th plan, R&D work was proposed for study of suface bandalling. But in final approved outlay this scheme was not included. Bandalling is carried out by erection of bamboos and bamboo - mats. This is a very old technique and no further improvement has taken place in the bandalling technique. This bandalling process takes a long time. In certain shoals, the clearance and improvement are required for a short period and thereafter the flow maintains the channel by itself. The bandalling technique is being utilised as depth improvement measure. Improvement of this technique would enable faster achievement of channel depths. An outlay of Rs. 0.10 crore is recommended for this scheme.

h)R&D Cell in IWAI :

Due to lack of proper R&D Cell in IWAI, no significant achievement could be made during the 8th plan. Considering the need for R&D in the field of IWT, Govt. of India had sanctioned the construction of a R&D cum office complex of IWAI at Noida. The construction of complex is expected to be completed during 1996-97. Hence it is recommended to set up an R&D Cell with a plan outlay of Rs. 1.00 crore, to cover equipment and other costs.

i)R&D for Mechanisation of Country Crafts :

The country crafts play an important role in transportation of passenger & goods in various waterways throughout the country. A further improvement by mechanising the country crafts, may boost

the inland water transport. An R&D study is recommended to be undertaken during 9th plan for mechanisation of country crafts with an outlay of Rs. 0.20 crore.

j)R&D for Navigational Aids :

The provision of navigational aids in order to facilitate 24 hrs. navigation to reduce the turn round time of vessels, is the most important factor for improving the economics of IWT. Considerng the frequent shifting nature of rivers, the most suitable technique required to be developed for provision of navigational aids on various waterways. R&D on this is recommended during the 9th plan with an outlay of Rs. 0.20 crore.

k)R&D on Farakka Barrage Implication on Navigation

Due to construction of Farakka Barrage, lot of changes have occured in river morphology in upstream reaches which have adversely affected the navigation. R&D is recommended to study the implication of Farakka Barrage on navigation during 9th plan at an estimated outlay of Rs. 0.10 crore.

l)R&D for Multi Hull design vessels for rapid passenger movement :

An R&D work with an outlay of Rs. 0.10 crore is recommended during 9th plan for design of multi hull vessels for fast movement of passenger crafts.

m)R&D for wind propulsion combining with mechanical propulsion :

In the field of IWT, the wind energy is utilised in a better way by country crafts for navigaion. However, if a suitable technique is developed for propulsion of crafts by combination of wind as well as mechanical energy, the IWT will become more economical. An R&D scheme for this is recommended with an outlay of Rs. 0.20 crore.

n)R&D for Design of Low Wash Hull forms

The stabiliy of river/canal banks is badly affected due to wave generated by moving crafts. This requires large investment in bank protection measures. Hence there is a need to develop techniques to reduce the water spray during vessel movement. Hence an R&D work for design of low wash hull forms is recommended during 9th plan at an outlay of Rs. 0.15 crore.

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CHAPTER 7

INTERNAL RESOURCES OF IWT AND MEASURES TO AUGMENT IT

7.1 OBSERVATION BY 8TH PLAN WORKING GROUP

The working Group set up on IWT for the 8th Five Year Plan in their report stated as follows:-

"Development of waterways for shipping and navigation is to be considered as service to public like provision of roads for linking villages. If public awareness is made to avail this mode of transport indirect benefits that will accrue to the Nation in the form of savings in the conservation of energy , preservation of environment, maintenance of ecology etc. would be manifold,. In this context, IWAI should be considered as service oriented organisation and not as a profit-making enterprise. When full - fledged terminal facilities and assured channel with navigational aids including night navigational facilities are provided, it will be possible to collect levies for handling cargo at terminals."

7.2 IWAI AS A NASCENT SECTOR

Creation of Infrastructural facilities as planned during the 8th Five Year Plan have not materialised as envisaged by the Working Group. The share of IWT in the total inland cargo continues to be less than 0.1% of the total inland cargo. This is as against 8-10% of the total cargo carried by IWT in the total Inland cargo network in other countries. The existing road and rail network are stretched to their limit and the demand for transport infrastructure has become a critical item in the path of industrial development.

7.3 PHYSICAL TARGET

With the above in mind, a modest target set up for the 9th Five Year Plan is to create facilities for a shift of atleast 20 billion tonne kms. to the IWT sector . To facilitate this, various requirements are to be made. Firstly, infrastructure and navigational conditions are to be provided. Creation of such facilities is a pre requisite to demonstrate the viability of IWT. As recommended by the 8th Plan working group, investment in this account must come from Plan fund as at the initial stages private investment in this sector is unlikely to flow.

The IWT sector as such consists of the Central Inland Water Transport Corporation, IWAI Goa Barge operators, KSNICO, Kerala and a limited number of private operators both in the Ganga and West Coast Canal.

Investment by private entrepreneurs for the IWT sector would demand demonstrated viability of the project and its prospects

to ensure sufficient return on investment and profit. Therefore, IWT development investment must come mainly from the budgetary allocations of the Central Govt. under Plan Schemes.

7.4 BENEFICIARIES

The IWT mode has two major advantages- (1) it results in substantial fuel savings and (2) it can offer a reduced cost of transportation. These two benefits combined would result in an annual savings of about Rs. 1500 crores on account of the fuel saving and reduction in cost of transportation if there is a shift of 20 billion tonne kms. from road to IWT. The beneficiaries of such gains would be waterway users. Since most of the bulk cargo in India like coal, POL, cement, foodgrains, fertilizers etc. are Govt. controlled cargo, many of the public sector undertakings, who control such cargo would be the respective beneficiaries of the IWT development. It is for consideration whether a part of the infrastructural development cost can be mobilised by pooling and pitching in the internal resources of such profit making PSUs who have general stakes in the sector concerned.

7.5 INVESTMENT BY STATE GOVERNMENTS

Apart from the Central Government, the investment made in the IWT sector comes through the state Government on schemes implemented under Centrally Sponsored Schemes. Fifty percent of the cost of the project is advanced by the Central Govt. to the State as a loan, and the other 50% is provided by the State Govt. So far, the investment made in the CSS by the State Govt. have been insignificant. Scope of increasing the investment by the State sector in infrastructural development in IWT must, therefore, be considered at the time of finalising the State Plans.

7.6 FINANCIAL TARGET AND SOURCE

i) An approximate cost of development of the waterways including provision of infrastructure such as terminals, lights etc. and also including the development cost of the waterway planned to be developed during the 9th Five Year Plan is of the order of Rs. 2037 crores. This figure includes Rs. 600 crores as proposed capital subsidy to the ship building yards and Rs. 271 crores for vessel acquisition and repairs and maintenance by the CIWTC.

ii) While the entire amount for the infrastructural development for a nascent industry should ideally come from the Plan funds like it was done in the case of the road and rail, it would appear to be possible to attract private investment for procurement of cargo vessels. For the anticipated 20 billion tonne km of cargo movement, the number of vessels required would be to the tune of 1200-1500 vessels of average 600 tonne carrying capacity . At the present market value, this would need investment of Rs. 3600 to 4500 crores for building of vessels. This component has not been included in the 9th Five Year Plan proposal with the assumption that once the navigational requirements are met and sufficient fiscal concessions are given

to the prospective entrepreneurs, it would be possible to attract this investment from the private sector.

iii) Even in the liberalised economic scenario, investment by private sector into a nascent field, will have to be encouraged by fiscal incentives. In order to attract private entreprenuership and fund flow, several fiscal concessions were given by the Government to sectors like shipping. Development Rebate and Investment Allowance were the fiscal concessions earlier given to the shipping industry. These two fiscal concessions alone would make the IWT sector an attractive avenue for private sector investment.

iv) Declaration of IWT as an industry and giving the IWT a Priority Sector status would further enhance the prospects of investment in the IWT sector by private entrepreneurs.

v) Gradually, investment would flow from the private sector even in creation of selected infrastructural facilities but this stage would be reached only after the total viability of the IWT has been demonstrated by initial investment in the infrastructural development from plan fund.

7.7 LONG TERM RETURN

As the IWT gains momentum, the investment made for creation of infrastructure would generate internal resources and profit, by way of fees and charges levied for services rendered to the operators. Such services for which fees and charges can be reviewed in future are;

a. For use of fairway:- In the form of national waterway charges;

b. For services provided for berthing of vessels:- Berthing loading/unloading, warehousing charges;

c. For services provided for 24 hours navigation:-By providing lighted channel marking (light dues);

d. Vessel survey and registration charges;

e. Training charges;

f. Repair/maintenance charges

g. Salvage charges;

h. Bunkering charges; and

i. Lock charges

j. For services provided for safe navigation:- Pilotage, vessel assistance charges etc.

An approximate break-up of resource mobilisation for the 9th Five Year Plan from various resources is indicated in the PIE chart (Annexure 7.1).

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CHAPTER - 8

INSTITUTIONAL ARRANGEMENT FOR TRAINING IN IWT FIELD

8.1 One of the major advantages of the IWT is that it is labour intensive. It can provide employment to many categories of personnel employed for river conservancy and river development activities, operation and maintenance of terminals and in particular for manning of the inland vessels.

8.2 The requirement of the trained manpower in the IWT sector can be classified into two groups.The first category would consist of professionals in various fields like Hydrography, Navigation, Civil Engineering, Mechanical Engineering, Naval Architecture, Transport Economics etc. for the development and management of the waterways and operation of the various supporting infrastructural facilities. The second category of personnel are experienced and trained personnel for the operation of the inland vessels like Master and the Engine driver belonging to the deck and the engine side of the crew pattern.

8.3 Though it was envisaged to set up Inland Navigation Institute (NINI) during the 7th and 8th Five Year Plan, this institute has not come up for various reasons. The existing training facilities in India for the inland crew are limited to the facilities available in Orissa and Goa.Though there are various professional Institutes giving technical training on various disciplines of the first category, integrated training facilities oriented towards IWT development are not available in India. Such training facilities are available in country like China where University level courses are conducted in the field of IWT.

8.4 A modest target set for the Indian IWT for the 9th Five Year Plan is a growth from present level of 0.1% of the inland cargo to atleast 2% of the total inland cargo corresponding to 20 billion tonne km. This cargo movement would require inland vessel to the tune of 1200 to 1500 nos, with the operation spread over various National Waterways and also other waterways. This would correspond to the requirement of trained inland crew to the tune of 12000 to 15000. Availability of adequate number of trained manpower with sufficient experience is also a pre-requisite for cost effectiveness and safe operation of IWT. Such trained manpower can be created only if adequate training facilities are available well spread along the riverine States.

8.5 With the above objective, the following proposals are suggested for development of human resource in the field of IWT during the 9th Five Year Plan :

i) Setting up of National Inland Navigation Institute,

ii) Setting up of Regional Inland Navigation Institutes,

iii) Setting up of Regional Crew Training Centres.

8.6 It is proposed to set up National Inland Navigation Institute (NINI) at Patna. This training centre would provide specialised training in various disciplines of Inland navigation namely Hydrographic Survey , River Conservancy , River Training ,Specialised River Constructions like , Jetties & Terminals , application of Remote Sensing for I W T related activities , Transport economics ,Commercial aspects of I W T , Specialised Instrumentation etc. This institute will also be affiliated to a University and the syllabus will be formulated to facilitate award of Diploma/P G Diploma /Degree/Certificate.

8.7 Regional Inland Navigational Institutes are proposed at Assam (Guwahati),Calcutta, Goa, Orissa, and Kerala during the 9th five year plan where some training facilities already exist. More RINIs in other riverine states are proposed to be set up during 10th five year plan.

8.8 The different types of crew required to be trained are as follows :-

Deck side - Masters and Serangs.

Engine side - Engineers and Engine Drivers.

8.9 Presently Crew Training Centres exist at Orissa , Assam , and Goa .To attain the level of a Master or Engineer qualification and experience are required . State governments are empowered to make rules with regard to the training and award of certificate under the I V Act 1917. To meet the demand of the industry a large number of crew would be required and this can be achieved by effective training methods for induction of skilled manpower like , person holding ITI/Diploma certificate,in case of engine side and person with navigational experience from organisations like Navy,Army, IWT , Coast guards, Ports etc.

8.10 Such training facilities should be well spread so that benefit of employment generation is shared equitably by each costal / riverine state. Therefore RCTC's are proposed initially at five places along with the proposed RINI at Guwahati, Calcutta, Goa, Orissa and Kerala.

8.11 State Government should be encouraged to develop proper machinery at State level to give further impetus to this programme and set up more training institutes at state level. A detailed strategy for IWT training will have to be worked out immediately for standardisation of training pattern, syllabus, certification etc. for recognition of these courses as specified by diploma/degree courses by the Ministry of Human Resources Development.

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CHAPTER -9

REPAIR AND MAINTENANCE OF IWT ASSETS

9.1 On the basis of identified cargo on various waterways and the need to provide a supporting supplementary mode to the road and rail to meet the transport infrastructure requirement in the 9th plan, a target of 20 billion tonne km by the IWT has been set for 9th Five Year Plan.

9.2 The present IWT cargo is less than 1 billion tonne km. The above increase will obviously result in the increase in number of inland vessels plying on various waterways in different regions of the country. The cost of a vessel is substantial and if the vessels are kept idle for want of repair/maintenance facility or due to unplanned maintenance schedule the overall availability of the vessels will decrease resulting in higher cost of transportation , less profit margin and shift of cargo to other modes. On the other hand with increase in operational availability of vessels, the productivity will increase .

9.3 Calculation would show that with an assumption of 330 days of operation in a year and 0.8 load factor on the to and fro voyage about 80 vessels are required for one billion tonne km of cargo movement. This is when the vessels navigate only during day time. If night navigation facilities are provided, the number of vessels required should become almost half. So with the target of 20 billion tonne km the number of vessels required with day navigational facilities alone is to the tune of about 1600 vessels of 600 T cargo capacity. Assuming that night navigation facilities would be provided in atleast 50% of the length of the waterways the requirement can be put to approximately about 1200 vessels. These vessels will have to be either built in India or procured from abroad. The types of vessel would include oil tankers, bulk carriers, container carriers, self propelled vessels or tug-barge combination selected for the operation depending on the type of cargo, load etc. This will obviously necessitate the need for adequate repair facility for the vessels. Further, IWT crafts are required to be dry-docked once in every four years for inspection and certification. The power crafts require floating surveys every year.

9.4 The vessels require floating and docking repairs continuously and unless proper repair facilities are available uniformly along various waterways the optimum utilisation of vessels would not be possible.

9.5 Presently, for Ganga-Sunderbans- Brahmaputra corridor facilities for repairs are available in and around Calcutta only. Facilities for minor repairs are however, available at Patna and Guwahati. Setting up of such facilities along these waterways in locations such as Farakka, Patna on Ganga and Jogigopha , Pandu, Tezpur etc., on B'putra, Kochi, Allabpiezha and Kollam on West Coast Canal merits serious consideration. Similarly vessel repair facilities for servicing Godavari system routes, East Coast Canal

system in states of Andhra Pradesh and Orissa as well as along other potential waterways need to be planned.

9.6 Ways and means for creation of repair and maintenance facilities either by Govt. agencies or by participation of the private sector are to be identified so that the ship building and ship repair industry would be well geared up to meet the planned growth of the IWT sector during the 9th Five Year Plan.

9.7 The Group recommends setting up of repair and maintenance facilities on 3 national waterways as given below;

NW-1:- Slipway/drydock facilities at Patna and Varanasi
NW-2:- Slipway/drydock facilities at Pandu and Tezpur
NW-3:- Slipway/drydock at Allahabad and Kollam.

9.8 Specific measures to be adopted for deriving optimum utilisation of the capacity by a higher degree of operational availability of vessels/equipment are as follows;

a. Availability of adequate spare parts on board.
b. Planned preventive maintenance schedule.
c. Safe operating norms.
d. Experienced crew and proper engine up keep .
e. Timely defect identification and rectification.
f. Timely action for statutory inspections and certification to keep the vessel river worthy.

9.9 While many of the above requirements would need planning and implementation by the fleet operators, the Group recommends provision of adequate repair, maintenance and bunkering facilities along the waterway routes to facilitate timely action by the operators.

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CHAPTER 10

MACHINERY FOR REGULATION OF TRAFFIC ON WATERWAYS

10.1 The Inland Waterways Authority of India has been set up for the development and regulation of the Inland Waterways for the purposes of Shipping and Navigation and for matters connected therewith or incidental thereto.

10.2 Specific functions of the Authority as stipulated in section-14 of the Act are as follows:-

Vide Sec.14(1)(b): provide or permit setting up of infrastructural facilities for National Waterways.

Vide Sec.14 (1) (d): the Authority may control activities such as throwing rubbish, dumping or removal of materials, in, or from the bed of the national waterways and appurtenant land, in so far as they may affect safe and efficient shipping and navigation, maintenance of navigable channels, river training and conservancy measures.

Vide Sec.14 (1) (e): the Authority may remove or alter any obstruction or impediment in the national waterways and the appurtenant land which may impede safe navigation or endanger safety of infrastructural facilities or conservancy measures where such obstruction or impediment has been lawfully made or has become lawful by reason of long continuance of such obstruction or impediment or otherwise, after making compensation to person suffering damage by such removal or alteration.

Vide Sec. 14.(1) (f) : provides for the regulation of navigation and traffic (including the rule of road) on National Waterways.

Vide Sec.14 (1) (g) : the Authority may regulate the construction or alteration of structures on, across or under the National Waterways

Vide Sec. 14 (1) (h) : the Authority may disseminate navigational, meteorological information about National Waterways.

Vide Sec. 14 (2) (g) : lays down standards for classification of Inland Waterways.

10.3 Vide section 35(1), the Authority is empowered to make regulations with the previous approval of the central govt., by notification in the official gazette and consistent with IWAI Act and the rules generally to carry out the purposes of this Act. Such regulations may provide for the manner in which and the conditions subject to which any function in relation to matters referred to in sub section (1) and (2) of section 14 may be performed: the rule of the road on a National Waterway, the safe, efficient and convenient use, management and control of the infrastructural facilities, the reception, porterage, storage and removal of goods brought on a national waterway, and the procedure to be followed for taking charge of goods which may have

damaged; regulating, declaring and defining the docks, wharfs, jetties, landing stages on which goods shall be landed from vessels and shipped on board vessels;regulating the manner in which and the conditions under which the loading and unloading the vessels on a National Waterway shall be carried out; and the exclusion from National Waterway of disorderly or other undesirable person and of trespassers.

10.4 The Inland Waterways Authority of India have formulated draft regulations for the rule of road on National Waterway. Draft regulations have also been formulated for the safety of navigation on National Waterway. These regulations are under examination in the Ministry.

10.5 Section 27 (2) of the Act states, nothing in this Act shall affect the operation of the Inland Vessels Act, 1917 or any other Central Act (other than the Indian Ports Act, 1908 and the Major Ports Trust act, 1963) or any state or provincial act in force immediately before the commencement of this Act with respect to shipping and navigation on any National Waterway but any jurisdiction, functions, powers or duties required to be exercised, performed or discharged by the state govt. under any such act in so far as such jurisdictions, functions, powers or duties relate to shipping and navigation on such National Waterway or any matter incidental thereto or otherwise connected therewith shall, after such commencement, be exercised, performed or discharged by the Authority.

10.6 The Indian Vessels Act, 1917 is central legislation covering various aspects of operation of mechanically propelled vessels in inland waterways. Under the provision of this act, the state govts are expected to perform the functions such as survey of inland mechanically propelled vessels, registration of inland mechanically propelled vessels, grant of certificate for Masters, Serangs, Engineers, investigation into casualties, removal of obstructions and similar hazards in navigation, suspension and cancellation of certificates under certain conditions, production of a carriage or passengers in inland mechanically propelled vessels and insurance of mechanically propelled vessels. The state govts. are required to make rules to carry out the objects listed above.

10.7 As per the original provision of section 27 (2), any jurisdiction functions, powers or duties required to be exercised, performed or discharged by the state govt or any officer or authority subordinate to the state govts under IV act insofar as such jurisdiction, functions, powers or duties relate to shipping and navigation or such National Waterway or any matter incidental thereto or otherwise connected therewith shall, after such commencement, be exercised, performed or discharged by the Authority.

10.8 Vide IWAI (Amendment) bill 1992, section 27 (2) has since been amended to read as under :

"Section 27 (2) : nothing in this act shall affect the operation of the Inland Vessel Act, 1917 or any other central act (other than the Indian Ports Act, 1902 and the Major Port Trusts act 1963) or any state or provincial act in force immediately before the commencement of this act with respect to shipping and navigation on any National Waterway".

10.9 With the above amendment, the operation of IV Act 1917 will continue in the inland waterways declared as National Waterways and jurisdiction, functions, powers and duties required to be exercised, performed or discharged by the state govt. will continue to be performed by the state govt. With this background, the IWAI have made regulations which provide that the provisions of the IV Act, 1917 would be applicable to all National Waterways. The IWAI have also made regulations that the certificates issued by the state govt in the National Waterways will be considered as if these certificates have been issued by the Authority.

10.10 The organisation existing in various states for survey and registration of the vessels and for enactment and enforcement of rules is considered inadequate except in the states of West Bengal , Assam and Goa.. **The Group recommends that immediate steps should be taken to augment the IWT organisation in every state and to frame rules for various functions as envisaged in the IV Act 1917.**

10.11 At present, the IWAI has field offices at Calcutta, Bhagalpur, Patna and Allahabad for NW-1, at Guwahati for NW-2 and at Kochi and Kollam for NW-3. In order to perform the functions envisaged under section 14 of this act, there is a need to have a well spread out network of field units, equipped with efficient communication system and trained manpower. The Group recommends that adequate provision should be made in 9th five year plan to improve the machinery for regulation of traffic on National Waterways.

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CHAPTER - 11

PROGRAMME AND SCHEMES FOR IWT DEVELOPMENT DURING 9TH FIVE YEAR PLAN

INTRODUCTION

11.1 Since Independence the Government of India have been consistent in its resolve to revive the IWT mode. Various Committees such as the Gokhale Committee on Inland Water Transport (1959),the Committee on Transport Policy and Coordination (1966),the Bhagwati Committee on Inland Water Transport (1970) and Committee on National Waterway (1974) have gone into IWT related issues.. These Committees considered the difficulties and problems of river transport in the country and were of the opinion that IWT should form part of National Transport and recommended various technical, organizational and financial measures to develop it. Thereafter the National Transport Policy Committee (NTPC) was set up in 1978 by the Government to study various modes of transport and suggest policies for their development. This Committee also analysed the Inland Water Transport and submitted its report in 1980. This Committee was of the opinion that declaration of certain important rivers as National Waterways would help in their uniform development for navigational purposes. The Committee also recommended that amount of traffic potential for waterway must be assessed, and given due weightage at the time of declaration of a waterway as national waterway. The NTPC was of the view that the growth of traffic would depend on the development of infrastructure and industrial locational policy pursued by the state and central governments.

11.2 In accordance ;with the recommendations of the NTPC Government of India setup the Inland waterways authority of India (IWAI) by an Act of Parliament with the primary objective of regulation and development of inland waterways for the purposes of shipping and navigation.

11.3 Notwithstanding the efforts of the Government since independence and the existence of an Authority for the development of IWT in India for the past nine years the IWT share of the inland cargo continues to be an insignificant o.1% of the total inland cargo.

11.4 The 9th plan proposals have been made with a target of a shift of 2% of the inland cargo to the IWT sector which would correspond to 20 btkm. Many complex factors govern the traffic capacity of the waterway; depth,width lock size etc.The combined traffic capacity of three National waterways, the Ganga, the Brahmaputra and the West Coast Canal is estimated to be 334 million or 250 billion t.km with 600 capacity vessels. The identified IWT cargo in the national waterways corridors by 2000 AD will alone exceed 20 bt km.

11.5 A shift to the IWT mode would be possible only when cost of transportation and time of transportation are reduced and safety and reliability of IWT mode is enhanced. These conditions can be achieved by systematic planning and development of the fairway terminals fleet and navigational aids which are covered under the proposal.

11.6 To provide these facilities in an acceptable manner substantial investments are to be made.The facilities such as fairway with sufficient depth and width,24 hrs. navigation, terminals with mechanical loading facilities , access and egress and waterway safety, are to be provided in full if the IWT operation has to be viable. Once the basic infrastructure is created for IWT mode, the market forces will take over and investment from the users/private sector will flow in..

11.7 From IV Plan to VII plan investment for rail increased from Rs. 1050 crores to Rs. 12335 crores aggregating to Rs. 20835 crores. The corresponding figures for the road sector are Rs.914, 7190 and 14136. Against this massive investment for the rail and road the total investment for the IWT for the corresponding period was a meager Rs. 332 crores.The need to provide a liberal outlay for IWT in the 9th plan is to be seen in this context.

11.8 In order to make IWT as an alternative mode of transport the following steps are required to be taken:.

a. Well defined fairway with adequate depth, width and under keel clearance for round the year operations.

b. Facility for sailing during day and night(24 hours navigation).

c. Berthing facility at all stages of river with minimum vertical and horizontal transfers at reasonable cost.

d. Access and egress to trucks at terminals

e. Manual and mechanical loading facilities at reasonable cost.

f. Storage, bunkering and repair facilities at terminals

g. Reduction in IWT distance by river training measures and stabilisation of the river.

h Discharge regulation and moderation of flow conditions

i. Vessel assistance (river notices, Pilotage, Tugs, Communication etc.)

j Priority status, ship building subsidy, import duty exemption for IWT vessels.

While formulating various schemes for implementation during the 9th Five Year Plan the above requirements have been kept in mind.

11.9 The main thrust areas of the 9th Five Year Plan are as follows:-

i) A shift of 2 % of total inland cargo to IWT system which will mean IWT cargo to the tune of 20 billion tonne km.

ii) Provision of assured channel, round the clock navigation, mechanised terminals integrated with other modes, safety and reliability of vessels and cargo and regulation of traffic. Major thrust would be for national waterways already declared while efforts to develop new waterways would continue.

iii) Attracting private investment in IWT especially in fleet acquisition.

iv) Building up of a trained and skilled manpower for IWT operation by setting up institutes to cover various disciplines of Inland Water Transport.

v) Modernisation of IWT vessels, replacement of overaged ones and encouraging IWT entrepreneurs with suitable incentives to go in for better designed vessels.

vi) Expansion of IWAI organisation to make it compatible with the planned activities. For this purpose strengthening of IWAI head office and opening of more offices on existing National waterways opening of new offices on prospective waterways and logistic support system to all these offices will be considered.

11.10 **PROPOSED SCHEMES FOR NINTH FIVE YEAR PLAN :**

The specific proposals for the 9th five year plan are as follows:

CENTRAL SECTOR SCHEMES

I CIWTC SCHEMES

A. 8TH PLAN SCHEMES TO CONTINUE IN 9TH PLAN

1 **Acquisition of vessels under the 7th plan scheme**

A revised cost estimate for this scheme has been recommended for submission to CEAC for approval in the recently held meeting of the Public Investment Board. The approved outlay for the corporation is not adequate to allocate total additional fund, as per the proposed revised cost estimate; An amount of Rs. 5.0 crores is therefore proposed for this scheme in the 9th plan

2. Modernisation of Rajabagan Dockyard:

A revised cost estimate had to be worked out for this scheme in view of cost escalation and devaluation of Indian rupee. Govt. sanctioned the revised cost estimate of ship repair facilities only in Dec.1992 for implementation under Indo-Dutch bilateral cooperation programme. In the process of reappraisal of the revised scheme by dutch govt., it was agreed to proceed with the progress in a phased manner. Upgrading of the existing ship repair facilities has been planned in the first phase. A part of the first phase and all activities under the second phase will spill over to the 9th plan period. The fund estimated for this plan period is Rs. 90.00 crores out of which foreign exchange component is Rs. 40.00 crores

3. 8th Plan Vessel Acquisition Scheme:-

An oil tanker sanctioned under this scheme is under construction and delivery of the vessel will be effected in 9th plan. Funds estimated for this scheme in 9th plan period are Rs. 4.0 crores.

4. Capital repair of CIWTCs vessels:-

Repairs of capital nature were essential for some vessels of the Corporation in order to gear up its fleet and to ensure normal functioning . The total fund of Rs. 7.00 crores has been made available to the corporation on this account in 8th plan. Rs. 15.0 crores is proposed for 9th plan

B. NEW SCHEMES

5. Replacement of overaged vessels:-

Operating of 8 nos. vessels are found to be uneconomic. These are to be replaced with new and modern vessels during 9th plan period so that the Corporation is in a position to offer reliable services. The estimated cost for these vessels is Rs. 30.00 crores.

6. Capital Repair of River Terminals:

CIWTC could not make capital investment for repair of its river terminal facilities so far because of fund constraints. Major repairs of these terminals are to be arranged now with total fund ;of Rs.6.0 crores.

7. Augmentation of cargo transportation capacities with new vessels

As the prime IWT operater the corporation need to enhance its capacity to cater to the requirement of existing and prospective clients. To augment the capacity 21 new vessels will be acquired at the total estimated cost of Rs. 95 crores in 9th plan period including R.E.

8. Modernisation of handling facilities of river terminals of CIWTC

Loading and unloading of cargo at CIWTCs terminals are to be mechanised with suitable handling / transfer equipments in order to reduce turn around time of vessels and to offer competitive services. The total fund required for this purpose is estimated as Rs. 12.00 crores in the 9th Plan

9. Computerised fleet management system:-

Optimal utilisation of capacity of the corporations fleet depends largely on the deployment and movement of the vessels . The effective measurement of vessels is to be ensured in 9th plan through computerised system at total estimated of Rs. 5.0 crores.

10. Installation of Prototype equipment for vessel operation / maintenance/construction

Prototype equipments for vessel operation/maintenance / construction will be necessary to make trial runs in connection with operation and maintenance of vessels construction of vessels etc. The estimated fund for this purpose is Rs. 1.00 crores including Rs. 0.25 crores F.E component.

11. Training of personnel

The efficiencey of CIWTCs personnel at all levels is to be raised mainly through development and training schemes.During 9th plan period the estimated fund requirement is Rs.1.0 crores

12. Technical studies

Regular studies are to be undertaken main for cargo projections, IWT demands for ship repairs and shipbuilding etc. at a total cost of Rs. 0.50 crores in 9th plan

13. Installation of Modern office equipments and accessories

Modernisation of CIWTCs office equipments will be necessary to improve efficiency and productivity of the personnel through appropriate methods and systems. During 9th plan period the total fund of Rs. 0.50 crores is to be made available for this scheme.

14. Capital repair facilities at Rajabagan Dokyard :

The demand for IWT vessels will considerably increase in the near future and resources available at Rajabagan dockyard will have to be geared up so that it can contribute as a leading shipyard with existing expenditure and skilled personnel. However, most of the facilities being used for shipbuilding activities at Rajabagan dockyard need major repair and renovation in order to make these suitable for normal functioning. The fund required for the scheme during 9th plan has been estimated at Rs. 4.0 crores.

15. Installation of intermediate gate and associated items for dry dock no. 3 & 4 :

At Rajabagan dockyard an intermediate gate in dry dock no 3 & 4 along with associated accessories will have to be installed to enhance the working period and to enable docking/undocking of a vessel without interruption in work of other vessels in the Dry dock. In the 9th plan Rs. 2.0 crores will be required for this scheme

16. Computerisation of system for ship building

The period for construction of vessels at Rajabagan Dockyard can be reduced to some extent by improving the systems planning monitoring and control through computerisation. This scheme will require Rs. 1.0 crores during the 9th plan.

II IWAI SCHEMES

A) 8TH PLAN SCHEMES TO CONTINUE IN 9TH PLAN

(1) Grant of Interest subsidy to IWT entrepreneurs:

In June, 1980 the Govt. had sanctioned a loan interest subsidy scheme for the benefit of IWT entrepreneurs. The financial institutes are granting loan at interest rate of 5.5% and the difference between the normal bank rate and 5.5% is being subsidised by the Government. The scheme was further modified in 1983 to make it more liberal & comprehensive. In order to make the scheme more popular and attractive, a Committee which was constituted in the Ministry has made certain recommendations which may be seen at page .... With the target of 20 ton Kms during 9th plan the number of inland vessels to be built would be to the tune of 1200 SPVs.Taking into account this anticipated growth in fleet an amount of Rs. 50.00 crores is proposed to be provided during the 9th five year plan.

(2) Terminal facilities at Karimganj and Badarpur.

A scheme to provide terminal facilities at karimganj was sanctioned in 1986 at an estimated cost of Rs 3.00 crores which was further revised to Rs 4.55 crores. The scheme was spilled over to 8th five year. During 8th five year plan an outlay of Rs 0.60 crores was suggested for the scheme against which the approved outlay was Rs 1.55 crores. The scheme was being implemented by CIWTC Ltd. and the total cost of the scheme i.e Rs 4.55 crores has been released to CIWTC. During 9th plan river Barak is proposed to be developed for IWT under new schemes and further improvement works to Karimganj will be taken up under development of Barak. As such, for development of Karimgunj and Badarpur terminals on river Barak, a provision of Rs. 2.00 Crores has been suggested for 9th plan.

(3) Terminal facilities between Haldia and Patna.

In 8th five year plan , an outlay of Rs. 70.50 crores was proposed for construction of terminals at Calcutta, Haldia, Budge Budge, Kahalgaon and Patna, against which an outlay of Rs 10.00 crores was approved. Under this head, a scheme for providing a floating terminal at GR Jetty , Calcutta has been approved at an estimated cost of Rs. 198.00 lakhs for which an amount of Rs. 57.57 lakhs has already been paid to CPT towards security deposit and premium for release of required land. Further, at Haldia terminal facilities have been created under the scheme "provision of infrastructural facilities between Haldia & Farakka" and the facilities at Haldia needs further improvements with intermodal facility. In addition it is proposed to provide an intermodal terminal at Farakka and the improvements of existing terminals at Pakur, Farakka, Munger and Bhagalpur during 9th plan by considering the fact that Inland Water Transport service would become prominent on Ganga. The facilities at GR Jetty are to be made available to Bangladesh vessels also, it is necessary to provide a permanent intermodal terminal at GR Jetty, Calcutta with mechanised loading & unloading arrangements along with other support facilities

3.1 The investment proposed for construction, & improvement of various terminals on National waterways No.1 between Haldia & Patna is as follows:

		(Rs in Crores)
(i)	Intermodal terminal at GR Jetty, Calcutta	6.00
(ii)	Intermodal terminal at Haldia	10.00
(iii)	Intermodal terminal at Farakka including the development of existing terminal at Pakur & Farakka	10.00
(iv)	Improvement to the existing terminals at Bhagalpur & Munger	4.00

(v)	Floating terminal with crane at Karagola	2.00
(vi)	POL terminal at Bhagalpur	2.00
(vii)	POL terminal at Semaria	3.00
(viii)	Pol terminal at Patna	2.00
		39.00

Hence an amount of Rs 39.00 crores is suggested in the 9th plan.

3.2 Terminal at Gaighat, Patna

A scheme for construction of a general cargo berth at Gaighat, Patna was sanctioned during 1991 at an estimated cost of Rs. 4.90 crores . After finalisation of design, tenders were invited and finalised . As the lowest tender was much above the estimated cost the scheme was further revised to Rs. 7.24 crores which was sanctioned by the Govt. during Dec.,95. So far, an expenditure of Rs. 0.28 crores has been incurred against the scheme and during1996-97 an expenditure of Rs. 1.50 crores has been anticipated. In addition, facilities included in the sanctioned scheme , the terminal is proposed to be provide with intermodal facility during 9th five year plan . Hence a sum of Rs. 8.00 crores is suggested during 9th five year plan for the scheme.

(4) Infrastructural facilities along National Waterway Between Patna & Allahabad(terminals)

In 8th plan proposal an amount of Rs 15.00 Crores was proposed to provide infrastructural facilities and to undertake fairway improvement work in this sector. However no outlay was made for this scheme during 8th plan. During 8th plan developmental works were limited in Haldia- Patna stretch. From 9th plan onwards the developmental works are planned in Patna- Allahabad stretch also. During 9th plan the following facilities at an anticipated expenditure of Rs 3.00 crores are proposed to be provided in this sector :-

		(Rs in Crores)
(i)	Floating terminal with crane at Ballia	1.00
(ii)	Floating terminal with crane at Mirzapur	1.00
(iii)	Floating terminal with crane at Allahabad	1.00
	Total	3.00

5.1 Navigational Facilities on Ganga-Bhagirathi-Hooghly river system (NW-1)

A provision of Rs. 8.00 crores was made for the scheme during 8th five year plan against the proposed outlay of Rs 4.00 crores for providing night navigational facilities in Haldia-Patna sector. The scheme could not be firmed up, and implemented during 8th plan. It is proposed to execute the scheme by providing 24 hrs navigational facilities in the Calcutta-Patna stretch and day navigational facilities in Patna -Allahabad stretch to improve the turn around time of the vessels. The preliminary works are proposed to be completed during 1996-97 for which an outlay of Rs. 0.50 crore has been made in Annual Plan 1996-97. The requirement of fund for the scheme during 9th plan is anticipated as Rs. 15.00 crores and the same is suggested during 9th plan.

5.2 River Training works on NW-1

During 8th five year plan an amount of Rs. 10.00 crores was provided for undertaking a pilot project by providing suitable river training works to regulate the water flow so as to avoid shoal formation. In this regard a DPR is under formulation and implementation of the scheme is proposed to be commenced from 1996-97 onwards. During 9th five year plan an amount of Rs. 10.00 crores is suggested for the scheme.

6. Intermodal terminal at Varanasi

In 8th plan proposal, an outlay of Rs 10.00 crores was suggested to set up an intermodal terminal at varanasi for linking with railway for moving foodgrains by railway-cum-river mode. The facilities proposed were mechanised handling system, berthing facilities, storage facilities and rail linkages. However, no outlay was provided in 8th plan. Now it is proposed to implement the scheme during 9th plan at an anticipated expenditure of Rs 3.00 crores.

7.1 Annual fairway improvement/river conservancy works in National Waterway -I between Haldia and Allahabad

In 8th plan proposal, an outlay of Rs 25.00 crores was suggested for these scheme against which an outlay of Rs 7.50 crores was allocated. Till Feb'96 an expenditure of Rs 5.84 crores had been incurred. To develop this waterway for safe navigation regular Hydrographic survey Bandalling, Dredging and channel marking are being undertaken on year to year basis. During 8th five year plan such activities were limited in Haldia-Patna stretch (1020 kms). Now there is a great demand to extend these facilities upto Allahabad and hence from ninth plan onwards these facilities are proposed to be extended upto Allahabad. An average expenditure of Rs. 5.00 crores annually is anticipated to undertake on these river conservancy works . Hence a provision of Rs. 25.00 crores is suggested in 9th five year plan.

7.2 Organisation for National Waterway No.1

In 8th plan proposal the various organisational expenditure including setting up of field offices at Allahabad, Varanasi, Patna, Mokama, Bhagalpur and Farakka was included under the head river conservancy works on National Waterway between Haldia & Allahabad. From 9th plan onwards the various IWT developmental works on NW-1 are being extended for Patna-Allahabad sector also It is proposed to set up some new offices and strengthen the existing offices with sufficient organisational background. On account of various organisational activities on NW-1 including introduction of computerised data system and the pay & allowance an outlay of Rs 7.00 crores is suggested in 9th plan.

7.3 Setting of permanent office cum residential complex along NW-1.

Presently all offices of IWAI are running in rented buildings resulting in huge expenditure towards office accommodation. Further the working condition of officers & staffs working in IWAI is more difficult than other sector. Hence, in order to have own office complexe of IWAI at various locations and also with an aim to provide better working condition to officers & Staff of IWAI, it is proposed to acquire land and construct permanent office and residential complexes at following locations along NW-1.

i) Calcutta
ii) Farakka
iii) Bhagalpur
iv Semaria
v) Patna
vi) Ballia
vii) Varanasi
viii) Mirzapur
ix) Allahabad

In order to create above facilities, an expenditure of Rs. 9.00 crores is anticipated. Hence an outlay of Rs. 9.00 crores is suggested in 9th five year plan.

(8) Technical Studies

Techno-economic -feasibility studies for navigation, preparation of detailed project reports for terminal improvement provision of navigational aids etc., environmental studies and studies of general nature in order to promote IWT in the country are undertaken by IWAI. In 8th plan proposal an outlay of Rs 2.00 crores was proposed towards the Technical studies, against which an outlay of Rs 1.20 crores was provided. Till Feb'96 an expenditure of Rs 0.69 crore has been incurred. During 8th five year plan studies on Kollam- Kovalam stretch of West Coast Canal, cost

effectiveness of IWT on Ganga, development of IWT on East Coast Canal development of canal system between Kakinada & Madras, development of fairway by river training works on Ganga , environmental impact assessment study on Sunderbans, improvement of existing terminals on NW-1, Hydrographic survey on Goa waterways , studies on Barak DVC canal, review of studies for Kottapuram-Kasargoda & Kollam- Trivandrum sector of WCC and environmental study for the movement of POL/dangerous cargo on NW-1 are completed/in progress. In order to complete the ongoing studies an amount of Rs. 1.50 crores is required against which a provision of Rs. 0.75 crores has been provided in annual plan 1996-97. The balance amount of Rs.0 .75 crores is required for ongoing studies.

Apart from above studies for preparation of DPR are planned for the following waterways for development of inland navigation:-

i) The Sunderbans
ii) The Godavari
iii) The Mahanadi Brahamani river system.
iv) The East Coast Canal.
v) The Barak
vi) The DVC Canal
vii) The Canal system connecting Kakinada & Madras
viii) West Coast Canal extension
ix) Bombay IWT
x) Ghagra
xi) Goa Waterways
xii) Kosi Gandak
xiii) Narmada
xiv) Mozoram & NE rivers
xv) Yamuna
xvi) Bangladesh protocol route
xvii) Feeder routes for NW-1,2 & 3
xviii) Navigation/Irrigation canals in Punjab, Haryana, Rajasthan and Karnataka.

In addition to above studies environmental studies are also proposed on various waterways.

During 9th five year plan on amount of Rs. 10.00 crores is suggested for the Technical studies schemes.

(9) Strengthening of IWAI, and R & D complex at Noida

The inland waterways Authority of India was setup on 27.10.86 with the responsibility of development, maintenance and management of national waterways.

During 8th plan it was proposed to strengthen the organisational set up of IWAI for which an outlay of Rs 10.00 crores was suggested in 8th plan proposal but no outlay was provided in 8th plan allocation for this scheme.

In 9th plan the developmental works in all the three national waterways, are proposed to be further augmented, more waterways are to be declared as national waterways and IWT development is to be extended to some more waterways. Hence due to increase in volume of activities, the present organisational set up of IWAI headquarters will be required to be strengthened further to cope with additional work load. Further, in order to have close monitoring of all the works, and also to facilitate information exchange between various site offices of IWAI and head office, it is proposed to connect them through NICNET . The expenditure anticipated towards strengthening of IWAI during 9th plan is Rs 8.00 crores which includes the expenditure towards pay & allowances, provision of NICNET facility, computerisation, transport, office expenditure, laboratory, library etc. Hence an outlay of Rs 8.00 crores is suggested in 9th plan.This outlay also includes Rs. 1 crore for equipment and facilities for R&D cell to be set up in IWAI in Noida.

(10) Residential Complex for IWAI at Noida

In 8th plan proposal an outlay of Rs 10.00 crores was suggested for construction of office and residential complex. But, no provision was made in plan allocation. However considering the need, a scheme for construction of R & D cum office complex of IWAI at NOIDA was approved by the Govt. of India during Nov'1994 at an estimated cost of Rs 4.57 crores. Land has been taken in NOIDA on long term lease basis and the construction work is in progress. During 9th plan it is planned to construct residential complex of IWAI at NOIDA for officers/staff of IWAI. The anticipated expenditure in this regard is Rs 10.00 crores. Hence an outlay of Rs 10.00 crores is suggested in 9th plan.

(11) Inland Navigation Institute and RCTCs

In 8th plan proposal an outlay of Rs 3.50 crores was suggested for setting up of National Inland Navigation Institute at Patna for training in Inland water transportation disciplines. In approved outlay of 8th plan an allocation of Rs 5.00 crores was made under the head "training of IWT personnel". The IWAI had formulated a detailed scheme for setting up of a NINI at Patna but the scheme could not be firmed up in 8th plan.

In order to meet the demand for trained manpower in the field of IWT, IWAI have proposed to setup a National Inland Navigation Institute (NINI) as an apex body under which the Regional Inland Navigation Institutes (RINI) and Regional crew training centres (RCTC) will be established.

a. <u>National Inland Navigation Institute (NINI)</u>

NINI will have facilities and capability to train IWT personnel of all disciplines e.g, engineering, marine hydrography etc. as well as for all categories of crews of all types of inland vessels planned to be plying in India.

b. Regional Inland Navigation Institute(RINI)

It is proposed to set up RINI at regional level for training of personnel for the development & maintenance activities of inland waterways.

The RINIs will provide manpower training in the field like river engineering, marine engineering, hydrographic surveys, cargo forecast, environmental studies, cartography, communication etc. These RINIs will be extended guidance by NINI and produce manpower in these fields in respective regions.

c. Regional Crew Training Centres(RCTC)

In 9th plan, there is target for transportation of 20 billion tonne km of IWT cargo, for which 1200 IWT vessels of 600 tonne capacity are estimated to be required. In order to man these vessels, it is proposed to upgrade the existing crew training centres and also to set up new crew training centres in 5 of the 14 riverine states.

For setting up of above three categories of IWT training institutes an outlay of Rs 30.00 crores is suggested in 9th plan.

(12) Annual Fairway improvement/Conservancy works on NW 2

In 8th plan proposal, an outlay of Rs 35.00 crores was suggested for undertaking the works like RC works, Hyd. Survey, dredging terminal, navigational aids, inspection vessels etc.

Against the proposal of Rs 35.00 crores an allocation of Rs 17.30 crores was made for execution of river conservancy work,and navigational aids. 9th plan proposals are described below :-

12.1 Annual Fairway improvement/river conservancy works on Brahmaputra.

The responsibility of development of National Waterway No.-II between Dhubri and Sadiya for safe navigation rests with IWAI. In 8th plan an outlay of Rs 7.50 crores was provided for this scheme against which an expenditure of Rs 2.71 crores was incurred till March 96. To develop this waterway for safe navigation, river conservancy works like bandalling channel marking, and hydrographic surveys are being taken up on year to year basis and from 9th plan onwards it is proposed to undertake dredging also in addition to other conservancy measures. It is estimated that an annual expenditure of Rs. 3.00 crores will be required for undertaking various river conservancy works on NW-2. Hence an outlay of Rs.15.00 crore is proposed in 9th five year plan.

12.2 Navigational aids on Brahmaputra

In order to make IWT more viable and competitive provision of 24 hrs navigational facility is an urgent need.

In 8th plan an outlay of Rs 5.00 crores was provided for the scheme against which an expenditure of Rs 0.15 crores has been incurred till March 96. A scheme for providing day navigational facilities between Guwahati and B'Borderwith facility to convert to 24 hrs navigational facility later on to reduce the turn round time has been approved by the Authority at a cost of Rs. 1.95 crores. The implementation of scheme is scheduled to commence from 1996-97 onwards for which a provision of Rs. 50.00 lakhs is available in Annual plan 1996-97. During 9th plan it is proposed to provide 24 hrs navigational facility in the stretch B:Border Dibrugarh at an anticipated expenditure of Rs. 10.00 crores.

12.3 Terminals on Brahmaputra

In 8th plan a provision of Rs. 4.80 crores was made for providing terminals at Dibrugarh, Guwahati, Jogigopa, Neamati, Tezpur, Silghat and Dhubri. Till 1995-96 an expenditure of Rs 0.20 crores has been incurred.

River Brahmaputra shows a vast variation in water level during hydrological cycle and due to this reason it becomes very difficult to construct single vertical type fixed jetties at certain locations. Hence it is proposed to construct initially the floating terminals at Dhubri, Jogighopa, Pandu, Tezpur, Neamati, Dibrugarh and Saikhowa. The multiple level jetties are considered most suitable as well as cost effective for the places where there is a vast variation of water level. It is therefore proposed to construct double vertical type jetties alongwith intermodal facilities at Dhubri , Jogigopha ,Pandu , Tezpur,and Neamati during Ninth Plan.

The investment proposed for construction of floating as well as Double vertical type jetties alongwith intermodal facility at different locations is as follows :-

	Location	Floating Terminals	Double vertical Inter Modal	Total (Rs.crores)
1.	Dhubri	1.00	3.00	4.00
2.	Jogigopha	1.00	3.00	4.00
3.	Pandu	1.00	5.00	6.00
4.	Tejpur	1.00	3.00	4.00
5.	Neamati	1.00	1.00	2.00
6.	Dibrugarh	1.00	-	1.00
7.	Saikhowa	1.50	-	1.00
		7.00	15.00	22.00

Hence an outlay of Rs. 22.00 crores is suggested in 9th plan.

12.4 Organisation for National Waterway No. 2 with offices at 4 locations.

At present IWAI is having only one office at Guwahati to implement monitor and manage the various IWT developmental works on NW II.

To execute works planned for the 9th plan it is proposed to set up officers of IWAI at three more places namely Goalpara/Jogigopha, Tejpur and Dibrugarh and have IWAI own office at Guwahati which is presently housed in rented building. Residential Quarters will also be constructed alongwith offices. A provision of Rs. 1.00 crores each at Goalpara/Jogigopha, Tejpur and Dibrugarhb and Rs. 2.00 crores for Guwahati office is kept in the 9h plan proposal. The total provision kept for this activity therefore is Rs.5.00 crores.

12.5 River Training works on NW2

About 15 locations on NW 2 between B'putra and Dibrugarh have been identified where shoal formation occur during the lean season. At these locations shoals may form in an area of about 2-5 kms. The shoals are formed due to hydromorphological characteristics of the river at that particular area and if such hydromorphological characteristics are changed by providing river training measures, the channel can be stabilised resulting in reduction in number of shoal formation with anticipated increase in IWT cargo on NW2.During 9th plan, it is necessary that number of shoals are minimised.

For taking up river training works on NW2 during 8th Plan a provision of Rs. 10.00 crores is recommended.

(13) Development and Maintanence of The West Coast Canal(NW3)

In 8th plan proposal an outlay of Rs 48.00 crores was proposed to execute the works such as dredging terminals, Bank protection, cargo handling equipment for the development of West coast canal. the approved outlay in 8th plan allocation for the development of west coast canal is Rs 62.00 crores. Till Feb'96 an amount Rs 2.64 crores was incurred. During 9th plan various works are proposed to be executed under separate heads, most of the them are ongoing schemes.

13.1Land Acquisition for Development of National Waterway No.3

The navigational route of National waterway No.3 passes through several narrow stretches with widths less than the required minimum of 32.00m. It is necessary to acquire land adjacent to it along the banks to the extent that minimum requirements are available. Further land will also have to be acquired for most of the terminals. The requirement of land has been assessed and demarcation has been made. A scheme for land acqui-

sition at an estimated cost of Rs. 11.59 crores is in process and acquisition of land is planned to commence from 1996-97 onwards. The acquisition work is to extend to the 9th plan. Further expenditure for compensation, rehabilitation and resettlement are envisaged. An outlay of Rs 20.00 crores is suggested in 9th plan.

13.2 Construction & maintenance of locks on National Waterways No.3

The water way is having two locks at Thanneermukkam and Thrikunnapuzha. The present lock at Thannermukkam is being improved. However, in order to accommodate larger vessels, the new locks may have to be constructed. In 9th plan an outlay of Rs 4.00 crores is suggested for the construction & maintenance of locks on NW-3

13.3 Dredging/widening of canal on National waterway No.3

In order to provide a safe navigable depth, dredging as well as widening of canal at narrow stretches is to be carried out. So far dredging works in Udyogmandal & champakara canal has been completed to provide a navigable depth of 2.0m. However, for improving the depth further, more dredging is to be carried out. In main West coast canal, dredging at certain location is in progress. However, the major portion of dredging activity is planned during 9th plan when IWAI will be fully equipped with dredging equipments. Similarly the narrow stretches of the canal are to be widened for providing sufficient navigable width and this activity is also planned immediately after the completion of land acquisition. In 9th plan an expenditure of Rs 30.00 crores is proposed for dredging/widening of canal.

13.4 Construction & Maintenance of Terminals on National Waterway No.3

Considering the results of the analysis carried out, facilities required for meeting the traffic movement an National waterway No. 3 has been assessed and accordingly the following locations have been identified for providing terminal facilities with an investment of Rs 24.00 crores during 9th plan:-

		(Rs in Crores)
(i)	RCC terminal at Kottapuram	1.50
(ii)	Inter modal terminal at Kochi	5.00
(iii)	General Cargo terminal at Ernakulam	3.00
(iv)	RCC terminal at Aluva	0.50
(v)	CEPZ (Kakkanadu) container terminal	2.00

(vi)	RCC terminal at Vaikom	1.00
(vii)	RCC terminal at Cherthala (Thannermukkam)	1.00
(viii)	General cargo terminal at Alappuzha	4.00
(ix)	RCC terminal at Thrikkunnapuzha	1.00
(x)	General Cargo terminal at Kayamkulam	2.00
(xi)	General cargo terminal at Chavara	1.00
(xii)	General cargo terminal at Kollam	2.00
		24.00

Hence an outlay of Rs. 24.00 crores is suggested in 9th plan.

13.5 Construction of IWAI Offices on National Waterway No.3

Presently IWAI is having its two offices at Kochi & Kollam which are running in rented building. In 9th plan it is proposed to set up one more office at Allappuzha. It is proposed to acquire land and construct office building of IWAI at the following three locations with a total anticipated expenditure of Rs 2.00 crores.

(i) Kochi

(ii) Kollam

(iii) Allapuzha

Hence an outlay of Rs 2.00 crores is suggested in 9th Plan.

13.6 Organisation for National Waterway No.3

At present IWAI is having two offices one at Kochi and another small office at Kollam. However these two offices are proposed to be further strengthened. As the day to day operations of the waterway will require attention to various details, it is proposed to set up another office at Alappuzha. The Kochi office will be upgraded as a centralised administrative cum operational organisation for National Waterway No.3 In respect of various organisation expenses including the introduction of computerised data system as well as pay & allowances, an amount of Rs 5.00 crores has been estimated for the 9th plan.

13.7 Bank protection along National Waterway No.3

The natural currents as well as the impact produced by ship movement along the waterways, cause erosion of bank.Hence banks are required to be protected in those region which are more susceptible to erosion particularly in the narrow stretches. The investment anticipated during 9th plan is Rs 10.00 crores for this scheme.

13.8 Night Navigation facility on National Waterway no.3

The National Waterway No.3 is planned to be provided with necessary aids to navigation to facilitate 24hrs navigation with an aim to reduce the turn around time of vessels so as to justify the economics of IWT. The provision of night navigation is planned in phases for which an investment of Rs 8.00 crores is anticipated in 9th plan.

(14) Development of waterways at Sunderbans

In 8th plan proposal an outlay of Rs 8.20 crores was suggested for undertaking IWT development works on Sunderbans. However no allocation was made in 8th plan approved outlay. The Sunderbans is one of the ten waterways identified by NTPC(1980) for consideration of declaration as national waterways. The Sunderbans is the link between the two national waterways i.e., N.W. 1 & 2. It is one of the few stretches in the country where IWT is still active and provide an alternate mode of transport in N.E. region through protocol route of Bangladesh. Based on the findings of Techno-Economic feasibility study conducted during 1988-89, a declaration proposal to declare the route from the confluence of Doagral Khal with channel crack (Baratola river) in Hooghly river to the confluence of Beharikhal with Raimangal river in the international border (191 Kms) as national waterway was circulated to various Ministries during June'89.Based on the comments of Ministry of Environment & forest, an environmental impact assessment study is in progress which is expected to be completed by May'96 Thereafter the proposal will be processed for declaration. The developmental works suggested for 9th plan for sunderbans are as follows:

	(Rs in Crores)
(i) River dredging	5.00
(ii) Terminal at Namkhana & field office of Pathar Pareetima	2.00
(iii) Hydrographic Survey	2.00
(iv) Channel marking and waterway management	3.00
Total	12.00

Hence an outlay of Rs 12.00 crores is suggested in 9th plan

(15) Development and maintenance of river Godavari

The river Godavari is one of the ten identified waterways for consideration of declaration as national waterway by National Transport Policy committee(1980). In 8th plan proposal an outlay of Rs 5.00 crores was proposed. However no allocation was made in 8th plan allocation.

A draft cabinet note for enactment of a central legislation to declare the Cherla-Rajahmundry stretch(208 Kms) of river Godavari & its delta canals was circulated by MOST to different ministries during May'1994 and the observations sought have been furnished. The Ministry of finance had conveyed its concurrence in Sept'95 for the proposal. Anticipating that declaration will come effective, during 1996-97 a provision of Rs 0.20 crores has been made for the scheme in the Annual Plan 1996-97. However the major developmental works are proposed to be executed during 9th plan. The cost of development of river Godavari at 1994-95 price was estimated as Rs.60.00 crores. However considering the further price escalation the estimated cost for IWT development of Godavari would be Rs. 70.00 crores. An amount of Rs.10.00 crores is proposed for the development of the delta canals. The broad break-up of developmental cost of river Godavari & its delta canals is given below:-

	Godavari	Delta Canals	Total
1. Waterway Improvement Works			
a) Dredging	28.00	5.00	33.00
b) Aids to navigation Hydrographic Survey, Vessels, equipments.	3.50	1.00	4.50
c) Modifications of locks	3.50	1.00	4.50
2. Terminals	35.00	3.00	38.00
G.Total	70.00	10.00	80.00

Hence an outlay of Rs 80.00 crores is suggested for the development of river Godavari and its delta canals in 9th plan.

(16) Development and maintenance of Waterways in Goa

In 8th plan proposal an outlay of Rs 4.00 crores was suggested towards the scheme but no allocation was made in 8th plan approved outlay. The Mandovi and Zuari rivers and the Cumberjua canal in Goa are identified waterways for consideration of declaration as national waterways by NTPC(1980). This waterway system is already moving a traffic of about 15 million tonnes in a year. The various IWT entrepreneurs are very keen to operate larger capacity vessels for which this waterway is required to be im-

proved for navigation of 1000-2000 tonnes capacity vessels round the year. The Govt. of Goa has agreed in principle for declaration of Goa waterways as national waterway subject to sorting out of some revenue sharing issues. Meanwhile IWAI is conducting a detailed hydrographic survey on this waterway for planning the future developmental works. In the Annual plan 1996-97, a token provision of Rs 1.00 lakh has been made against the scheme. During 9th plan an investment of Rs. 12.00 crores is proposed towards the developmental cost as given below:

	Activity	Cost (Rs in Crores)
1.	Hydrographic Survey	0.50
2.	Capital Dredging	10.00
3.	Navigational aids	1.00
4.	Operation & Maintenance	0.50
	Total	12.00

Hence an outlay of Rs 12.00 crores is suggested in 9th plan.

(17) Development of river system of Mahanadi and Brahamani

In 8th plan proposal, an outlay of Rs 5.00 crores was proposed for the scheme but no provision was made in the approved allocation of 8th plan. The river Brahamani and Mahanadi are the largest rivers flowing in the state of Orissa. Talcher coal mines are situated on the bank of this river system. This waterway system is one of the ten waterways identified by NTPC (1980) for consideration of declaration as national waterway. A study conducted during 1988 indicated the possibility of moving 14 million and 27 million tonnes of cargo by 2000 and 2005 A.D. The integration of Brahamani- Mahanadi river system alongwith East Coast Canal will further increase the cargo potential of this waterway. In view of the good cargo potential, the river system is proposed to be developed in phased manner on declaration as .pa
National Waterway for which the following investment is proposed during 9th plan:-

		(Rs in Crores)
(i)	Hyd. Survey	1.00
(ii)	Dredging	10.00
(iii)	Navigational aids	1.00
(iv)	Terminals	2.00
	Total	14.00

Hence an outlay of Rs 14.00 crores is suggested in 9th plan towards the development of Brahamani-Mahanadi river system.

(18) Hydrographic survey on important waterways:-

In 8th plan proposal an outlay of Rs 3.00 crores was proposed for conducting hydrographic survey on river Mahanadi and other important waterways. However, no allocation was made. In Annual plan 1996-97 a provision of Rs 0.35 crores has been made for this scheme against which Hydrographic survey on Goa waterways is in progress. In 9th plan it is proposed to carryout hydrographic survey on some more waterways like, Sone, Yamuna, North Eastern rivers and Waterways on metropolitan cities. Outlay required for this purpose during 9th plan would be Rs 2.00 crores.

(19) Terminal maintenance for National Waterways:

For operation and maintenance of various terminals provided/ to be provided in 9th plan, provision of Rs 2.00 crores for each National Waterway is recommended as given below:

NW-1	2.00
NW-2	2.00
NW-3	2.00

(20) Acquisition of floating crafts & equipments

In 8th plan proposal an amount of Rs 116.50 crores was suggested for acquisition of dredgers & allied vessels, survey launches, special crafts for salvaging of damaged/sunken vessels, surface pollution cleaning vessels, vessel for laying bank protection materials, coastal-cum-inland vessels and survey equipments. However only Rs 0.20 crores was allocated during 8th plan and hence no achievement could be made in this regard. in 9th plan separate schemes are being proposed for acquisition of dredgers & allied vessels and survey launches/ equipments for different waterways.

20.1 Acquisition of dredgers & allied vessels for NW-1

i) NATIONAL WATERWAY NO-1

In order to improve & maintain the required navigable depths by way channel dredging on NW-1, the requirement of dredgers and its allied vessels has been assessed as below;-

Sl.No.	Item	Investment (Rs. in crores)
1.	Replacement of CSD Buxar	6.00
2.	One new cutter suction Dredger	6.00

3.	Two water Injection dredgers	8.00
4.	Work boat for two cutter suction Dredgers	1.00
5.	Tugs for two cutter suction Dredgers	3.00
6.	House boats for two cutter suction dredgers	2.00
		26.00

A sum of Rs. 26.00 crores is proposed for acquisition of dredgers & allied vessels during 9th five year plan for NW-1.

ii) NATIONAL WATERWAY NO-2.

Till now, the channel improvement and maintenance works on NW-2 used to be undertaken by means of bandalling alone. However, inorder to provide required navigable depth upto Sadiya for atleast 330 days it is necessary to undertake dredging works. The requirement of dredgers and its allied vessels for deployment on NW-2 has been assessed as follows;-

Sl.No.	Type of vessels	Investment (Rs. in crores)
1.	Two water injection dredgers	8.00
2.	One cutter suction dredger with work boat and one tug and house boat etc.	9.00
		17.00

Hence an outlay of Rs. 17.00 crores is suggested in 9th plan

iii) NATIONAL WATERWAY NO-3

The development of National Waterway No.3 for navigation requires capital as well as maintenance dredging. At present IWAI has to depend for dredging on Govt. of Kerala & other agency. Non availability of dredgers and restrictions on deployment due to prolonged monsoon have been a cause for delays in project implementation. Maintenance dredging in the declared portion of waterway and future need of capital dredging in the extension route would need additional dredging capability and a limited capacity is planned to be created departmentally while private sources would be used for the balance work. It is planned to procure two cutter suction dredgers and work boats for utilisation on National Waterway No. 3. as follows:-

	(Rs in crores)
(i) Acquisition of two cutter suction Dredgers	12.00
(ii) Acquisition of two work boats	2.00
	14.00

Hence an outlay of Rs 14.00 crores is suggested in the 9th plan.

20.2 Acquisition/replacement of survey vessels

i) NATIONAL WATERWAY NO-1

The hydrographic survey requirement in the river are enormous in view of the dynamic hydromorphological characteristics of the river . For conducting the hydrographic survey, a strong hydrographic set up with adequate survey launches is required. In this regard, it is proposed to replace the following four old survey launches during 9th five year plan.

Vessels	Replacement cost (Rs. in crores)
S.L.Panar	1.00
S.L.Periyar	1.00
S.L. Ghoghra	1.00
S.L.Survekshak	1.00
Total	4.00

Hence a sum of Rs. 4.00 crores is proposed during 9th five year plan towards the replacement of 4 nos of survey vessels.

ii) NATIONAL WATERWAY NO-2

Till now, there is no survey vessel of IWAI on NW-2. It is proposed to procure 4 nos of survey vessels for utilisation of hydrographic surveys activities as well as inspection purposes on National 'waterway No.2 For the procurement of 4 nos of survey vessels, an expenditure of Rs. 4.00 crores is anticipated.

iii) NATIONAL WATERWAY NO.3

At present IWAI is not having any survey launch of its own on NW-3 and the hydrographic survey is being conducted through hired launches. It is proposed to procure two survey vessels during 9th plan on NW-3. An expenditure of Rs 2.00 crores is anticipated for the same.

20.3 **Procurement of Tugs**

i) NATIONAL WATERWAY NO. 1

The variation of water level on NW-1 is very quick due to which the floating pontoons at various temporary terminal locations as well as at river stations may have to be shifted frequently with the horizontal shifting of water level. In addition assistance of harbour tugs is essential during high flood and heavy wind flow for safety of floating pontoons. In order to provide proper safety & security of floating pontoons, requirement of 4 nos of tugs has been assessed for which an expenditure of Rs. 4.00 crores is anticipated.

ii) NATIONAL WATERWAY NO. 2

Water level fluctuations on NW -II are similar to those of NW-1 and therefore tugs are necessary for NW-2 also to prevent grounding of floating jetties/river station and for their safety during high winds. The tugs will assist vessels in distress and will also be used for multipurpose utility such as, fire tender, rescue etc. which forms part of the statutory obligations of IWAI. Provision of 4 tugs @ Rs. 1.50 crores each to falling to Rs. 4.00 crores is therefore suggested for NW-2 during 9th five year plan.

iii) NATIONAL WATERWAY No.3

For assistance to the floating jetties on terminals on NW3 and for other works it is proposed to procure 3 tugs for which a provision of Rs 3.00 crores is recommended

20.4 **Procurement of Survey Instruments**

For conducting hydrographic survey, adequate survey equipments & instruments alongwith cartographic facility are essential requirement . In order to procure the survey equipments during 9th plan, waterway wise suggested allocation is as given below :-

i) NATIONAL WATERWAY NO.1 Rs.2.00 crores

ii) NATIONAL WATERWAY No.2. Rs. 2.00 crores

iii) NATIONAL WATERWAY NO.3 Rs. 2.00 crores

21) Capital repairs of floating crafts of IWAI

In 8th plan proposal an outlay of Rs 1.60 crores was proposed towards this scheme but no outlay was made in the 8th plan approved outlay. At present IWAI is having its own floating crafts for National Waterway No.1 only but in 9th plan it is proposed to procure different types of floating crafts for each waterway separately. Hence requirement for maintenance /repairs of these crafts are being proposed separately for each waterway.

21.1 Repair & Maintenance of Vessels on NW-1

In order to keep all the vessels in operation all the time, proper & timely repair & maintenance activities are required so that the river improvement/maintenance works may not be affected due to non functioning of vessels. For repair and maintenance of different dredgers, tugs, workboats, survey launches etc. an annual expenditure of Rs. 1.00 crores is anticipated. Hence an outlay of Rs. 5.00 crores is proposed in 9th plan for NW-1.

21.2 Repair and Maintenance of vessels for NW-2.

For execution of various river improvement & maintenance works on national waterways No.2, 4 survey vessels, 2 water injection dredgers, one cutter suction dredger alongwith work boat and 4 tugs are proposed to be procured during 9th plan. During 9th plan an expenditure of Rs 1.00 crore is anticipated towards repairs & maintenance of vessels for NW-2.

21.3 Repair & Maintenance of Vessels for National waterway No.3

During 9th plan, it is proposed to procure 2 survey launches, 2 nos. of cutter suction dredgers with work boats to facilitate the execution of various IWT developmental works.

During 9th plan, an expenditure of Rs 1.00 crore is anticipated towards repair & maintenance of vessels for NW-3.

22) IWT Development fund

A scheme for experimental -cum-promotional operation by private operator on NW-1 has been completed at a cost of Rs. 84.00 lakhs between Aug.,94 to Aug.,95. Another scheme at a cost of Rs. 5.00 crores to be operated for a period of 5 yeas by way of paying compensation @ 10paise per river tonne-km of the cargo moved for non-availability of infrastructural facilities is under execution since May, 93.

In addition to above schemes conducting seminars, advertisements campaign etc for IWT promotion and development are

planned . In the 9th five year plan an amount of Rs 50.00 Crores is suggested for IWT development fund

NEW SCHEMES

The various river improvement works are required to be performed in remote localities. The tough working condition need to be ameliorated by setting up of floating river stations so as to provide a better working condition and proper management. Hence it is suggested to set up[the floating river stations during the 9th plan on three National Waterways

23. **Setting up of floating river stations on NW-1**

For providing floating river stations at Tribeni, Katwa, Sahibganj/Manihari and Doriganj above locations of National Waterway No.1 an expenditure of Rs. 4.00 crores is anticipated and the same is proposed during 9th five year plan.

24 **Setting up of floating river stations on NW-2.**

For setting up of 3 floating river stations at Bahari, Vishwanath, and Madargari an expenditure of Rs. 4.00 crores is anticipated and the same is suggested in 9th plan.

25 **Slipways /drydocks alongwith marine workshop along NW-1**

At present the slipways /drydocks and marine workshop facilities are available at calcutta only to and hence it becomes more difficult , time taking and expensive to get such facility for vessels which are away from calcutta. In order to over come such problems, it is proposed to setup slipways/dry-docks facility alongwith marine workshop at the following locations along NW-1 with an anticipated expenditure of Rs. 5.00 crores.

i) Floating dry docks and slipway at Patna alongwith marine workshop

ii) Slipway at Varanasi alongwith marine workshop

Hence an outlay of Rs. 5.00 crores is suggested in 9th plan.

26 **Slipway / dry docks and marine workshop facility along NW-2.**

On national waterway No.2 as on today only one shore based workshop is available with CIWTC at Pandu which also requires improvements to machineries and equipments for effective utilisation .During 9th plan it is expected that IWT service on National Waterway No.2 will increase considerably resulting in deployment of more vessels . All the IWT vessels/ barges require docking repairs and maintenance facility. As such it is essential that repair facilities of IWT vessels are required to be created for

It is proposed to under take further study and required development works during 9th plan at an anticipated investment of Rs. 1.00 Crore.

Hence an outlay of Rs. 1.0 crores is suggested in the 9th plan

30 Development of Narmada

A pre-feasibility study was carried out in the year 1982 which justified navigation on rive Narmada from sea to Hosangabad (640 kms) after construction of 4 major dams viz Sardar Sarovar Dam, Maheshwer dam Omkareshwar dam and Narmada Sagar Dam. During 9th plan it is proposed to commence the IWT development projects in phases for which an investment of Rs. 5.00 crores is proposed.

The total expenditure required for IWT development on Naramada will be more which will be proposed in 10th plan. An outlay of Rs. 5.00 crores is suggested in the 9th plan.

31. Development of East Coast Canal along with Brahamani & Mahanadi delta

The East Coast Canal comprises the canal section & river section. The canal section is the combination of the old Hijli tidal canal and the orissa coast canal, together called the East Coast Canal. The east coast canal connects Calcutta/Haldia and Paradip port through Hooghly river and Matai river. The canal was in use for navigational purpose till the introduction of road and rail transport system in the eastern coastal region of India . But due to lack of proper maintenance & negligence the canal got silted up at many places.IWAI have undertaken a study for integrated development of East Coast Canal along with Brahamani, Mahanadi delta system including waterway link to Dhamara. The report of the study is being finalised.It is

proposed to undertake the initial development works during 9th plan as per the following anticipated expenditure:

		(Rs in Crores)
i.	Waterway development	15.00
ii.	Terminal facilities	4.00
iii.	Navigational aids & patrol services	1.00
		20.00

Hence an outlay of Rs. 20.00crores is suggested in 9th plan.

32 **Development of canal system connecting Kakinada & Madras including South Buckingham Canal and Cooum river:-**

The integrated canal waterway viz Bukinghan Canal (Madaras to Pedaganjain lock - 316 kms) Commamur Canal (Pedaganjam to Vijaywada -113 kms) Eluru Canal (Vijaywada to Dowleswaram-139 km) and Kakinada Canal (Dowelswarum to Kakinada - 50 kms) provides uninterrupted navigational link between Madras and Kakinada ports interlinking of the two major rivers Godavari and Krishna . The Buckingham canal is a tidal canal with sea confluences at many places, whereas the the other canals are irrigation cum navigation canals. Till 1975 there had been an active navigation on this waterway but due to advent of roads and railways the inland water transport on this canal lost its existence gradually. IWAI have undertaken a techno/economic feasibility study through M/S RITES during 1994-95 to asses the viability for the development of IWT Accordingly it is planned to undertake various development works during 9th plan to re-introduce IWT service on this canal system. The estimated cost of developmental works to be executed for IWT development will be more. However an amount of Rs 20.00 Crores is proposed during 9th plan and further developmental expenditures would be included in 10 th plan. The break up of proposed investment during 9th plan is as follows:

i)	Waterway	15.00
ii)	Terminal	3.00
iii)	Navigational aids	2.00
		20.00

Hence an outlay of Rs. 20.00 crores is suggested in 9th plan

33. Development of Barak

The river Barak plays an important role for transportation of goods in the states of Manipur, Mizoram and Assam particularly during flood season when road transport is badly disrupted due to land slide. But the movement is only for a period of 7 months from May to November due to less water depth during the lean season. Presently CIWTC vessels are operating on this waterway through Kushiyara branch (Through Bangladesh)-Barak river upto Karimganj from Calcutta under protocol arrangement for trade & transit with Bangladesh. They are handling about 30,000 T of cargo (upwards & down wards) The waterway distance between silchar/ Karimganj and Calcutta via Bangladesh is 1218kms whereas the corresponding road distance is 1572 kms.

In the year 1991-92 , IWAI had carried out a detailed hydrographic survey on this waterway from Karimganj to Lakhipur via Badarpur and Silchar (149 kms). As per policy/strategy document of IWAI, the river Barak is proposed to be declared as National Waterway during 9th plan. In this regard, a techno - economic feasibility study is being taken by IWAI. During 9th plan an investment of Rs 2.00 crores is proposed for initiating the development works on river Barak after its declaration as National Waterway. The expenditure will be morefor full development. Further investment on IWT development of Barak will be proposed in 10th plan.

Hence an outlay of Rs. 2.00 crore is suggested in 9th plan.

34. Development of Bangladesh protocol route

A protocol on Inland Water Transit and Trade between India and Bangladesh has been in operation since 1972. The protocol provides for transit facilities through waterways of Bangladesh between Calcutta and Assam. The protocol is being renewed from time to time and the present arrangement is valid for the period from 4.10.95 to 3.11.97.

Under this protocol, the inland vessels of both countries can ply on the following routes in both directions :-

i. Calcutta-Raimongal-Chalna-Khulma-Mungla-Kaukhali-Barisal-Nandibazar-Chandpur-Aricha-Sirajganj-Bahadruabad-Chilmaro-Dhubri

ii. Calcutta-Raimongal-Mongla-Kauchali-Barisal-Nandubazar-Chandpur-Narayanganj-Bhairab bazar- Ajmiriganj-Markuli-Sherpur-Fencjhuganj-Zakiganj-Karimganj

iii Rajshahi-Godagari-Dhulian

iv Bhairab Bazar-Mitamain-Itna-Lalpur-Sunamganj-Chhatak

The route between Sirajganj and Daikhawa in the Northern Delta section of the Kushiyara river, Jamuna - Brahmaputra and the route between Sherpur and Zakiganj in the North Eastern Delta Section of the Kushiyara river recognised as routes being maintained primarily for the use of Indian Transit Traffic and for the maintenance of the services on this routes India has agreed to pay Bangladesh Govt.in Convertible currency. The Bangladesh Govt. is maintaining the Sherpur-Zakiganj stretch for a draft of not less than 5 feet for atleast six months in a year. Hence with operation of IWT services for only 6 months in Calcutta-Karimganj route, the Transport needs of N.E. region could not be fully met with Kusiara - Barak river services as the gateway for distribution of essential commodities to the states of Mizoram, Manipur, Tripura and districts of Cachar, Hailakandi-Karimganj in Assam.

During 9th plan it is proposed to provide various improved facilities including the night navigation facility on the portion of waterway falling under Indian territory to meet the cargo demand of N.E region and also to improve economics of IWT which could not be achieved by isolating the IWT development of protocol route. During 9th plan an investment of Rs. 5.00 crores is proposed for the development of protocol routes. Hence an outlay of Rs. 5.00 crores is suggested in 9th plan.

35. **Extension of National waterway no.3 in Kollam- Kovalam sector :-**

The Techno-economic feasibility study conducted by IWAI through RITES during 1990-91 had indicated the IWT developmental cost of Kollam-Kovalam sector as Rs. 415.00 crores and recommended the project unviable. Subsequent upon declaration of Kottapuram - Kollam stretch of West Coast Canal a review study was commissioned during 1993-94 by M/S RITES and the capital cost of development was estimated as Rs. 268.60 crores and the project was recommended again unviable. The report of M/S RITES was forwarded to M/S NATPAC during Nov.95 for obtaining their opinion with regards to technical feasibility & cost of development. M/S NATPAC after examining the report informed during Dec.95 that the project cost may further be reduced to about Rs. 150.00 crores. Hence a further review study is being taken up through M/S NATPAC for the stretch Kollam-Kovalam. The Govt. of Kerala has stressed the need for extension of NW-3 in Kollam-Kovalam stretch during 9th Plan. For development of Kollam-Kovalam stretch of WCC during 9th plan an investment of Rs 20.00 crores is proposed as detailed below:

i.	Land acquisition	9.00
ii	Dredging /excavation	5.00
iii	Terminals	2.00

iv.	vessels	2.00
v	Bank protection modification of tunnels and aids to navigation	2.00
		20.00

Hence an outlay of Rs. 20.00 crores is suggested in the 9th plan.

36. Acquisition of Patrol Boats

In order to facilitate smooth sailing of vessels, the information regarding channel condition is to be monitored closely by the field offices for planning and coordination of the work and also to transmit the informations to various operators. In this regard it is proposed to procure patrol boats for each of the National Waterways. The Dutch experts who had undertaken the study of Inland Waterways in India had recommended one patrol boat for every 100 kms. The following investment is proposed for procuring the patrol boats.

		Nos.	(Rs.in Crores)
a)	National Waterway No.I (1620 kms.)	16	4.00
b)	National Waterway No II (891 kms.)	9	3.00
c)	National Waterway No.III (205 kms.)	3	1.00
			8.00

Hence an outlay of Rs.8.00 crores is proposed in the 9th Plan.

37. Setting up of Check Post on International IWT route .

In accordance with the protocol on Inland Water Transport and Trade between India and Bangladesh, the three check posts were to be set up at Namkhana, Dhubri and Karimganj for strict compliance of protocol agreement. However these check posts have not been set up. During 9th Plan it is proposed to set up these three check posts for which an expenditure of Rs. 5.00 crores is estimated. Hence an outlay of Rs. 5.00 crores is suggested in the 9th Plan.

38. Second Navigational lock at Farakka

In the National Waterway No. 1 Hooghly-Bhagirathi-river system a navigation lock exists at Farakka. This lock has dimensions of 149.35 m usable length and 25.15 m width, facilitating movement of vessels upto 2 m draft. The present chamber if used

to full capacity has a traffic capacity of 40 million tons per year The capacity of national waterway without the lock in the open river system by using 1000 tons vessels and inter distance of 1000 metres can be of the order of 190 million tons. However, the present capacity of the waterway is defined by the capacity of the navigational lock which is 40 million tons.

The water level above the barrage and below the barrage has a difference of about 5.0m. The navigation lock is provided to facilitate movement of the vessels from one side to the other with difference in water level. In other words, without the lock, vessels cannot cross the barrage.

When one of the basic requirement of the IWT service is reliability i.e. availability of the services without any interruption with a single chamber at Farakka any mechanical defect to the gate structure will make the lock non operational and navigation will be suspended. Such a situation will continue till such time lock is repaired. It is in this regard that a second lock chamber becomes essential whenever un-interrupted navigation is to be provided. This becomes crucial in case of Ganga where products like crude oil, petroleum products etc. are to be moved and the delivery schedules are strictly monitored. Though the original Farakka Barrage project had provision for a second lock chamber but this has not been constructed. The present proposal is to provide the second chamber which is an essential component of navigation across the barrage. A sum of Rs. 30.00 crores is provided for this project.

39. Pollution Control and Environmental Management Plan for National Waterways:

For the sustainable development of waterways the impact of waterway development on the environment has to be assessed and suitable components for environment management incorporated in the development strategy. For this purpose environment impact assessment studies are called for. With the growing emphasis on preservation of the environment, various agencies have been created by the Goverment to monitor the impact of development project on environment. In many cases clearance of the project on environment angle becomes a pre-requisite for sanctioning of the scheme, such as infrastructural projects like terminals and for specific cargo like oil, hazardous cargo etc. In order to facilitate extensive EMI studies and to provide components for environment management plan a total provision of Rs. 3 crores have been made for the three declared National Waterways.

40. Technical Consultancy Services:

The IWAI is a multi-disciplinary organisation. The waterway development works would need careful planning.With the advancement in the IWT infrastructure, planning and expertise in the field of state of art techniques in terms of facilities, specialised vessels etc., would become necessary for the effective implementation of the Schemes. Such technical services would

be from the resources/expertise available within the country as well as the expertise from the countries in the regions where IWT has been systematically developed like China, USA etc. Of late, even the UN agency like ESCAP has provision for providing technical expertise on various activities for which a partial recovery is made from the receipiant countries. The provision made under this is to facilitate such services for the efficient functioning of the organisation during the 9th Five Year Plan. Provision made is Rs. 2 crores for this scheme.

41. Provision for Plan Schemes for Farakka Barrage Project during 9th Plan.

A proposal has been received from Farakka Barrage project for schemes costing Rs 142 crores during 9th plan under the head, 5075-plan.

The expenditure on account of Farakka Barrage is met from MOST budget. So far the schemes related to Farakka Barrage have not been covered under the IWT proposals. For 9th plan it is recommended that the same may be included under the Head IWT sector in the MOST budget.

		(Rs in Crores)
a)	New Schemes	
	i) Protection Works Canal	26.00
	ii) Protection Works Barrage and River training works	46.36
b)	Proposed Schemes (under preparation)	
	iii) Down stream river bank protection and down stream river training works	25.00
	iv) Flood damage works(1995)	5.00
	v) Stock of materials for Barrage protection works (stone boulders and G.R. wire)	3.50
	vi) Jangipur lock (navigation from Bhagirathi to Padma)	24.00
	vii) Special T & P repairs and procurement	10.00
	viii) Special repairs to lock	1.00

ix)	Survey & model study	0.50
x)	Dredging works (lock channel	0.50
	Total	Rs 141.86
		say 142.00

Therefore a provision of Rs 142.00 crores is recommended for Farakka Barrage project schemes for 9th plan.

III R & D SCHEMES

8TH PLAN SCHEMES TO CONTINUE IN 9TH PLAN

1) Prototype study of ferro cement boat

This scheme is an ongoing scheme of 7th plan. In 8th plan proposal, an amount of Rs 0.12 crore was suggested for the scheme. The scheme was taken up for implementation in two phases.

The Phase I, 'Design & Feasibility study' was completed in Feb'85. The Phase II, i.e construction and prototype study could not be commenced.

Suitability of alternative building materials in vogue at present will be ascertained and fresh study of catamaran for passenger traffic will be undertaken during the 9th Five Year Plan for which an expenditure of Rs 0.10 crore is recommended.

(2) R & D for Remote Sensing/ Image processing for hydromorphological studies

Input required to make applicable the remote sensing technique for measuring the depths in a quicker way through aerial survey, particularly at the time of receding of floods was carried out in 6th plan.

In 8th plan proposal it was suggested to continue this R & D work. However considering the technological improvements, R & D work on image processing for hydromorphological studies is being processed.

The objective of the study is to study morphological system of rivers, to identify the potential of rivers for IWT. The anticipated expenditure for this work is Rs 0.20 crore.

(3) Study on cost effectiveness of IWT/fuel Efficiency in IWT:

In 8th plan it was proposed to undertake study on cost effectivenes of IWT on different identified waterways. This R & D was not included in the approved outlay of 8th plan. However, a study on cost effectiveness of IWT on Ganga was undertaken through NCAER at a cost of Rs 16.50 lakhs under technical Study and the final report has been received. In 9th plan it is

proposed to undertake such studies on other waterways also under R & D schemes for which an outlay of Rs 0.20 crores is suggested in 9th plan.

(4) Design of Standard vessel and performance prediction for West Coast Canal:-

In approved allocation of Rs 1.00 crores for R & D scheme in 8th plan, this scheme was included for implementation during 8th plan.

The study for design of standard vessel and performance prediction on West Coast Canal is in progress through I.I.T. Madras at an estimated cost of Rs 6.75 lakhs. Till March'96 an amount of Rs 1.80 lakhs has been spent and further an amount of Rs 1.00 lakh is anticipated during 1996-97. An amount of Rs 5.00 lakhs is suggested in 9th plan.

(5) Design of low cost & Shallow Draft Vessel

This scheme was included for implementation during 8th plan.

R & D work for design of low cost and shallow draft vessel suitable for operation on National waterways No. 1 & 2 is under process and expected to commence during 1996-97. The anticipated cost for this R & D work during 9th plan is Rs 0.20 crores.

NEW SCHEMES

(6) Study for improvement of river crafts

In 8th plan proposal R & D scheme for undertaking study for improvement of river crafts including special method of populsion and steering in restricted channels was proposed. This scheme was proposed to be implemented through CIWTC Ltd & CWPRS, Pune. However, in final allocation of 8th plan outlay, this scheme was not included for implementation. This R & D is proposed to be executed during 9th plan at an anticipated cost of Rs 0.20 crores.

(7) Study of Surface Bandalling

In 8th plan R & D work was proposed for study of surface bandalling. But in final approved outlay this scheme was not included. To improve upon the old technique of bandalling so that channel improvements could be achieved in shortest possible time R & D work is proposed. The anticipated expenditure for undertaking this R & D work is Rs 0.10 crores.

(8) R & D Cell

In 8th plan proposal, it was suggested to set up an R & D Cell in IWAI, for effective Co-ordination and for projecting and getting new research projects completed. However, in final allocation of 8th plan approved outlay this proposal was not

included. Due to lack of proper R & D Cell in IWAI, no significant achievement could be made during the 8th plan. Considering the need for R & D in the field of IWT, Govt. of India has sanctioned the construction of R & D cum office complex of IWAI at NOIDA. The construction of complex is expected to be completed during 1996-97. It is also proposed to procure equipments for image processing & cartography for R & D cell during 9th plan. The anticipated expenditure in 9th plan is Rs 1.00 crore.

(9) R &D for mechanisation of Country Crafts

The country crafts play an important role in transportation of passenger & goods in various waterways throughout the country. A further improvement by mechanising the country crafts, may boost up the inland water transport. R & D study is proposed to be undertaken during 9th plan for mechanisation of country crafts at an anticipated expenditure of Rs 0.20 crore.

(10) R & D for navigational aids on Waterways

The provision of navigational aids in order to facilitate 24 hrs navigation to reduce the turn round time of vessels, is the most important factor for improving the economics of IWT. Considering the frequent shifting nature of rivers, the most suitable technique required to be developed for provision of navigational aids on various waterways is to be identified. R & D work for navigational aids is planned during 9th plan on different waterways at an anticipated expenditure of Rs 0.20 crore.

(11) R & D on Farakka Barrage implication on navigation due to adverse impact on river morphology upstream

Due to construction of Farakka barrage a lot of changes have occurred in river morphology in upstream reaches which have adversely affected the navigation. An R & D work is proposed to study the implication of Farakka Barrage on navigation during 9th plan at an anticipated cost of Rs 0.10 crore.

(12) R & D for Multi Hull design Vessels for rapid passenger movement

An R & D work is proposed during 9th plan for design of multi hull vessels for fast movement of passenger crafts. An expenditure of Rs 0.10 crores is anticipated for the scheme.

(13) R & D for wind propulsion combining with mechanical propulsion

In the field of IWT, the wind energy is utilised in a better way by country crafts for navigation. However, if a suitable technique is developed for propulsion of crafts on combination of wind as well as mechanical energy, the IWT will become more

economical. Hence considering the need for R & D in this regard, an R & D scheme is proposed to be implemented during 9th plan at an anticipated cost of Rs 0.20 crore.

(14) R & D for Design of Low Wash Hull forms

The stability of river/canal banks are badly affected due to wave generated by moving crafts which requires a lot of investment in bank protection measures. Hence there is a need to develop techniques to reduce the water spray during vessel movement. Hence an R & D work for design of low wash hull forms is proposed during 9th plan at an anticipated cost of Rs 0.15 crores.

IV) CENTRALLY SPONSORED SCHEMES
8TH PLAN SCHEMES TO CONTINUE IN 9TH PLAN.

1) Hydrographic survey and Techno-economic studies on river Gandak and Kosi in Bihar:.

In 8th plan proposal an outlay of Rs. 0.15 crores was suggested for this scheme but no provision was made. However, provision of Rs. 0.01 crore was made in annual budget of 1994-95. During 8th plan an expenditure of Rs. 0.02 crores has been incurred till 95-96.

The scheme for hydrographic survey on river Gandak and Kosi was sanctioned at a cost of Rs. 47.076 lakhs out of which the central share was limited to Rs. 20.00 lakhs. The hydrographic survey in river Gandak was completed, while hydrographic survey on river Kosi is yet to commence. So far, a total expenditure of Rs. 16.70 lakhs has been incurred by the state Govt. against which a central share of Rs. 7.00 lakhs have been released to state Govt. The balance central share of Rs. 13.00 lakhs is to be spilled over to 9th plan.

The state Govt. had submitted a proposal for undertaking a techno-economic feasibility study on river Gandak and Kosi at a cost of Rs. 16.12 lakhs for inclusion in 8th plan proposal. Now this study is anticipated to cost Rs. 30.00 lakhs against which the central share under 50% assistance would be Rs. 15.00 lakhs. This techno-economic feasibility study is proposed during 9th plan.

Hence an outlay of Rs. 0.30 crores is suggested for the scheme in 9th plan.

2) Capital dredging of rivers Mandovi, Zuari and Mapusa in Goa.

In 8th plan proposal an outlay of Rs. 0.50 crore was suggested against which an outlay of Rs. 0.55 crore was made for this scheme.

The scheme for deepening the fairway in three rivers was sanctioned in Oct.'85 at a cost of Rs. 159.66 lakhs.

The dredging work in Mandovi has been completed at a cost of Rs. 0.89 crores whereas the dredging work in zuari is in progress at an estimated cost of Rs. 1.14 crores. Hence total cost of scheme now comes to Rs. 2.03 crores. So far central share of Rs. 0.45 crores has been released and out of balance central share of Rs. 0.57 crores, an amount of Rs. 0.37 crores is proposed to be released from existing provision of Rs. 0.75 crores in Annual plan 1996-97.Further, it is expected that some more quantity would be required to be dredged. Hence, the total requirement of central share in 9th plan is anticipated as Rs 0.70 crores. Hence, an outlay of Rs. 0.70 crores is suggested in 9th plan for making payment of balance central share.

3. Construction of 5 terminals across river Hooghly:

In 8th plan an amount of Rs. 1.13 crores was allocated and Rs. 0.53 crore has been released as central share to state Govt., so far.

The scheme for construction of 5 terminals across river Hooghly was sanctioned during Nov.,91 at a cost of Rs. 2.25 crores against which the central Govt. commitment is Rs. 1.125 crores. The work which has been delayed and now expected to be completed by Dec, 96. The Govt. of West Bengal have submitted a revised proposal for Rs. 4.07 crores against which the central share would be Rs. 2.04 crores. An outlay of Rs. 1.50 crores is suggested in 9th plan to disburse the balance central share.

4. Modernisation of jetties in Kerala:

In 8th plan proposal an amount of Rs. 4.00 crores was proposed towards modernisation of 225 jetties against which an amount of Rs. 3.00 crores was allocated for modernisation of 55 jetties. Till 1995-96 an amount of Rs. 0.33 crores has been released. The scheme sanctioned was for 55 jetties at a cost of Rs. 1.364 crores. Govt. of Kerala have taken up modernisation work for 434 jetties out of which work on 264 jetties has been completed. The work for remaining 170 jetties is in progress which would be spilled over to 9thplan. An expenditure of Rs. 10.00 crores is anticipated as central share during 9th plan.

NEW SCHEMES

100 % ASSISTANCE

5. Development of inland waterways in Thane creek, Ulhas river Bassin creek & Dharamtar creek.

Realising the potential of inland water transport in an around Mumbai, it is proposed to include IWT development on following routes in 9th plan.

i) Development of inland waterways in Bassin creek along with 3 terminals(Bhayandar railway bridge in the western railway to Kasheli bridge near Thane).

ii) Development of inland waterways in Ulhas river (Kasheli bridge in Thane to Kalyan) and construction of 3 terminals.

iii) Development of inland waterways in Thane creek(Vashi bridge linking Mumbai to New Mumbai to Kasheli bridge) and construction of 3 terminals.

iv) Development of inland waterways in Dharamtar creek(Revas jetty to Nagothane in Raigad District) and construction of 5 terminals.

v) Construction of a passenger water transport terminal in south Mumbai near Gateway of India.

The projected financial requirement for the development of inland waterways is estimated to be Rs. 472.00 crores which includes expenditures relating to technicaL studies, dredging, construction of cargo & passenger terminals, cargo handling facilities etc. However as proposed by the state Govt., before commencing the works a technical study is proposed. The real developmental works may take some time. Hence an outlay of Rs 100.00 crores is proposed in the 9th plan and further works would be proposed in 10th plan.

6. Development of Kosi and Gandak rivers in Bihar:

The rivers kosi and Gandak which join national waterway No.1 at Patna and d/s Kahalgaon respectively, may be included for development for inland navigation during 9th plan . Due to IWT development in these waterways the north Bihar will become accessible for delivery of industrial raw materials like coal, various types of ores from south Bihar and crude oil from Haldia Port. Besides, the movement of food grains from north Bihar to south bihar will be greatly facilitated. The development of Kosi will provide IWT link to land locked country of Nepal. The Kosi and Gandak waterways will serve as feeder routes for national waterway No.1. In ninth plan it is proposed to undertake IWT development on these waterways . The various investment proposed during 9th plan for Kosi and Gandak waterways are as follows;

(Rs. in crores)

	KOSI		GANDAK		
i) Fairway development	2.00	+	2.00	=	4.00
ii) Terminal facility	1.50	+	1.50	=	3.00
iii) Navigational aids	0.50	+	0.50	=	1.00
iv) Fleet development	1.00	+	1.00	=	1.00
Total	5.00	+	5.00	=	10.00

Hence an outlay of Rs. 10 crores is suggested in 9th plan.

7. Development of Mizoram and NE rivers:

The Kolodyne river and Karnaphuli river provide IWT link between Calcutta & Mizoram through Bay of Bengal. In order to develop the Kolodyne river for IWT, the Govt. of Mizoram is undertaking a techno-economic study through M/S RITES. The IWT development on this river is proposed to be undertaken during 9th plan under 100% assistance Centrally Sponsored Scheme. The investment proposed during 9th plan is as follows;

		(Rs. incrores)
i)	Waterway development	5.00
ii)	Terminal facility	3.0
iii)	Navigation aids	1.00
iv)	Fleet development	1.00
	Total	10.00

Hence an expenditure of Rs. 10.00 crores is suggested in 9th plan.

8. Development of river Ghagra for IWT(UP):

During 8th plan Rs. 66.00 lakhs were allocated to Govt., of UP for undertaking hydrographic survey as well as techno-economic feasibility study on river Ghagra.

The hydrographic survey in the stretch Manjhighat--Faizabad (300 kms) was completed in 1991 at a cost of Rs. 9.15 lakhs. Techno-economic traffic study has also been carried out during 1995-96 at a cost of Rs. 6.00 lakhs and interim report has been received by the Govt. of UP.

The investment proposed for development, of IWT on river Ghagra under 100% assistance of centrally sponsored scheme during ninth plan is as follows;

		(Rs. in cores)
i)	Fairway development	5.00
ii)	Terminal facility	3.00
iii)	Navigational aids	1.00
iv)	Fleet development	1.00
	Total	10.00

Hence an outlay of Rs. 10.00 crores is suggested in 9th plan,

9. Development of feeder routes in Kerala, W.B., Orissa,U.P.,Bihar,Assam.

Various tributories to the main rivers / national waterways of the country also have potential for development of IWT. If these tributories are developed for IWT and infrastructural facilities provided, they will form a viable network of IWT system wherein hinterland will be connected with main waterways. Several rivers joining the Ganga (NW-1), and the Brahmaputra (NW-2) as well as canals/rivers joining West Coast Canal (NW-3) in the states of Bihar, U.P., West Bengal, Assam and Kerala and some rivers in Orissa have such potential. Therefore provision of Rs. 10.00 crores for development of feeder routes in each of these states has been proposed for 9th plan.

10. Jetties, Terminals, LCT & Passenger vessels, dredgres and Training Institute in West Bengal.

For provision of schemes for providing/upgrading facilities for Jetties, terminal, LCT and passenger vessels, Dredgers and Training institute in West Bengal, the state govt. forwarded a proposal of Rs. 26.34 Crores with the request that 25% of it should be as subsidy and 75% under CSS. Hence 75% of Rs. 26.34 Crores i.e. Rs. 20.00 Crores have been recommended for 9th plan for these facilities of state govt. of West Bengal under CSS.

50% ASSISTANCE

11. Development of IWT in UP.

Uttar Pradesh is endowed with many rivers. The Inland water transport department of UP has therefore made an elaborate plan for the use of river waters for transportation of goods and passengers and intends to implement the following schemes at an estimated expenditure of Rs. 1.20 crores for strenghtening of IWT machinery in the state.

		(Rs. in crores)
i)	Studies & R & D	0.24
ii)	Publicity & awareness in 50 district	0.50
iii)	Training & human resources development	0.25
iv)	organisation of development plan	0.21
	Total	1.20

Hence an outlay of Rs. 0.60 crores is suggested in 9th plan towards central share.

12. Construction of new jetties with terminal facilities in west Bengal.

In 9th plan the following jetties at an estimated cost of Rs. 16.82 crores are proposed at different locations, by the state govt.

		Estimated cost (Rs.in crores)	
1.	Haldia - 1 pair	1.42	
2.	Geokhali	1.42	
3.	Noorpur	1.42	
4.	Roychawk	1.42	
5.	Kukurahati	1.42	
6.	Lot No.8	2.02	
7.	Kachuberia	2.02	
8.	Diamond Harbour	1.42	
9.	Budge Budge	1.42	
10.	Bauria	1.42	
11.	Mausumi	1.42	
	Total	16.82	say Rs.16.80 crores

The central Govt. commitment would be Rs. 8.40 crores Hence an outlay of Rs. 8.40 crores is suggested in 9th plan.

13. Construction of vessels in West Bengal:

During 9th plan construction of vessels as per following details are proposed to be taken up by Govt. of West Bengal;

		(Rs. in crores)
1.	Construction of 4(four) nos of passenger vessels at a cost of 0.65 crores each	2.60
2.	Construction of two nos of LCT vessels at the cost of Rs. 0.75 crores each	1.50
3.	Construction of two nos of dredgers at a cost of Rs. 0.50 crores each	1.00
	Total	5.10
		say 5.00

Against the total estimated expenditure of Rs. 5.00 crores, central share would be Rs. 2.50 cores . Hence an outlay of Rs. 2.50 crores is suggested in 9thplan.

14. Development of Kottapuram-Badagara section of WCC

A techno-economic feasibility study for IWT development on West Coast Canal in the stretch Kovalam- Kasargod was undertaken by IWAI through M/S RITES. The stretch Kollam Kottapuram has been declared as national waterway whereas the extension of national waterway No.3 in the Kollam- Kovalam stretch for the IWT development is proposed during 9th plan. The extension of national waterway No.3 in Kottapuram Kasargod stretch is proposed during 10 th plan. However in order to facilitate navigation at least in Kottapuram -Badagara stretch of West Coast Canal, IWT developmental works are proposed to be taken on reduced standard than National Waterways standard under Centrally Sponsored Scheme. The proposed investment during 9th plan is Rs. 20.00 crores.against which the central Govt. commitment would be Rs. 10.00 crores. Hence an outlay of Rs. 10.00 crores is suggested in the 9th plan.

V. CAPITAL SUBSIDY SCHEMES

1. Subsidy to Govt of Kerala for purchase of Dredgers.

Considering the need for disiltation of waterways , many dredgers are required . At present Govt of Kerala have 7 dredgers most of which are more than 50 years old Govt. of Kerala proposes to purchase 15 dredgers during 9th plan for which 50% subsidy on capital investment has been requested . The anticipated amount of capital subsidy is Rs. 20.00 crores. Hence an outlay of 20 crores is suggested in 9th plan.

2. Other subsidy schemes of Govt. of Kerala .

The Govt. of Kerala intends to invest in fleet upgradation, establishment of repair facilities and construction of dumps near jetties. Further, 50% subsidy on modernisation of navigational equipments and conducting Research & Development activities by the state Govt. is suggested.

In respect of above schemes a provision of Rs. 20.00 crores is suggested as commitment of Govt. of India.

3. Jetties, Terminal, LCT and Passenger vessels, dredgers and Training Institute in West Bengal :

Govt. of West Bengal has proposed an expenditure of Rs. 26.34 Crores for 9th plan for these works and requested for 25% subsidy for the same. Accordingly 25% of Rs. 26.34 Crores i.e. Rs. 6.60 Crores (say Rs. 7.00 crores) are proposed under this head as Capital Subsidy by Govt. of India for these West Bengal schemes.

4. Ship building subsidy for IWT Ship building industry :

During 9th plan a shift 20 btkm of inland cargo to

wards IWT sector is anticipated .In order to transport this cargo through IWT, it is estimated that 1200 new inland vessels will have to be built . Considering 1000 vessels to be built by the ship building industry a net investment of Rs.2000 crores will be required at an average manufacturig cost of Rs. 2.00 crores per vessel. It is proposed that a capital subsidy @ 30% would be provided to shipbuilding industry, the net requirement of shipbuilding subsidy would be amounting to Rs. 600.00 crores. Hence an outlay of Rs. 600.00 crores is proposed in the 9th Plan.

VI. STATE SECTOR :

Proposals for Centrally Sponsored Schemes have been received from the State Govt. Kerala, West Bengal, Maharastra, Uttar Pradesh and Bihar. The Kerala Govt. proposals include Rs.915.90 crores for Central Schemes. These schemes are for completion of work in N.W 3 (Rs.155 crores) extension of NW 3 upto Kovalam (Rs. 800 crores) and Hydrographic and Techno Economic Studies (0.9 crores). CSS proposals include modernisation of jetties, assistance for purchase of dredgers, establishment of training institute and other subsidy schemes for which Central Govt. contribution of Rs. 53 crores has been asked for. With State Govt. provision of Rs. 14 crores and anticipated private investment of Rs.77 crores. In addition, schemes for provision of foot bridges, bank protection repair, development of feeder route at a cost of Rs. 6.00 crores with State Govt. investment has also been proposed.

Provision under IWAI scheme has been made for completion of work of NW-3 and extension of NW-3 to Kovalam. For Kollam -Kovalam stretch of NW 3 Rs. 20.00 crores have been provided during the 9th plan and the balance work will spill over to 10th plan.

Under the category of 100% supported Centrally Sponsored Schemes a sum of Rs. 10 crores has been provided for the development of feeder routes. Under 50% CSS a sum of Rs. 10 crores have been provided for extension of NW-3 in Kottapuram-Badagara stretch. Provision of Training institutes have been covered under IWAI schemes.With regard to other subsidies, and assistance for purchase of dredger Rs. 40 crores have been provided under the head CAPITAL SUBSIDY

The details of other schemes as furnished by state Govt.are as follows;

(Rs. in cores)

a.	Foot bridges across minor canals	
b.	Protective wall for minor canals	-- 6.00
c.	Deepening of minor canals	
d.	Repair of jetties on minor canals	

West Bengal

The Govt. of West Bengal has submitted a proposal for

construction of jetties /terminals at a cost of Rs. 18.24 crores. They have also proposed construction of passenger vessels, L.C.T and dredgers at total cost of Rs. 5.1 crores. They have also asked per assistance for setting up of training institute at a cost of Rs. 3.00 crores.

The Govt. of West Bengal has asked for a change in the funding pattern of CSS with 75% loan and 25% subsidy. A sum of Rs. 20.00 crores has been included in CSS (loan) and a sum of Rs. 7.00 crores as subsidy.

Maharastra

Govt. of Maharastra has proposed development of Inland Waterways in the State with full financial resources from the Centre amounting to Rs.472 crores. Total central Govt. support has been provided for new waterways which are to be declared as National Waterways. Since no proposal has been received from State Govt. for declaration of their waterways as National Waterway the provision has now been incorporated under 100% CSS Loan Schemes. Provision made during 9th plan is limited to Rs.100 crores which can be extended to the 10th plan period based on the progress.

Uttar Pradesh.

The Govt. of U P have requested for development of Ghagra as feeder route and setting up of training institute in U.P The development of Ghagra as feeder route has been included with Rs. 10 crores provision under 100% CSS, and training institute under IWAI Scheme.

Bihar.

The State Govt. of Bihar has requested for completion of Hydrographic surveys on River Kosi and Gandak, development of Kosi as feeder route , provision of rail/road links to terminal sites, establishment of marine workshop at Mokama, setting up of a port city on diara land near Patna, establishment of longitudinal ferry service between Patna, Bhagalpur, Munger, etc., construction of terminal at Patna and setting up of Training Institutes at Patna . Out of these , training institute, workshop facility, terminal at Patna have been covered under IWAI schemes, devolopment of feeder routes like Kosi, Gandak under 100% CSS and Hydrographic survey under 50% CSS.

Assam.

No specific proposal has been received from the govt. of Assam. However a provision of Rs. 10.00 crores has been kept under 100% CSS for the development of feeder routes of Brahmaputra (NW2) during 9th plan

The proposals under 100% CSS with 100% loan facility from central govt. have been included. However, confirmation of acceptance of these schemes from state govt. and for budget provision by the state has not been obtained. In view of the need to develop IWT, the state government should be urged to make necessary budget provision in its state budget. Suitable recommendation for enhancing the State Govt. provision should be made to the Finance Commission.

The statement showing schemewise provision for 9th Plan including 8th Plan outlays and expenditure for spillover schemes and proposed outlays of 9th Plan is given in Table I.

TABLE-I

SUMMARY OF SCHEMES PROPOSED FOR 9TH FIVE YEAR PLAN

Sr. No	Name of the Scheme/ Project/Programme	Proposed Outlay for 9th plan (Rs. in crores)	Basis
I	CIWTC SCHEMES		
	8TH PLAN SCHEMES RECCOMMENDED FOR 9TH PLAN		
1	Acquisition of vessels under 7th plan scheme	5.00	
2	Modernisation of Rajabagan Dockyard	90.00	
3	8Th Plan Vessel Acquisition Scheme	4.00	
4	Capital repairs of CIWTC 's vessels	15.00	
	Sub Total A	114.00	
	NEW SCHEMES		
5	Replacement of overaged vessels	30.00	
6	Capital repairs of river terminals	6.00	
7	Augmentation of cargo transportation capacity with new vessels	95.00	
8	Modernisation of handling facilities at river terminals	12.00	
9	Computerised fleet management system	5.00	
10	Installation of prototype equipment for vessel operation/maintenance/construction	1.00	
11	Training of Personnels	1.00	
12	Technical Studies	0.50	
13	Installation of modern office equipment and accessories	0.50	
14	Capital Repair Facilities at Rajabagan Dockyard	4.00	

SUMMARY OF SCHEMES PROPOSED FOR 9TH FIVE YEAR PLAN

Sr. No	Name of the Scheme/ Project/Programme	Proposed Outlay for 9th plan (Rs. in crores)	Basis
15	Installation of Intermediate Gate with Associated Accessories for Dry Dock No. 3 & 4	2.00	
16	Computerisation of System for Ship building	1.00	
	Sub Total B	158.00	
	TOTAL I (A + B)	272.00	
II	IWAI SCHEMES		
A	8TH PLAN SCHEME RECOMMENDED FOR 9TH PLAN		
1	Grant of Interest Subsidy to IWT entrepreneurs	50.00	Lumpsum
2	Terminal Facilities at Karimgang and Badarpur	.2.00	Lumpsum
3.1	Terminal facilities between Haldia & Patna	39.00	Estimate
3.2	Terminal at Gaighat, Patna	8.00	Lumpsum
4	Infrastructural facilities between Patna and Allahabad (Terminal)	3.00	Estimate
5.1	Navigational facilities on Ganga-Bhagirathi-Hooghly (N W-1)	15.00	Estimate
5.2	River Training works in N.W.1	10.00	Lumpsum
6	Intermodal terminal at Varanasi	3.00	Estimate
7.1	Annual fairway improvement/conservancy works on N.W.1 between Haldia and Allahabad	25.00	Estimate
7.2	Organistion for N.W. 1	7.00	Estimate
7.3	Office cum Residential Complex along N W-1	9.00	Lumpsum
8	Technical Studies	10.00	Lumpsum

SUMMARY OF SCHEMES PROPOSED FOR 9TH FIVE YEAR PLAN

Sr. No	Name of the Scheme/ Project/Programme	Proposed Outlay for 9th plan (Rs. in crores)	Basis
9	Strengthening of IWAI	8.00	Lumpsum
10	Residential complexe for IWAI at NOIDA	10.00	Lumpsum
11	Inland Navigation Institutes & RCTCs	30.00	Estimate
12.1	Annual fairway improvement/conservancy works on N.W.-2	15.00	Estimate
12.2	Navigational aids on river Brahmaputra	10.00	Estimate
12.3	Terminals on Brahmaputra	22.00	Estimate
12.4	Organisation with Offices at 4 Locations on N.W.2	5.00	Estimate
12.5	River Training Works on NW-II	10.00	Lumpsum
13.1	Land Acquisition for Development of N.W.-3	20.00	Estimate
13.2	Construction & Maintenance of Locks on N.W.-3	4.00	Estimate
13.3	Capital Dredging / Widening of Canal on N.W.-3	30.00	Estimate
13.4	Construction & Maintenance of terminals on N.W.-3	24.00	Estimate
13.5	Construction of Offices of IWAI along N.W.-3	2.00	Lumpsum
13.6	Organisation for N.W.-3	5.00	Estimate
13.7	Bank protection and Environment Management Plan along N.W.-3	10.00	Estimate
13.8	Night Navigational facility on N.W.-3	8.00	Estimate
14	River Conservancy works on Waterways at Sunderbans (Capital Dredging and Terminals)	12.00	Estimate
15	Development and maintenance of river Godavari	80.00	Estimate
16	Development & maintenance of waterways in Goa	12.00	Lumpsum
17	Development of river system of Mahanadi, and Brahmani	14.00	Estimate

SUMMARY OF SCHEMES PROPOSED FOR 9TH FIVE YEAR PLAN

Sr. No	Name of the Scheme/ Project/Programme	Proposed Outlay for 9th plan (Rs. in crores)	Basis
18	Hydrographic surveys on important waterways	2.00	Lumpsum
19	Terminal Maintenance on National Waterways		
	i) NW -1	2.00	
	ii) NW -2	2.00	
	iii) NW -3	2.00	
20.1	Acquisition of Dredgers & allied vessels for:-		
	i) NW -1	26.00	Estimate
	ii) NW -2	17.00	Estimate
	iii) NW -3	14.00	Estimate
20.2	Acquisition/ Replacement of survey vessels		
	i) NW -1	4.00	Estimate
	ii) NW -2	4.00	Estimate
	iii) NW -3	2.00	Estimate
20.3	Procurement of tugs		
	i) NW -1	4.00	Estimate
	ii) NW -2	4.00	Estimate
	iii) NW -3	3.00	Estimate
20.4	Procurement of Survey Equipments		
	i) NW -1	2.00	Lumpsum
	ii) NW -2	2.00	Lumpsum
	iii) NW -3	2.00	Lumpsum
21.1	Capital repairs of floating crafts of IWAI Repair & maintenance of vessels for NW-I	5.00	Lumpsum
21,2	Repair & maintenance of vessels for NW-2	1.00	Lumpsum
21.3	Repair & maintenance of vessels for NW-3	1.00	Lumpsum
22	IWT development fund	50.00	Lumpsum
	Sub Total A	661.00	

SUMMARY OF SCHEMES PROPOSED FOR 9TH FIVE YEAR PLAN

Sr. No	Name of the Scheme/ Project/Programme	Proposed Outlay for 9th plan (Rs. in crores)	Basis
	NEW SCHEMES		
23	Floating river stations on NW-1 (4 locations)	4.00	Estimate
24	Floating river stations on NW-2 (3 locations)	4.00	Estimate
25	Slipway/ Drydocks with marine w/s on NW-1 (2 locations)	5.00	Lumpsum
26	Slipway/ Drydocks with marine w/s on NW-2 (2 locations)	5.00	Lumpsum
27	Slipway/ Drydocks with marine w/s on NW-3 (1 location)	2.00	Lumpsum
28	Development of DVC canal	5.00	Estimate
29	Development of Yamuna in Delhi region	1.00	Lumpsum
30	Development of Narmada.	5.00	Lumpsum
31	Development of ECC along with Brahmani and Mahanadi.	20.00	Estimate
32	Development of Kakinada-Madras Canal including south Buckingham Canal & Coovam river	20.00	Estimate
33	Development of Barak.	2.00	Lumpsum
34	Development of Bangladesh protocol routes.	5.00	Lumpsum
35	Extension of NW-3 in Kollam-Kovallam sector.	20.00	Estimate
36	Acquisition of Petrol Boats		
	i) N W 1 (16 nos.)	4.00	Estimate
	ii) N W 2 (9 nos.)	3.00	Estimate
	iii) N W 3 (2 nos.)	1.00	Estimate
37	Checkposts at Karimganj, Dhubri, & Namkhana	5.00	Estimate
38	Second Navigational Lock at Farakka	30.00	Lumpsum

SUMMARY OF SCHEMES PROPOSED FOR 9TH FIVE YEAR PLAN

Sr. No	Name of the Scheme/ Project/Programme	Proposed Outlay for 9th plan (Rs. in crores)	Basis
39	Pollution Control and EMP for		
	i) NW-1	1.00	Lumpsum
	ii) NW-2	1.00	Lumpsum
	iii) NW-3	1.00	Lumpsum
40	Technical Consultancy Services	2.00	Lumpsum
41	Provision for Plan Schemes for Farakka Barrage in 9th Plan	142.00	Estimate by MOWR
	Sub Total B	288.00	
	TOTAL II(A+B)	949.00	
III	R & D SCHEMES		
A	8TH PLAN SCHEMES TO CONTINUE IN 9TH PLAN		
1	Prototype study of Ferro Cement Boat.	0.10	Estimate
2	Remote Sensing/ Image processing for Hydro-morphological studies.	0.20	Lumpsum
3	Cost effectiveness/fuel efficiency in IWT	0.20	Lumpsum
4	Design of standard vessel & performance prediction for WCC.	0.05	Estimate
5	Design of Low cost & shallow draft vessel	0.20	Lumpsum
	Sub Total A	0.75	
	NEW R & D SCHEMES		
6	Study for improvment of river crafts.	0.20	Lumpsum
7	Study for surface bandalling	0.10	Lumpsum
8	R & D Cell in IWAI.	1.00	Lumpsum
9	R & D for mechanisation of country crafts.	0.20	Lumpsum

SUMMARY OF SCHEMES PROPOSED FOR 9TH FIVE YEAR PLAN

Sr. No	Name of the Scheme/ Project/Programme	Proposed Outlay for 9th plan (Rs. in crores)	Basis
10	R & D for navigational aids.	0.20	Lumpsum
11	R & D on Farakka Barrage implication on navigation due to adverse effects in u/s in river morphology.	0.10	Lumpsum
12	R & D for multi-hull design vessels for rapid passenger movement.	0.10	Lumpsum
13	R & D for wind propulsion combining with mechanical propulsion.	0.20	Lumpsum
14	R & D for design of Low wash hull forms.	0.15	Lumpsum
	Sub Total B	2.25	
	TOTAL III(A+B)	3.00	
IV	CENTRALLY SPONSORED SCHEMES		
A	ON GOING SCHEMES (50% ASSISTANCE)		
1	Hydrographic Survey and Techno-Economic Studies on Gandak and Kosi in Bihar	0.30	Estimate
2	Capital dredging on rivers Mandovi, Zuari and Mapusa in Goa	0.70	Estimate
3	Construction of 5 terminals across river Hooghly in West Bengal.	1.50	Estimate
4	Modernisation of Jetties in Kerala.	10.00	Estimate
	Sub Total A	12.50	

SUMMARY OF SCHEMES PROPOSED FOR 9TH FIVE YEAR PLAN

Sr. No	Name of the Scheme/ Project/Programme	Proposed Outlay for 9th plan (Rs. in crores)	Basis
B	NEW SCHEMES		
	100% ASSISTANCE		
5	Development of inland waterways in Thane Creek, Ulhas river, Bassein creek, Dharamtar creek	100.00	Lumpsum
6	Development of Kosi & Gandak rivers in Bihar	10.00	Lumpsum
7	Development of Mizoram & N.E. rivers.	10.00	Lumpsum
8	Development of river Ghaghara in U P	10.00	Lumpsum
9	Devlopment of feeder routes of main waterways in		
9.1	Kerala	10.00	Lumpsum
9.2	West Bengal	10.00	Lumpsum
9.3	Orissa	10.00	Lumpsum
9.4	Uttar Pradesh	10.00	Lumpsum
9.5	Bihar	10.00	Lumpsum
9.6	Assam	10.00	Lumpsum
10	Jetties, Terminals, LCT and Passenger Vessels Dredgers, and Training Institute in West Bengal (75% of Rs 26.34 crores)	20.00	Estimate
	Sub Total B	210.00	
C	50% ASSISTANCE		
11	Development of IWT in UP	0.60	Estimate
12	Construction of new jetties with terminal facilities in West Bengal	8.40	Estimate
13	Construction of vessels in West Bengal.	2.50	Estimate

SUMMARY OF SCHEMES PROPOSED FOR 9TH FIVE YEAR PLAN

Sr. No	Name of the Scheme/ Project/Programme	Proposed Outlay for 9th plan (Rs. in crores)	Basis
14	Development of Kottapuram- Badagara Stretch of West Coast Canal in Kerala.	10.00	Lumpsum
	Sub Total C	21.50	
	TOTAL IV(A+B+C)	244.00	
V	CAPITAL SUBSIDY SCHEMES		
1	Subsidy to Govt. of Kerala for purchase of dredgers.	20.00	
2	Other subsidy scheme of Govt. of Kerala	20.00	
3	Jetties, Terminals, LCT and Passenger Vessels Dredgers, and Training Institute in West Bengal (25% of Rs 26.34 crores)	7.00	
4	Ship building subsidy for IWT ship building industry.	600.00	Estimate
	TOTAL V	647.00	
VI	STATE SECTOR		
1	100% state sector schemes (a) Kerala	6.00	
2	State share in Centrally Sponsored Scheme (UP-Rs. 0.60, West Bengal-Rs.12.40, Kerala-Rs.20.00 crores),Goa-Rs.0.6,Bihar-Rs.0.3	34.00	
	TOTAL VI	40.00	
	GRAND TOTAL (I TO VI)	2155.00	

SUMMARY OF SCHEMES PROPOSED FOR 9TH FIVE YEAR PLAN

Sr. No	Name of the Scheme/ Project/Programme	Proposed Outlay for 9th plan (Rs. in crores)	Basis
	SUMMARY		
	TOTAL CENTRAL SCHEMES (CIWTC, IWAI & R&D)	1224.00	
	TOTAL CSS (ON GOING,100%,50%)	244.00	
	TOTAL CAP. SUBSIDY SCHEMES	647.00	
	TOTAL STATE SECTOR SCHEMES	40.00	
	GRAND TOTAL (CENTRAL & STATE)	2155.00	
	* Including Rs. 142 crores for Farakka Barrage Schemes for which Plan Funds are to be provided from IWT (MOST) Funds		

APPENDIX

CONSTITUTION AND PROCEEDINGS OF WORKING GROUP

In connection with the preparation of the 9th Five-Year Plan (1997-2002), the Planning Commission set up a Working Group on Inland Water Transport vide Order No. T&C/10(4)/95 dated 13 November 1995. The composition of the Working Group was as follows:

1.	Secretary, Ministry of Surface Transport	Chairman
2.	Chairman, Inland Waterways Authority of India	Member
3.	Member(Technical), Inland Waterways Authority of India	Member
4.	Chairman-cum-M.D., Dredging Corporation of India	Member
5.	Chairman-cum-M.D., Central Inland Water Transport Corp.	Member
6.	Adviser, Transport Research Ministry of Surface Transport	Member
7.	Joint Secretary, Ministry of Petroleum	Member
8.	Joint Secretary /D G Tourism, Ministry of Tourism	Member
9.	Transport Secretary, State Govt. of Bihar & Uttar Pradesh	Member
10.	Joint Advisor(Petroleum), Planning Commission	Member
11.	Deputy Conservator, Cochin Port Trust, Kochi	Member
12.	Additional Director, Central Water & Power Research Station, Pune	Member
13.	Deputy Adviser(Transport), Planning Commission.	Member
14.	Additional Secretary, Department of Coal	Member
15.	Commissioner (E R), Ministry of Water Resources	Member

16. Secretary, North Eastern Council	Member
17. Secretary, Transport & Tourism, Government of Assam	Member
18. Deptt. of Naval Architecture Indian Institute of Technology Kharagpur	Member
19. Chief Engineer(Design-NW&S), Central Water Commission	Member
20. Secretary, Inland Water Transport Govt. of Goa, Daman & Diu	Member
21. Secretary, Coop. & Transport Government of Kerala	Member
22. Joint Secretary, Transport Department Govt. of West Bengal	Member
23. Joint Secretary(Ports/IWT), Ministry of Surface Transport	Member-Secy.
24. Food Corporation of India	Member
25. Representative from Federation of Indian Chambers of Commerce & Industry(FICCI)	Member

1.1 The terms of reference of the Working Group are given below:

(1) To review the physical and financial performance of the Inland Water Transport in the Central and State sectors with particular reference to eighth Five-Year Plan targets and draw lessons there from for the Ninth Plan:

(2) To recommend a policy framework for development of Inland Water Transport in the Ninth Five-Year Plan(1997-2002), in a multi-modal transport system, considering the economics of the Inland Water Transport vis-a-vis other modes of transport and to suggest a 10 year perspective beyond the IX Plan.

(3) To formulate programme for the development of Inland Water Transport during each year of the Ninth Plan period separately indicating physical targets and financial outlays. While formulating the Plan, detailed programmes may be indicated in respect of replacement of overaged assets, modernisation of equipment, conservancy works and technological upgradation of

navigational aids. Foreign exchange requirements may be assessed separately. Need for fleet modernisation and its renewal may also be gone into.

(4) To review the existing status of research and development in Inland Water Transport, covering both the waterways and vessels, including the adequancy of linkage with user agencies and extent of technological upgradation and make recommendations regarding the S&T programme during the Ninth Plan including institutional arrangements necessary therefore.

(5) To assess the performance of the Central Inland Water Transport Corporation (CIWTC) with reference to the traffic carried by it and ship-building yard and its modernisation. In the light of the progress, it may be desirable to consider off-loading this project to private sector or joint sector.

(6) To assess the performance of Inland Waterways Authority of India(IWAI) with regard to (i) development, maintenance and management of the National Waterways in the country; (ii) research development works, technical studies, hydrographic surveys etc. and (iii) assistance given to states in formulation, implementation of Centrally Sponsored Schemes relating to improvement of waterways in various states. The desirability of earmarking the statutory factions and providing scope for private management.

(7) To assess the internal resources of the Inland Water Transport sector in the Ninth Plan and suggest measures to augment these so as to make the sector self-reliant. The Working Group may also identify the role of the private sector in the Inland Water transport. To review the progress of the private sector investment in cargo handling equipment operation of berths, leasing terminals, leasing of port trust land and identification of areas of private investment. To assess storage, warehouses, terminals in the light of the emerging demand. To suggest guidelines, action plan providing autonomy and liberty to the port authorities to introduce flexibility to meet constraints so that private sector involvement, is encouraged.

(8) To identify the areas and commodities, wherein Inland Water Transport enjoys natural advantage particularly in respect of bulk commodities like coal, cement, fertiliser, foodgrains, iron ore, etc. which can be moved from the production centres to the consuming centres on waterways, or to set up dumps for these commodities at suitable locations.

(9) To suggest measures for long term integrated development of waterways, like setting up industrial complexes in close proximity.

(10) To suggest measures for coordinated development of road, rail and inland water transport system in the areas near the waterways to achieve an optimum inter-modal allocation of traffic

which may be energy saving and economical.

(11) To identify the constraints in the smooth operation of waterways transport like shallow water, narrow width of channels, siltation etc, and to formulate plans for Conservancy Works including hydrographic surveys, dredging of waterways and provision of infrastructural facilities like terminals.

(12) To review the work of the Interest Subsidy Schemes for concessional loan assistance to private entrepreneurs for acquisition of mechanised vessels and suggest measures for providing technical assistance to the operators of country crafts. Review the present incentives available for investment in the IWT sector and suggest a total package of incentives for creating stimulus for its growth.

(13) To suggest institutional arrangements for providing training to the personnel of Inland Water Transport at various levels with a view to improve their operational skills.

(14) To suggest measures for increasing the productivity of assets through better maintenance and providing adequate workshop/repair facilities for IWT vessels. Suitable maintenance norms may be laid down.

(15) The Working Group will take into account the various studies connected with the Inland Water Transport including the report of the Steering Committee on Transport Planning.

1.2 **The first meeting of the Working Group on Inland water transport for formulation of 9th Five Year Plan (1997-2002) was held under the Chairmanship of Secretary (SFT) on 15.3.1996.**

The following members attended the meeting.

MINISTRY OF SURFACE TRANSPORT

1.Shri S.Sunder
Secretary

2.Shri. S.N.Kakar
Additional Secretary &Financial
Adviser

3.Shri.K.R.BHATI
Joint secretary (P.I&A)

4.Shri.K.P.Thukral
Adviser (TR)

5.Shri.P.K.Dubey
Directer (IWT)

5.Shri.Munshi Ram
Under Secretary (IWT)

PLANNING COMMISSION

1.Shri.S.C.Sharma,
Consaltant. (Petroleum)

2.Shri.R.B.Mirajkar,
Dy.Adviser (T)

MINISTRY OF TOURISM

1.Smt.Ishering Mishra,
Joint Secretary (Tourism)

MINISTRY OF WATER RESOURCES

1.Shri.N.V.V.Char,
Commissioner (FR)

MINISTRY OF COAL

1.Shri.Sunil Soni,
Director.

MINISTRY OF PETROLEUM

1.A.K.Saxena,
Dy.Secretary.

MINISTRY OF DEFENCE

1.Shri.Shekar Dutt.
Joint Secretary,
Deptt. of Defence Production.

INLAND WATERWAYS AUTHORITY OF INDIA

1.Shri.R.P.Sinha,
Chairman.

2.Cdr.R.M.Nair,
Member (Technical).

3.Shri.R.P.Khare,
Dy.Director.

DREDGING CORPORATION OF INDIA

1.Shri.C.S.Sastry,
Chairman-cum-Managing Director.

NORTH-EASTERN COUNCIL

1.Shri.B.N.Panjiar,
Adviser (Transport).

CENTRAL WATER COMMISSION

1.Shri.Narayan,
Chief Engineer.

After general discussions about policy issues etc, four sub groups were set up to examine the various aspects in detail.

1.2.1 While SUB GROUP-I was asked to consider the matters relating to item 2,3,13 & 15 of the TOR, SUB GROUP -II was asked to consider item 8,9,10 & 11 , SUB GROUP -III was to deal with item 4 & 11 and SUB GROUP IV with matters relating to item 1,5,6,7,and 12 of the TOR.Besides the following decisions were also taken:

i) The Sub group while deliberating upon the various TOR should also consider the total package of incentives for stimulating the growth of IWT including policy support.

ii) The issue regarding the constitution of an appropriate machinery for regulation of traffic on National Waterways should be gone into in detail.

iii) A representative from Ministry of Railways should be included in one of the Sub Groups in order to have proper perspective and better appreciation of the measures required to be taken for a coordinated development of IWT and other modes of Transport. D.G.(shipping) should also be included in one of the Sub Groups.

iv) GM, Farakka Barrage, should be included as a Member of Sub-Group -III.

v) Each Sub Group should include more than one representative from the states, as IWT is in the concurrent list.

1.3 Second and final meeting of the Working Group on IWT for 9th Five Year Plan was held on 24th June, 1996 at Transport Bhawan, New Delhi at 1500 hrs. As Secretary Surface Transport, who is Chairman of the Working Group, was out of station the meeting was chaired by Sri R.P. Sinha, Chairman, Inland Waterways Authority of India.

Following officials attended the meeting:

MOSI	IWAI
Shri K.R. Bhati, Jt. Secy.(Ports)	Shri R.M.Nair,Member(Tech)
Shri P.K. Dubey, Director(IWT)	Shri A. Sarkar, Director
Shri Munshi Ram, U.S.(IWT)	Shri R.P.Khare, Dy.Director
Smt. Bharati Das, AFA	
Shri K.L. Thukral, Advisor(Tr.)	

Deptt. of Tourism	CIWTC
Shri J.S. Mahi, Dy. Secy.	Shri P. Dasgupta,GM(Tech)
Ministry of Water Resources	Central Water Commission
Shri S.K.Das, Sr.Jt.Commissioner	Shri V.V.Badereenarayana,(C.E)
Govt. of U.P	Dredging Corporation of India
Shri Khanjan Lal, Secy. Transport	Shri C.S. Shastry, CMD Sh. K. Chandrachoodan, Manager (ops)
Central Water & Power Research Station	Ministry of Defence
Shri B.U. Nayak, Director	Shri Desraj Sharma,U.S,Shipyard
I.I.T Kharagpur	
Dr. S.C. Misra, Prof. & HOD	

i) Member(Tech.) IWAI presented the report of sub groups I & II. After outlining the terms of reference, Member(T) stated that the overall shortfall in the transport infrastrucure in the country and the capacity of IWT mode to provide a supplemantary/ supporting role in the transport network had formed the basis for planning for the 9th plan and setting the target of a shift of 20 billion tonne km cargo by IWT mode from present level of less than 1 billion tonne km within 9th Plan Period. He stated that in countries like China, Russia, and even Bangladesh, IWT carried 8 to 20% of the inland cargo. In India, this figure has remained stagnant at less than 0.1% and the target of 20 bn tonne km for IWT would only correspond to a 2% share for the IWT.With GDP growth 6-7% and Industrial growth of 12 to 13%, even 2% of inland cargo will amount to 40 billion tonne km by 2000 AD.To achieve this modest target necessary IWT infrastructure has to be provided. He stated that the schemes proposed by the sub group were with this objective and were likely to spillover to the 10th plan period also.

ii) Member (Tech.) further stated that for the proposed shift of cargo, human resource development in the fields like technical, managerial, supervisory and vessel operating staff would be prerequisite.

iii) He further stated that the Working Group, while finalising the report had taken into account the recommendations made by various IWT committees. Recommendations considered are those of Gokhale Committee, Bhagwati Cimmittee, NTPC, Parliamentary Committee on Transport and Tourism and the Consultative Committee of the Ministry.

iv) Considering the present status of IWT sector it was felt that private investment in this infrastructure sector would flow when the viability and profitability of this sector was demonstrated. For development of infrastructure, budgetory provisions will be necessary. For attracting private investment for IWT fleet certain incentives would be required. The incentives such as Development Rebate, Investment Allowance, Ship Building Subsidy etc. have been proposed by the sub group. Fleet expansion for carrying 20 billion tonne cargo would be substantial (to the tune of Rs. 3600 crores) which is expected to come from private sector provided the incentives recommended are provided.

v) It was stated that the sub group had examined existing role with regard to framing of regulations for IWT sector and had kept suitable provisions for regulations of IWT activities such as organisation, check posts, patrol boats, etc.

vi). Chairman, IWAI stated that it was a fact that rail and road modes were congested and congestion would increase with further growth in GDP and industrial activity and therefore IWT could very well become an alternate mode provided proper attention was given to this sector. He stated that it must be understood that development of IWT was a slow process and therefore very quick results during a short span of time should not be expected. He stated that a level playing field for IWT should be provided so that this nascent sector should develop at par with the rail and road which were already developed. Advisor(Tr.) was however of the opinion that Govt. was providing fund to IWT sector which was not fully utilised and therefore it was not very correct to say that level playing field had not been provided to IWT. Chairman IWAI clarified that while it was true that the funds alloted could not be fully utilised by IWAI and CIWTC the more pertinent point was to analyse the reasons for these organisations' unsatisfactory performance so far, rather than to draw a conclusion about the IWT sector only based on the performance of these two bodies. Steps should be taken to eradicate these reasons. Chairman, IWAI further stated that one of the main reasons for unsatisfactory performance of IWAI was lack of sufficient manpower and the fact that manpower for IWAI was to be sanctioned only through SIU route which was very much time consuming. He stated that while three waterways had been declared(NW-1 in 1986, NW-2 in 1988, NW-3 in 1993), the sanctioned strength on these waterways were exceptionally low and the efforts for getting necessary posts sanctioned in these waterways were on. He also stated that due to the shortage of manpower, the utilisation of funds had been low in the initial years due to which the provision of funds in following years was also reduced and the cycle was still continuing. Therefore, the working group should recognise that results can be delivered only when proper inputs, including manpower and funds are made available in time and, if necessary, dilatory procedures should be rectified, otherwise it would not be feasible to achieve the ambitious targets proposed by the working group for the growth of IWT during the 9th plan period.

vi) Chairman IWAI informed that the IWT infrastructure and lead schemes are to be taken up by the Govt. and commercial viability of IWT demonstrated. Only then the private enterpreneurs would be attracted towards this mode for making investment.

viii) Chairman, DCI, presented the report of sub group III and outlined the broad proposals included in the report. About R & D activities CMD, DCI stated that while R & D was necessary, the pace of the same in past years had been very slow and the expenditure had been very low. On R & D proposals most of the members were of the view that more thrust on R & D was required only when a significant progress had already been achieved in the sector. Since IWT sector still remains un-developed in India at present, R & D activities are not very critical for development of this field except for some very specific activities like design of special vessels for particular waterways, new methods of river conservancy works, river training measures etc.

ix) CMD DCI stated that sub group III had gone into details of the constraints for development of IWT in India and concluded that such constraints were less depth, inadequate navigational aids, non-availability of terminals, and outdated vessels etc. It was further stated that the group had suggested schemes for eliminating these constraints.

x) CMD DCI stated that for taking up dredging work on waterways it would be difficult to attract private dredging companies initially, because the requirement of dredging for IWT was only seasonal, ie. 3-4 months in a year and since the cost of mobilisation and demoblisation of the dredging equipment was substantially high, the private companies would not be interested initially in taking up such works or would charge very high dredging rates for the same.

xi) Secretary(Transport), Govt. of U.P. stated that for development of Ghagra river though Govt. of U.P. had suggested Rs 20 crores for the 9th plan only Rs 10 crores had been recommended by sub group I. Chairman IWAI replied that though the proposal from UP was received late i.e. after finalisation of sub group I report, even then provision of Rs 10 crores had been kept which would now be enchanced.

xii) The Chairman IWAI, informed that a project of NINI is already under consideration for the last 6-7 years and land for the same has already been handed over by Govt. of Bihar to IWAI at Patna. Therefore, we cannot totally scrap the NINI project at this stage. IWAI is also actively considering a MINI NINI project under which, training will be imparted by Indian and Dutch experts in the field of IWT which would form a core of trained manpower for trainers for the proposed training institutes. JS(P) suggested that the optimum utilisation of the training facilities available must also be given due consideration.

xiii) G.M.(Technical), CIWTC suggested that for assured cargo

for IWT mode, compulsory use of IWT mode for certain commodity should be made into a law. He also pleaded for subsidy or exemption on custom duty for import of vessels and import of ship repair facilities and equipments for IWT. He stated that such facilities/subsidies already existed for sea going vessels. JS(P) stated that subsidies/waiver of customs duty in general would not be accepted by the Planning Commission. However, such matters could be taken up on case to case basis.

xiv) G.M.(Technical) CIWTC stated that CIWTC had submitted initially a list of proposed schemes at a total of Rs. 272 crores approximately but later on wanted to revise it to Rs. 445 crores. The matter was discussed and it was decided that original proposal of CIWTC for Rs. 272 crores(approx.) need only be considered in the main Working Group.

xv) The sub group IV was to be convened by JS(P) but due to his absence in connection with election duties it was convened and chaired by Chairman IWAI on the request of JS(P). The report of this sub group was presented by Member(T) of the IWAI. The assessment of internal resources as suggested by the sub group IV was discussed in details and generally agreed to by all members. It was stated that the public sector beneficiaries such as oil sector, coal sector etc. should pool and pitch resources for development of IWT and the private sector should be encouraged specially in the fields of vessel procurement. JS(P) stated that for following such an approach some complexities might crop up in regard to provision of funds to the IWT projects by these PSUs. JS(P) stated that no public sector unit would easily invest a substantial amount, in IWT sector straightway. He suggested that the working group should propose floating of tax bonds on the lines of National Highway Authority of India, which may be passed on to concerned PSUs for investment in IWT sector. It was agreed that this proposal should be included in the Working Group report as a recommendation.

xvi) Chairman, IWAI stated that within the funds provided for 9th Plan first priority should be given to the National Waterways so that a significant progress could be achieved on this and the result demonstrated which would attract interest and investment of non Govt. organisations. He further stated that three more waterways during the 9th plan were under process for declaration as National Waterways. These are Godavari, Sunderbans and Goa, and therefore adequate provisions should be kept for these waterways also.

xvii) Chairman, IWAI stated that strenghtening of human resources position in IWAI was a pre requisite and all the proposals of the Working Group had been made on the assumption that IWAI would be adequately strengthened and empowered within a short span of time, otherwise it would not be feasible to achieve the goals set in the Working Group report. It was agreed that this aspect should be duly highlighted in the report.

xviii) Mr. Thukral stated that from the performance of Cen-

trally Sponsored Schemes in the past it could be stated that States were not in a position to do any developmental work in the waterways. He also stated that it would be difficult for the Planning Commission to accept Sub Group I proposal of 100% CSS as this would warrant a change in format in the CSS and such change involved long drawn procedure. It was stated by M(T) that sub group I had also included 50% CSS schemes. Chairman IWAI stated that development of waterways in the country could proceed on the pattern of highways, where we had National Highways as well as State Highways, so that both the state and the centre should shoulder the responsibility for the development and maintenance of waterways with well defined limits.

xix) JS(P) said that river conservancy works like bandalling and channel marking were labour intensive and therefore a proposal might be considered wherein states might employ skilled labour under schemes such as Jawahar Rojgar Yojana and other similar schemes.

xx) G.M(T), CIWTC stated that North Eastern Council provided some allotment of fund for the development activities in the NE region and the working group should include provision of the same. Mr. Thukral stated that fund allocation for NE council was not substantial never- the- less IWT sector should try to get fund from NEC for NE sector.

xxi) Concluding the meeting Chairman stated that development of IWT was a slow process and therefore, it should not be expected that the results would come through within a short span of time or that schemes for the infrastructural development were jacketed for 5 years only. For showing clearly visible growth we may need another plan period. Perspectives developed in this working group report may therefore be taken to be relevant in a span of 5 to 8 years whereafter it is expected to be a self pushing area of transport activity.

xxii) Finally it was decided that the draft report of the main working group should be submitted to Secretary(SFT) within about 2 weeks time. The meeting ended with vote of thanks to the Chair.

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REPORT OF WORKING GROUP ON IWT FOR 9TH PLAN

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REPORT OF WORKING GROUP ON INT FOR 9TH PLAN

PROPOSED OUTLAY BY WORKING GROUP, APPROVED OUTLAY AND EXPENDITURE UPTO 1995-96 FOR 8TH PLAN

(Rs in Crores)

S.No	Name of the Scheme/ Project/Programme	Proposed Out-lay by 8th plan working Group	8th plan Approved Outlays	1992-93		1993-94		1994-95		1995-96		Exp. during 8th Plan upto Mar'96 (1992-93 to 1995-96)	REMARK
				BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.		
I	CIWTC SCHEME												
a	On Going Scheme												
1	Modernisation of Rajabagan Dockyard	48.60	48.10	18.00	-	19.30	-	4.10	4.10	3.50	-	4.10	
2	Acquisition of Hovercraft	7.00	10.00	-	-	-	-	-	-	-	-	0.00	
3	7th Plan Vesssel Acquisition Scheme	3.25	-	-	-	-	-	2.00	-	5.00	-	0.00	
b	New Scheme												
4	8th Plan Vessel Acquisition Scheme	84.00	38.00	-	-	-	-	1.00	2.00	2.80	2.60	4.60	
5	Capital Repairs of Vessels	-	-	-	-	-	-	4.60	4.60	1.00	2.40	7.00	
6	Training of Operative & other IWT Personnel	-	-	-	-	-	-	-	-	0.25	-	0.00	
7	Renovation of West Slipway & Installation of Gate of Dock No 3 & 4 at RBD	-	-	-	-	-	-	-	-	0.05	-	0.00	
8	Installation of Weigh Bridges	-	-	-	-	-	-	0.30	0.30	-	-	0.30	
9	Design of Standard Vessel	-	-	-	-	-	-	0.10	-	-	-	0.00	
10	Study on Demand for Ship Repair	-	-	-	-	-	-	0.01	-	-	-	0.00	

REPORT OF WORKING GROUP ON INT FOR 9TH PLAN

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(Rs in Crores)

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				BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.		
II	Modernisation of CIWTCs Offices	-	-	-	-	-	-	-	-	-	-	0.00	
	Sub Total-I	142.85	96.10	18.00	ERR	19.30	0.00	12.11	11.00	12.60	5.00	16.00	
II	IWAI												
	ON GOING SCHEMES												
1	Interest Subsidy Scheme	10.00	3.00	0.30	0.80	1.00	1.00	0.50	0.15	1.00	1.00	2.95	
2	Terminal at Karimganj (executed by CIWTC)	0.60	1.55	1.55	1.55	-	-	-	-	-	-	1.55	
3	Setting up Terminal Facilities on river Barak	-	3.00	-	-	-	-	-	-	-	-	-	
	NEW SCHEMES												
4	Terminal facilities between Haldia & Patna	70.50											
(a)	Terminals at Gaighat, Patna		4.90	1.00	0.28	1.00	-	0.50	-	0.06	-	0.28	
(b)	Terminals on Ganga-Calcutta		10.00	1.00	-	-	-	0.25	0.58	0.05	-	0.58	
5	Infrastructural facilities between Patna and Allahabad	15.00	10.00	-	-	0.02	-	-	-	0.01	-	-	
6	Navigational facilities on Ganga-Bagirathi-Hooghly	4.00	8.00	0.90	-	0.25	-	0.10	-	0.01	-	-	

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(Rs in Crores)

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				BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.		
7	Intermodal terminal at Varanasi	10.00	-	-	-	-	-	-	-	-	-	-	
8	River conservancy works on NW-1 between Haldia & Allahabad	30.00											
(a)	River conservancy works on Ganga		7.50	1.50	1.11	1.25	1.25	1.00	1.80	1.00	2.15	6.31	
(b)	Infrastructural facilities between Haldia-Farakka		1.10	1.10	-	0.50	-	0.20	0.20	0.05	-	0.20	
9	Technical Studies	2.00	1.20	0.20	0.17	0.15	0.11	0.10	0.30	0.20	0.11	0.69	
10	Strengthening of IWAI	10.00											
(a)	Consultancy Cell		-	-	-	-	-	-	-	-	-	-	
(b)	Project formulation framework for development of IWT in the country with UNDP assistance		-	-	-	-	-	-	-	-	-	-	
(c)	Introduction of computerized data system		-	-	-	-	-	-	-	-	-	-	
11	Office cum Residential complex for IWAI	10.00	-	-	-	-	1.50	1.00	0.25	0.75	0.97	2.72	
12	National Inland Navigation Institute	3.50											

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				BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.		
(a)	Training of IWT personnel		1.00	0.40	0.03	0.08	-	0.05	0.05	0.10	0.00	0.08	
(b)	Regional crew training centre		-	-	-	-	-	-	-	-	-	-	
13	Development of river Brahmaputra including its maintenance	35.00											
(a)	River improvement works on Brahmaputra (NW-II)		7.50	1.50	0.70	1.25	0.75	1.00	0.73	1.00	0.53	2.71	
(b)	Navigational aids on river Brahmaputra		5.00	0.10	-	0.10	-	0.15	0.15	0.30	-	0.15	
(c)	Terminals on Brahmaputra		4.80	-	-	-	-	0.20	0.20	0.05	-	0.20	
(d)	River training works on Brahmaputra		-	-	-	-	-	-	-	-	-	-	
(e)	Pilot project on double vertical type jetty		-	-	-	-	-	-	-	-	-	-	
14	Development and maintenance of West Coast canal (NW-III)	48.00	62.00	1.50	0.10	3.00	0.70	1.00	0.89	1.00	0.97	2.66	
15	Development of R.C. Works on waterways at Sunderbans	8.20											
(a)	Nav-aids on Sunderbans		-	-	-	-	-	-	-	0.01	-	-	

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				BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.		
16	Development & maintenance of river Godavari and other new schemes	5.00	-	-	-	-	-	-	-	0.01	-	-	
17	Development & maintenance of waterways in Goa	4.00	-	-	-	-	-	-	-	-	-	-	
18	Development of river system of Mahanadi, Brahmani and Barak	8.00	-	-	-	-	-	-	-	-	-	-	
(a)	Development of East Coast canal	-	-	-	-	-	-	-	-	-	-	-	
(b)	Development of Brahmani, Mahanadi & Barak	-	-	-	-	-	-	-	-	-	-	-	
19	Hydrographic Surveys on river Mahanadi & other waterways	3.00	-	-	-	-	-	-	-	-	-	-	
20	Aerial surveys on Alluvial rivers	2.00	-	-	-	-	-	-	-	-	-	-	
21	Acquisition of floating crafts for IWAI	116.50	0.20	-	-	-	-	-	-	0.10	-	-	
22	Capital/repairs of floating crafts of IWAI	1.60	-	-	-	-	-	-	-	-	-	-	
23	IWT development fund & IWT subsidy scheme	10.00	5.00	0.10	-	1.00	0.10	0.25	0.75	0.80	0.38	1.23	

	Sub Total-II	406.90	135.75	11.15	4.74	9.60	5.41	6.30	6.05	6.50	6.11	22.31
III	R & D Schemes		1.00	0.20	0.03	0.10	-	-	-	0.15	-	0.03
(a)	Prototype study of Ferro-cement boats	0.12	-	-	-	-	-	-	-	-	-	-
(b)	Study for improvement of river craft,	0.17	-	-	-	-	-	-	-	-	-	-
(c)	Design of road on river-bed											
(d)	Surface bandalling											
(e)	R & D Cell in IWAI											
(f)	Remote sensing Technique of Hydrographic Survey	3.59										
(g)	Design of standard vessels and performance prediction											
(h)	Study of cost effectiveness of IWT on Ganga											
	Sub Total-III	3.88	1.00	0.20	0.03	0.10	0.00	0.00	0.00	0.15	0.00	0.03
IV	Centrally Sponsored Schemes											
A	Spill Over Scheme											
1	Hydrographic survey & feasibility studies for the development of feader routes of Ganga in U.P	0.13	-	-	0.04	-	-	0.01	-	-	0.00	0.04
2	Hydrographic survey in river Gandak & Kosi	0.15	-	-	0.02	-	-	0.01	-	-	-	0.02

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				BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.		
3	Capital dredging river Mandovi, Zuari & Mapusa in Goa	0.50	0.55	0.50	-	-	-	0.12	0.20	-	-	0.20	
4	Improvement of North Buckingham Canal between Ennore & Chintamani lock in Tamilnadu	0.65	-	-	-	-	-	-	-	-	-	-	
5	Development of Waterways & provision of handling facilities in river Narmada	2.30	2.47	0.50	-	-	-	0.01	-	-	-	-	
6	Terminal facilities across Hooghly river in West Bengal	0.31	1.13	0.50	0.38	0.50	-	0.02	-	-	0.15	0.53	
7	Construction of slipway at Pandu	2.00	-									-	
	Sub Total-IV A	6.04	4.15	1.50	0.44	0.50	0.00	0.17	0.20	0.00	0.15	0.79	
B	New Schemes (100% Asssistance)												
1	Kakinada - Madras canal improvement works	35.00	-	-	-	-	-	-	-	-	-	-	
2	Development of Bombay - Thane route	5.00	-	-	-	-	-	-	-	-	-	-	

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				BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.		
3	Development of Yamuna near Delhi	1.00	-	-	-	-	-	-	-	-	-	-	
4	Terminal facilities at Shalimar Yard & Pesta in Calcutta	6.00	-	-	-	-	-	-	-	-	-	-	
5	Development of Cooum river & Buckingham Canal in Madras city	5.00	-	-	-	-	-	-	-	-	-	-	
6	Terminal for Passenger Ferry services in Hooghly Cochin backwaters & Sunderbans	6.00	-	-	-	-	-	-	-	-	-	-	
	Sub Total-IV B	58.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
C	New Schemes (50% Assistant)												
1	Setting up of hydrographic Survey unit in Gujarat	0.18	-	-	-	-	-	-	-	-	-	-	
2	Development works on Dehing river for trasportation of coal in Assam	0.75	-	-	-	-	-	-	-	-	-	-	
3	Development works on river Jhelum for navigation in J & K	2.80	-	-	-	-	-	-	-	-	-	-	
4	Revival of the canal system of Alleppy town in Kerala	0.30	-	-	-	-	-	-	-	-	-	-	

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				BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.		
5	Improvement of navigable canals in Orissa leading to Paradip Port	2.00	-	-	-	-	-	-	-	-	-	-	
6	Improvement of Vadaranyam canal in Tamilandu	2.25	-	-	-	-	-	-	-	-	-	-	
7	Development of the feeder routes of the Ganga for navigation in U.P.	3.00	-	-	-	-	-	-	-	-	-	-	
8	Dredging, desilting and training works in waterways in West Bengal	0.50	-	-	-	-	-	-	-	-	-	-	
9	Providing of landing facilities at Bhor Bhata in river Narmada	0.06	-	-	-	-	-	-	-	-	-	-	
10	Providing of landing facilities at Megham in river Narmada	0.04	-	-	-	-	-	-	-	-	-	-	
11	Providing of landing facilities at Ghol on river Ambica in Gujarat	0.03	-	-	-	-	-	-	-	-	-	-	
12	Providing of landing facilities at Mora on river Tapi in Gujarat	0.06	-	-	-	-	-	-	-	-	-	-	
13	Modernisation of jetties in Kerala	2.00	3.00	0.50	-	0.50	-	0.02	-	-	0.33	0.33	

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				BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.	BUDGET PROV.	ACTUAL EXP.		
14	Construction of terminals at Raichak and Haldia in West Bengal	2.00	-	-	-	-	-	-	-	-	-	-	
15	Stern lift system for the repair of the IWT vessels in the Brahmaputra in Assam	0.40	-	-	-	-	-	-	-	-	-	-	
16	Expansion of Marine Workshop at Botim in Goa	1.50	-	-	-	-	-	-	-	-	-	-	
	Sub Total-IV C	17.87	3.00	0.50	0.00	0.50	0.00	0.02	0.00	0.00	0.33	0.33	
D	Schemes not included in Working Group Report												
1	Improvement of Champakara Canal	-	-	-	0.03	-	-	-	-	-	-	0.03	
2	Improvement of Udyogmandal canal	-	-	-	0.18	-	-	0.01	-	-	-	0.18	
	Sub Total-IV D	0.00	0.00	0.00	0.21	0.00	0.00	0.01	0.00	0.00	0.00	0.21	
	Sub Total-IV	81.91	7.15	2.00	0.65	1.00	0.00	0.20	0.20	0.75	0.48	1.33	
	Grand Total ((I+II+III+IV)	635.54	240.00	31.35	5.42	30.00	5.41	18.61	17.25	19.25	11.59	39.67	

ANNEXURE-2.2

CARGO MOVED BY CIWTC, VIVADA SHIPPING, GOA OPERATOR AND OTHERS BY IWT MODE

S.NO	RIVER / STRETCH	DIST. in Kms	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	REMARKS (Cargo generally moved)
1.	THE GANGA													
A	M/s CIWTC													
a)	Calcutta-Patna	864	-	-	2249.0	1006.0	3318.0	2226.0	973.0	199.0	8393.0	6300.0	-	General cargo, Fertilis
b)	Patna-Calcutta	864	-	-	174.0	587.0	-	40.0	340.0	170.0	117.0	1700.0	2148.0	General cargo
c)	Calcutta-Farakka	400	7918.0	3536.0	-	-	-	-	-	-	-		-	-
d)	Farakka-Calcutta	400	714.0	1580.0	5177.0	-	-	-	-	-	-	1000.0	-	-
e)	Calcutta-Haldia	100	3276.0	3942.0	3792.0	3195.0	3870.0	23555.0	11316.0	2853.0	-		331.0	Containers
f)	Haldia-Calcutta	100	8961.0	9851.0	5994.0	4564.0	4516.0	12758.0	18392.0	6262.0	954.0	10172.0	2488.0	Wood pulp, Paper ect.,
g)	Calcutta-Bangladesh	780	1122.0	1113.0	270.0	146.0	549.0	507.0	-	171.0	8978.0	14473.0	20974.0	General cargo
h)	Bangladesh-Calcutta	780	2870.0	118.0	3819.0	5493.0	4559.0	10209.0	2882.0	-	-		-	-
i)	Haldia-Nayachara	5	-	-	-	69847.0	74917.0	82010.0	54752.0	104427.0	25050.0		-	Laterite
j)	Calcutta Internal	-	1250.0	1194.0	6143.0	12029.0	12432.0	10707.0	18113.0	1565.0	4026.0	851.0	7100.0	Jute, Fresh water
k)	Bihar Internal	49	-	-	7309.0	4429.0	2610.0	1989.0	1351.0	3044.0	116.0		-	General cargo
l)	Saugor operations	49	78111.0	100913.0	102392.0	12821.0	18628.0	78370.0	65691.0	13842.0	76548.0	35792.0	67809.0	Fertiliser, Pulp, Coke
m)	Haldia-Budge Budge	160	85985.0	88700.0	97850.0	84778.0	91896.0	132072.0	151620.0	124030.0	137111.0	122644.0	165557.0	POL
	Sub Total		190207.0	210947.0	235169.0	198895.0	217295.0	354443.0	325430.0	256563.0	261293.0	192932.0	266407.0	
B	M/s VIVADA SHIPPING													
a)	Haldia-Calcutta												137898.0	POL
b)	Haldia-Budge budge												218003.0	POL
	Sub Tota		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	355901.0	
	TOTAL		190207.0	210947.0	235169.0	198895.0	217295.0	354443.0	325430.0	256563.0	261293.0	192932.0	622308.0	
2.	THE BRAHMAPUTRA													
n)	Calcutta-Pandu	1439	33166.0	46210.0	40833.0	50327.0	39275.0	19475.0	18101.0	4644.0	14883.0	18853.0	2759.0	Rice, Cement
o)	Pandu-Calcutta	1439	10155.0	25728.0	19418.0	13022.0	16693.0	11930.0	17528.0	6359.0	11062.0	6558.0	6102.0	Tea, Coal, Timber, Jut
p)	Assam-Bangladesh	442	-	-	-	-	-	7996.0	2705.0	3076.0	2094.0	6640.0	4562.0	Coal, Boulders, Paper
	TOTAL		43321.0	71938.0	60251.0	63349.0	55968.0	39401.0	38334.0	14079.0	28039.0	32051.0	13423.0	

ANNEXURE-2.2

CARGO MOVED BY CIWTC, VIVADA SHIPPING, GOA OPERATOR AND OTHERS BY IWT MODE

S.NO	RIVER / STRETCH	DIST. in Kms	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	REMARKS (Cargo generally moved
3.	THE BARAK													
q)	Calcutta-Karimganj	1218	15699.0	15598.0	19650.0	20695.0	22806.0	13220.0	18219.0	14768.0	17292.0	15689.0	17280.0	General cargo, Rice
r)	Karimganj-Calcutta	1218	3556.0	5183.0	5927.0	4750.0	8287.0	3267.0	3429.0	4028.0	4963.0	1339.0	1831.0	Paper, Jute, General car
	TOTAL		19255.0	20781.0	25577.0	25445.0	31093.0	16487.0	21648.0	18796.0	22255.0	17028.0	19111.0	
4.	GOA WATERWAYS													
	Loading Point-Unloading Point Marmugaon	43											15709354.0	Iron Ore
5.	OTHER AREAS													
	a) Andhra Pradesh							6335.0	10834.0					
	b) Assam								160621.0					
	c) Karnataka							819.0	918.0	963.0	1192.0			
	d) A & N Islands							37524.0	40776.0					
	GRAND TOTAL		252783.0	303666.0	320997.0	287689.0	304356.0	455009.0	598561.0	290401.0	312779.0	242011.0	16364196.0	

FLEET DETAILS OF CIWTC (As on 1st Jan'1992) (1 of 11)

Sr.No	Name of vessel	Year of Built	Total Power (BHP)	G.R.T.	Dimensions (L x B x D) (in meters)	Loaded Draft (in meters)
	HEAVY-DUTY PUSH-CUM-SIDE TOWING TUGS WITH BOLLARD PULL					
1	PT Saptagram	1983	950	219	28.50 x 7.92 x2.50	1.66
2	PT Sarnath	1983	950	219	28.50 x 7.92 x 2.50	1.66
3	PT Shibsagar	1983	950	219	28.50 x 7.92 x 2.50	1.66
4	PT Koshal	1935	1236	214	28.50 x 7.60 x 2.50	1.72
5	PT Kannauj	1985	1236	214	28.50 x 7.60 x 2.50	1.72
6	PT Kakdwip	1986	1236	214	28.50 x 7.60 x 2.50	1.72
7	PT Tanjore	1985	1236	214	28.50 x 7.60 x 2.50	1.72
8	PT Tamralipta	1986	1236	214	28.50 x 7.60 x 2.50	1.72
9	PT Tribut	1987	1236	214	28.50 x 7.60 x 2.50	1.72
10	PT Sri Biswajit	1982	944	185	27.50 x 7.50 x 2.60	1.72
11	PT Aoudh	1991	940	208	27.50 x 7.50 x 2.60	1.70
12	PT Avanti	1991	940	208	27.50 x 7.50 x 2.60	1.70
13	PT Ambika	-	940	208	27.50 x 7.50 x 2.60	1.70
14	PT Anantapur	-	940	208	27.50 x 7.50 x 2.60	1.70
15	PT Mathura	-	940	208	27.50 x 7.50 x 2.60	1.70
16	PT Gourh	-	940	208	27.50 x 7.50 x 2.60	1.70
17	PT Gwalior	-	940	208	27.50 x 7.50 x 2.60	1.70
18	PT Tamluk	-	940	-	27.50 x 7.50 x 2.60	1.70

FLEET DETAILS OF CIWTC (As on 1st Jan'1992) (2 of 11)

Sr.No	Name of vessel	Year of Built	Total Power (BHP)	G.R.T.	Dimensions (L x B x D) (in meters)	Loaded Draft (in meters)
19	PT Tiruchi	-	940	-	27.50 x 7.50 x 2.60	1.70
20	PT Tuticorin	-	940	-	27.50 x 7.50 x 2.60	1.70
21	PT Trivandrum	-	940	-	27.50 x 7.50 x 2.60	1.70
22	PT Tinsukia	-	940	-	27.50 x 7.50 x 2.60	1.70
23	PT Tezpur	-	940	-	27.50 x 7.50 x 2.60	1.70
24	PT Tufanganj	-	940	-	27.50 x 7.50 x 2.60	1.70
25	PT Tenkashi	-	940	-	27.50 x 7.50 x 2.60	1.70
	MEDIUM DUTY TUGS					
1	MV Tug Haldia	1969	600	133.33	25.00 x 6.60 x 3.50	1.95
2	MV Srimati	1950	312	209.23	32.31 x 5.33 x 2.74	1.98
	CACHAR PUSHAR TUGS					
1	PT Katakhal	1961	504	108	26.05 x 6.10 x 1.80	0.76
2	PT Khagra	1961	504	108	26.05 x 6.10 x 1.80	0.76
3	PT Madhura	1961	504	108	26.05 x 6.10 x 1.80	0.76
4	PT Sonai	1961	504	108	26.05 x 6.10 x 1.80	0.76
5	PT Surma	1961	504	108	26.05 x 6.10 x 1.80	0.76
	LIGHT DUTY TUGS					
1	GB Tug VIII	1967	436	36.45	18.29 x 5.49 x 1.52	1.07
2	MV Glenapp	1929	210	78	25.91 x 5.18 x 2.44	1.90

PLEET DETAILS OF CIWTC (As on 1st Jan'1992) (3 of 11)

Sr.No	Name of vessel	Year of Built	Total Power (BHP)	G.R.T.	Dimensions (L x B x D) (in meters)	Loaded Draft (in meters)
3	PT Ganga	1959	300	78.18	20.85 x 6.93 x 1.62	1.20
4	ML Farakka IV	1966	320	32	16.76 x 4.27 x 1.83	1.22
5	ML Farakka V	1966	320	32	16.76 x 4.27 x 1.83	1.22
	POWERED WATER CARRIERS WITH CAPACITY					
1	ML Bahika II	1965	210	107.11	25.15 x 7.62 x 1.83	1.22
2	ML Bahika III	1965	210	107.11	25.15 x 7.62 x 1.83	1.22
	SELF PROPOLED CARRIERS WITH CAPACITY					
1	MV Pradip	1983	672	470	55.00 x 10.00 x 2.80	1.85
2	MV Prakriti	1983	672	470	55.00 x 10.00 x 2.80	1.85
3	MV Prafulla	1987	672	470	55.00 x 10.00 x 2.80	1.85
4	MV Nazrul	1983	600	750	56.05 x 10.15 x 3.00	1.85
5	MV Rabindranath	1983	600	750	56.05 x 10.15 x 3.00	1.85
6	MV Tulsidas	1984	600	750	56.05 x 10.15 x 3.00	1.85
7	MV Jawahar	1984	600	623.06	56.60 x 10.00 x 3.00	1.85
8	MV Subhas	1984	600	623.06	56.60 x 10.00 x 3.00	1.85
9	MV Moulana Azad	1985	600	623.06	56.60 x 10.00 x 3.00	1.85
10	MV Atulprasad	1989	620	582	55.00 x 10.00 x 3.00	1.85
11	MV Tansen	1990	620	582	55.00 x 10.00 x 3.00	1.85
12	MV Ranapratap	1989	620	594	55.50 x 10.45 x 3.00	1.85

FLEET DETAILS OF CIWTC (As on 1st Jan'1992) (4 of 11)

Sr.No	Name of vessel	Year of Built	Total Power (BHP)	G.R.T.	Dimensions (L x B x D) (in meters)	Loaded Draft (in meters)
13	MV David Hare	1989	620	594	55.50 x 10.45 x 3.00	1.85
14	MV Wazed Ali	1990	620	594	55.50 x 10.45 x 3.00	1.85
15	MV Dwijendralal	1991	620	582	55.00 x 10.00 x 2.55	1.85
16	MV Rajnikanta	1991	620	582	55.00 x 10.00 x 2.55	1.85
17	MV Pragati	1979	436	512.31	49.12 x 8.75 x 2.55	1.85
	SELF PROPELLED OIL TANKERS WITH CAPACITY					
1	MT Barauni	1988	940	1058	87.00 x 13.00 x 3.00	2.20
2	MT Naharkatia	1991	960	1315	85.00 x 16.00 x 3.00	1.85
	OIL CARRING FLATS / BARGES					
1	OF Batoum	1904	-	-	51.82 x 7.92 x 2.29	1.62
2	OB Poldhu	1945	-	-	33.54 x 6.71 x 2.29	1.67
3	OB Polperro	1945	-	-	33.54 x 6.71 x 2.29	1.67
4	OB Poruan	1945	-	-	33.54 x 6.71 x 2.29	1.67
5	OB Polzeath	1945	-	-	33.54 x 6.71 x 2.29	1.67
	NEW 750 T DUMB BARGES					
1	DB Pranam	1982	-	-	65.00 x 10.00 x 2.90	1.83
2	DB Pranati	1982	-	-	65.00 x 10.00 x 2.90	1.83
3	DB Prasad	1983	-	-	65.00 x 10.00 x 2.90	1.83
4	DB Prasanti	1983	-	-	65.00 x 10.00 x 2.90	1.83

PLEET DETAILS OF CIWTC (As on 1st Jan'1992) (5 of 11)

Sr.No	Name of vessel	Year of Built	Total Power (BHP)	G.R.T.	Dimensions (L x B x D) (in meters)	Loaded Draft (in meters)
5	DB Rupnarayan	1987	-	-	65.00 x 10.00 x 2.90	1.83
6	DB Jaldhaka	1985	-	-	65.00 x 10.00 x 2.90	1.83
7	DB Phalghu	1986	-	-	65.00 x 10.00 x 2.90	1.83
8	DB Manu	1986	-	-	65.00 x 10.00 x 2.90	1.83
9	DB Amanat	1987	-	-	65.00 x 10.00 x 2.90	1.83
10	DB Haldi	1987	-	-	65.00 x 10.00 x 2.90	1.83
11	DB Usri	1987	-	-	65.00 x 10.00 x 2.90	1.83
12	DB Sarju	1984	-	-	65.00 x 10.00 x 2.90	1.83
13	DB Silai	1985	-	-	65.00 x 10.00 x 2.90	1.83
14	DB Sonne	1986	-	-	65.00 x 10.00 x 2.90	1.83
15	DB Kansabati	1985	-	-	65.00 x 10.00 x 2.90	1.83
16	DB Khowai	1985	-	-	65.00 x 10.00 x 2.90	1.83
17	DB Koel	1985	-	-	65.00 x 10.00 x 2.90	1.83
18	DB Dwarka	1983	-	-	65.00 x 10.00 x 2.90	1.83
19	DB Dwarkeswar	1983	-	-	65.00 x 10.00 x 2.90	1.83
20	DB Barak	1983	-	-	65.00 x 10.00 x 2.90	1.83
21	DB Bipasa	1983	-	-	65.00 x 10.00 x 2.90	1.83
22	DB Baitarani	1983	-	-	65.00 x 10.00 x 2.90	1.83
23	DB Barakar	1983	-	-	65.00 x 10.00 x 2.90	1.83
24	DB Tista	1985	-	-	65.00 x 10.00 x 2.90	1.83
25	DB Tapti	1985	-	-	65.00 x 10.00 x 2.90	1.83
26	DB Mandakini	1989	-	-	65.00 x 10.00 x 2.90	1.83

FLEET DETAILS OF CIWTC (As on 1st Jan'1992) (6 of 11)

Sr.No	Name of vessel	Year of Built	Total Power (BHP)	G.R.T.	Dimensions (L x B x D) (in meters)	Loaded Draft (in meters)
27	DB Manjari	1989	-	-	65.00 x 10.00 x 2.90	1.83
28	DB Mundeswari	1989	-	-	65.00 x 10.00 x 2.90	1.83
29	DB Mahanadi	1989	-	-	65.00 x 10.00 x 2.90	1.83
30	DB Matla	1989	-	-	65.00 x 10.00 x 2.90	1.83
31	DB Argo	1989	-	-	65.00 x 10.00 x 2.90	1.83
32	DB Raimongal	1988	-	-	65.00 x 10.00 x 2.90	1.83
33	DB Ravi	1988	-	-	65.00 x 10.00 x 2.90	1.83
34	DB Rapti	1989	-	-	65.00 x 10.00 x 2.90	1.83
35	DB Retlam	1989	-	-	65.00 x 10.00 x 2.90	1.83
36	DB Bindyadhari	1989	-	-	65.00 x 10.00 x 2.90	1.83
37	DB Bitasta	1989	-	-	65.00 x 10.00 x 2.90	1.83
38	DB Betwa	1989	-	-	65.00 x 10.00 x 2.90	1.83
39	DB Bhadra	1989	-	-	65.00 x 10.00 x 2.90	1.83
40	DB Bhima	1989	-	-	65.00 x 10.00 x 2.90	1.83
41	DB Burhan	1989	-	-	65.00 x 10.00 x 2.90	1.83
42	DB Kopai	1989	-	-	65.00 x 10.00 x 2.90	1.83
43	DB Koshi	1989	-	-	65.00 x 10.00 x 2.90	1.83
44	DB Jhilam	1991	-	-	65.00 x 10.00 x 2.90	1.83
45	DB Kosai	under construction	-	-	65.00 x 10.00 x 2.90	1.83
46	DB Kaveri	,,	-	-	65.00 x 10.00 x 2.90	1.83
47	DB Subarnarekha	1990	-	-	65.00 x 10.00 x 2.90	1.83
48	DB Satadru	1990	-	-	65.00 x 10.00 x 2.90	1.83

FLEET DETAILS OF CIWTC (As on 1st Jan'1992) (7 of 11)

Sr.No	Name of vessel	Year of Built	Total Power (BHP)	G.R.T.	Dimensions (L x B x D) (in meters)	Loaded Draft (in meters)
49	DB Saptamukhi	1990	-	-	65.00 x 10.00 x 2.90	1.83
50	DB Godavari	1988	-	-	65.00 x 10.00 x 2.90	1.83
51	DB Goriganga	1990	-	-	65.00 x 10.00 x 2.90	1.83
52	DB Gilgit	1991	-	-	65.00 x 10.00 x 2.90	1.83
53	DB Ghaghra	under construction	-	-	65.00 x 10.00 x 2.90	1.83
54	DB Gandak	,,	-	-	65.00 x 10.00 x 2.90	1.83
55	DB Gola	,,	-	-	65.00 x 10.00 x 2.90	1.83
56	DB Arani	1991	-	-	65.00 x 10.00 x 2.90	1.83
57	DB Atreyi	1991	-	-	65.00 x 10.00 x 2.90	1.83
58	DB Tungabhadra	1989	-	-	65.00 x 10.00 x 2.90	1.83
59	DB Narmada	under construction	-	-	65.00 x 10.00 x 2.90	1.83
60	DB Chandrabhaga	,,	-	-	65.00 x 10.00 x 2.90	1.83
61	DB Thakuran	,,	-	-	65.00 x 10.00 x 2.90	1.83
62	DB Vaishali	Not taken over as yet	-	-	65.00 x 10.00 x 2.90	1.83
63	DB Vogabati	,,	-	-	65.00 x 10.00 x 2.90	1.83
64	DB Vedabati	,,	-	-	65.00 x 10.00 x 2.90	1.83
65	DB Nagar	,,	-	-	65.00 x 10.00 x 2.90	1.83
	INTEGRATED BARGES					
1	Barge Ganga I	1986	-	-	36.6 x 5.61 x 1.80	1.22
2	Barge Ganga II	1986	-	-	36.6 x 5.61 x 1.80	1.22
3	Barge Ganga III	1988	-	-	36.6 x 5.61 x 1.80	1.22

FLEET DETAILS OF CIWTC (As on 1st Jan'1992) (8 of 11)

Sr.No	Name of vessel	Year of Built	Total Power (BHP)	G.R.T.	Dimensions (L x B x D) (in meters)	Loaded Draft (in meters)
4	Barge Ganga IV	1988	-	-	36.6 x 5.61 x 1.80	1.22
5	Barge Ganga V	1989	-	-	36.6 x 5.61 x 1.80	1.22
6	Barge Ganga VI	1989	-	-	36.6 x 5.61 x 1.80	1.22
	OLD CARGO FLATS					
1	Flat Pundarak	1914	-	-	59.44 x 8.23 x 2.74	1.83
2	Flat Rampur	1914	-	-	59.44 x 8.23 x 2.74	1.83
3	Flat Raozan	1914	-	-	59.44 x 8.23 x 2.74	1.83
4	Flat Arracan	1920	-	-	67.06 x 9.14 x 2.74	1.83
5	Flat Halwara	1930	-	-	67.06 x 8.84 x 2.74	1.83
6	Flat Phulpur	1913	-	-	59.44 x 8.23 x 2.74	1.83
7	Flat Tongani	1935	-	-	67.06 x 9.75 x 2.93	1.9
	NON PROPELLED FLOATING CRANE					
1	FC Samson	1945	-	-	25.43 x 13.01 x 2.44	1.22
2	CF 3	1960	-	-	18.29 x 6.10 x 2.13	0.84
3	CF 7	1960	-	-	18.29 x 6.10 x 2.13	0.84
4	CF 26	1960	-	-	18.29 x 6.10 x 2.13	0.84
5	CF 27	1960	-	-	18.29 x 6.10 x 2.13	0.84
6	CF 28	1960	-	-	18.29 x 6.10 x 2.13	0.84
7	Barge Atlas	1895	-	-	41.89 x 7.01 x 2.50	1.83

FLEET DETAILS OF CIWTC (As on 1st Jan'1992) (9 of 11)

Sr.No	Name of vessel	Year of Built	Total Power (BHP)	G.R.T.	Dimensions (L x B x D) (in meters)	Loaded Draft (in meters)
8	Barge CIWTC 14	1950	-	-	17.37 x 5.85 x 2.72	1.70
9	Barge Bahak 7	1966	-	-	25.91 x 5.49 x 2.50	1.22
10	Barge Bahak 12	1965	-	-	25.91 x 5.49 x 1.68	1.35
11	Barge Bahak 13	1967	-	-	27.43 x 8.23 x 2.44	1.30
12	Barge Bahak 14	1967	-	-	27.43 x 8.23 x 2.44	1.30
13	Barge Bahak 15	1967	-	-	35.05 x 7.62 x 2.13	1.30
14	Barge Bahak 24	1966	-	-	35.05 x 7.62 x 2.13	1.30
15	Barge Bahak 25	1966	-	-	35.05 x 7.62 x 2.13	1.30
	HEAVE UP BOATS					
1	H.U.Boat No.1	1933	-	-	14.86 x 4.27 x 1.52	-
2	H.U.Boat No.2	1928	-	-	14.86 x 4.27 x 1.47	-
3	Crane Pontoon 3	1954	-	-	34.14 x 15.85 x 2.44	-
4	Pontoon I	1983	-	-	25.91 x 7.62 x 1.60	-
5	Ponton II	1983	-	-	25.91 x 7.62 x 1.60	-
6	Pontoon III	1983	-	-	25.91 x 7.62 x 1.60	-
7	Pontoon VI	1984	-	-	25.91 x 7.62 x 1.60	-
8	Pontoon V	1985	-	-	25.91 x 7.62 x 1.60	-

FLEET DETAILS OF CIWTC (As on 1st Jan'1992) (10 of 11)

Sr.No	Name of vessel	Year of Built	Total Power (BHP)	G.R.T.	Dimensions (L x B x D) (in meters)	Loaded Draft (in meters)
	LAID UP VESSELS AS ON 1.1.92					
	POWERED CRAFTS					
1	MPV River Brahmaputra	1963	1390	1615.16	86.26 x 12.83 x 2.90	1.74
2	MV Elba	1957	264	174.53	32.31 x 7.01 x 1.83	1.74
3	MV San Leons	1957	264	174.53	32.31 x 7.01 x 1.83	1.74
4	MV Dalia	1958	210	142.14	30.50 x 8.00 x 2.00	1.83
	DUMB CRAFTS					
1	OF Abadan	1922	-	542	67.06 x 9.14 x 2.74	1.83
2	OF Talora	1940	-	579	67.06 x 9.75 x 2.93	1.83
3	OF Baku	1904	-	304	51.82 x 7.92 x 2.29	1.83
4	Flat Baulai	1930	-	637	73.16 x 10.67 x 2.74	1.83
5	Flat Dharampur	1922	-	714	73.15 x 8.23 x 2.93	1.83
6	Flat Gopalpur	1930	-	650	73.15 x 10.36 x 2.93	1.83
7	Flat Labana	1896	-	460	60.98 x 10.67 x 2.29	1.52
8	Flat Pachora	1913	-	570	59.44 x 8.23 x 2.74	1.83
9	Flat Pakshan	1913	-	570	59.44 x 8.23 x 2.74	1.83
10	Flat Palta	1913	-	549	59.44 x 8.23 x 2.74	1.83
11	Flat Penner	1914	-	557	59.44 x 8.23 x 2.74	1.83
12	Flat Rajnagar	1925	-	709	73.17 x 10.37 x 2.90	1.83
13	Flat Tippuk	1939	-	578	67.06 x 9.75 x 2.93	1.83

FLEET DETAILS OF CIWTC (As on 1st Jan'1992) (11 of 11)

Sr.No	Name of vessel	Year of Built	Total Power (BHP)	G.R.T.	Dimensions (L x B x D) (in meters)	Loaded Draft (in meters)
14	Flat Turini	1938	-	559	67.06 x 9.75 x 2.93	1.83
15	Barge Bahak	1965	-	68	26.02 x 5.49 x 1.68	1.22

ANNEXURE-2.4

REPORT OF WORKING GROUP ON IWT FOR 9TH PLAN
FLEET DETAILS OF IWT OPERATORS IN GOA (AS ON 31.03.92)

SR. NO.	Name of the Co./Undertaking	Type of Vessel	No. of Vessels	Engine Power(BHP)	Range of Capacity Goods (Tonnes)
1	M/s V.M. Salgaocar & Bros. Ltd., Goa	Cargo Vessels	5	480-560	611-909
2	M/s Salgoacar Industrial Gases Pvt. Ltd., Goa	Cargo Vessels	1	470	695
3	Mr. Shivanand V. Salgoacar, Goa	Cargo Vessels	1	590	695
4	Mr. Dattaraj V. Salgoacar, Goa	Cargo Vessels	-	510	508
5	V.S. Dempo & Co. Ltd., Goa	Cargo Vessels	13	218-255	500-900
6	Sesa Goa Ltd., Goa	Cargo	9	330-560	520-1709
		Pass	1	140	-
7	United Shipper Ltd., Goa	Motor Vessels	8	106-225	300-550
		Barges	21	-	150-500
		Tugs	13	88-225	50
8	Samrat Shipping Co. Pvt. Ltd., Goa	Cargo	2	470	907-1110
9	Orient Charters, Goa	Cargo	3	436-470	750-950

ANNEXURE-2.5

REPORT OF WORKING GROUP ON IWT FOR 9TH PLAN

FLEET DETAILS OF STATES AS ON 31.03.93

SR. NO.	State / U.T.	Type of Vessel	No. of Vessels	Range of Engine Power (H.P)	Range of Carrying Capacity	
					Goods	Passenger
1	2	3	4	5	6	7
1	Andhra Pradesh (a)	Cargo-cum Passenger	157	5-100	2-58	10-81
		Cargo	2	54-90	11-13	-
		Dumb Barges	5	-	57-60	-
		Country Boats	956	-	4-40	-
		Others	10	-	22-32	-
2	Assam (a)	Cargo	5	150-160	3-55	-
		Cargo-cum Passenger	32	104-510	1-150	40-375
		Passenger	72	65-150		15-200
		Pusher Tug	5	430-436		
		Barge	20		100-200	
		Pantoon	19		50-70	
		Boats	10	19.6-23.5	1	15
		Sur.Launch	1	210	2	
3	Karnataka	Cargo	3		3-15	
		Passenger	17	10-30		14-40
		Cargo-cum Passenger	9	14-40.9	3.5-5.15	15-41
4	Orissa	Passenger	17	19-102		25-120
5	West Bengal (b)	Passenger	203			10-250
		Non-Passenger	48		10-10.58	
6	A & N Islands (a)	Passenger -cum-cargo	11	276-556	10-200	60-600
		passenger	4	191-230	5	24-75
		Cargo	5	390-976	40-200	
		Tug & Pusher	2	1410-1610 336		
		Barge	2			

NOTE:- (a) Data relate to 31.3.90

DETAILS OF CARGO CARRIED AND FREIGHT COLLECTED BY IWT OPERATORS

Sr.No	Name of the Company/ Year	No. of Powered Vessels Employed	Total Trips Performed	Total GRT Delployed (M.T)	Quantity of Cargo Carried (Tonnes)	Total Distance Covered for all Trips	Total Time Taken for all Trips (Days)	Tonne Kms. Performed (Lakhs)	Freight Collected (Rs. in lakhs)
	1	2	3	4	5	6	7	8	9
1	M/s V.M. Salgaocar & Bros Ltd., Goa								
	1990-91	5	461	4033	632550	32270	461	221.39	125.24
	1991-92	5	581	4033	852542	40670	581	298.39	181.45
	1992-93	5	796	4222	1109708	55720	796	388.40	253.01
	1993-94	3	514	2800	805035	35980	514	281.76	221.38
2	M/s. Salgaocar Industrial Gases Pvt. Ltd. Goa								
	1990-91	1	74	508	61420	5180	74	21.50	12.16
	1991-92	1	64	508	53120	4480	64	18.59	11.05
	1992-93	1	113	529	93790	7910	113	32.83	21.38
	1993-94	1	91	529	75530	6370	91	26.44	20.77
3	M/s Shivanand V. Salgaocar, Goa								
	1990-91	1	106	695	109816	7420	106	38.44	21.74
	1991-92	1	165	695	170940	11550	165	59.44	36.48
	1992-93	1	155	650	160580	10850	155	56.20	36.61
	11993-94	1	203	2048	295764	14210	203	103.52	81.34
4	M/s Dattaraj V. Salgacar, Goa								
	1990-91	1	99	695	102564	6930	99	35.90	20.31
	1991-92	1	159	695	164724	11130	159	57.65	35.18
	1992-93	1	99	650	102564	6930	99	35.90	23.38
	1993-94	2	161	20480	250781	11270	161	87.77	68.96

DETAILS OF CARGO CARRIED AND FREIGHT COLLECTED BY IWT OPERATORS

Sr.No	Name of the Company/ Year	No. of Powered Vessels Employed	Total Trips Performed	Total GRT Delployed (M.T)	Quantity of Cargo Carried (Tonnes)	Total Distance Covered for all Trips	Total Time Taken for all Trips (Days)	Tonne Kms. Performed (Lakhs)	Freight Collected (Rs. in lakhs)
	1	2	3	4	5	6	7	8	9
5	V. S. Dempo & Co.Ltd. Goa								
	1990-91	12	1323	5982	795600	-	-	-	-
	1991-92	13	951	6556	641085	-	-	-	-
	1992-93	11	1122	5732	783580	-	-	-	-
	1993-94	11	1343	5727	1028448	-	-	-	-
6	M/s Sesa Goa Ltd., Goa								
	1990-91	7	989	5123	1087273	89010	1236	489.27	-
	1991-92	8	1070	6479	1192967	96300	1338	536.83	-
	1992-93	8	1155	6572	1493429	103950	1444	672.04	-
	1993-94	7	1259	6572	1695674	113310	1574	763.05	-
7	M/s United Shippers Ltd., Goa								
	1990-91	41	5385	-	1117000	150780	10770	156.38	447.00
	1991-92	42	5565	-	1155000	155820	11130	161.70	462.00
	1992-93	32	200	200	1300480	9600	-	-	-
	1993-94	30	200	210	1280160	9600	-	-	-
8	M/s CIWTC, Calcutta								
	1990-91	30	1195	165271	385412	-	-	1197.17	525.07
	1991-92	29	1248	163021	289438	-	-	639.30	300.39
	1992-93	-	-	-	-	-	-	-	-
	1993-94	-	-	-	-	-	-	-	-
9	M/s Samrat Shipping Co.Pvt. Ltd. Goa								
	1990-91	1	112	45095	87870	10640	210	42.18	22.51
	1991-92	2	338	147008	288823	32110	606	138.63	62.49
	1992-93	-	-	-	-	-	-	-	-
	1993-94	-	-	-	-	-	-	-	-

DETAILS OF CARGO CARRIED AND FREIGHT COLLECTED BY IWT OPERATORS

Sr.No	Name of the Company/ Year	No. of Powered Vessels Employed	Total Trips Performed	Total GRT Delployed (M.T)	Quantity of Cargo Carried (Tonnes)	Total Distance Covered for all Trips	Total Time Taken for all Trips (Days)	Tonne Kms. Performed (Lakhs)	Freight Collected (Rs. in lakhs)
	1	2	3	4	5	6	7	8	9
10	M/s Orient Charterers, Goa								
	1990-91	3	513	206803	363119	48735	855	174.30	79.66
	1991-92	3	434	175030	313542	41230	832	150.50	75.67
	1992-93	-	-	-	-	-	-	-	-
	1993-94	-	-	-	-	-	-	-	-
11	M/s Chowgule & Co. Ltd., Bombay								
	1992-93	8	788	737764	-	-	-	-	-
	1993-94	8	657	659528	-	-	-	-	-

(b) Include CIWTC data also

Annexure-5.1

REPORT OF WORKING GROUP ON IWT FOR 9TH PLAN

POTENTIAL CARGO ON VARIOUS WATERWAYS

IN MILLION TONNES AND (BILLION TONNE KILOMETERS)

Sr. No.	WATERWAYS	Average Lead (Km.)	Cargo in million Tonnes (In Billion Tonne Km) 1996-97	1999-2000	2004-2005
1	NATIONAL WATERWAY NO-1	900	9.2 (8.28)	13.6 (12.24)	16 (14.40)
2	NATIONAL WATERWAY NO-2	1535	2.3 (3.53)	3.2 (4.912)	4.4 (6.754)
3	NATIONAL WATERWAY NO-3	103	2.5 (0.257)	3.4 (0.35)	4.2 (0.432)
4	SUNDERBANS & BARAK	1400	1.3 (1.82)	1.8 (2.52)	2 (2.80)
5	GOA WATERWAYS	75	15 (1.125)	15 (1.125)	15 (1.125)
6	GODAVARI & DCS	150	0.4 (0.06)	0.53 (0.08)	0.9 (0.135)
7	KAKINADA - MADRAS CANAL	200	1.27 (0.254)	1.58 (0.136)	2 (0.4)
8	KRISHNA RIVER	100	0.44 (0.044)	0.45 (0.045)	0.45 (0.045)
9	EAST COAST CANAL WITH BRAHMANI & MAHANADI RIVERS	300	15.87 (4.761)	26.1 (7.83)	33.62 (10.086)
10	BOMBAY IWT	200	14 (2.80)	16 (3.20)	18 (3.60)
11	NARMADA & TAPI RIVERS	400	16 (6.40)	21.6 (8.64)	25 (10.00)
12	DAMODAR VALLEY CANAL (DVC)	80	2.6 (0.21)	3.2 (0.26)	4 (0.32)
	Total Million Tonne (Billion-Tonne-Km)		80.88 (29.541)	106.46 (41.338)	125.57 (50.097)

NOTE : The figures mentioned are rough estimates only.

ANNEXURE-5.2
(Sheet 1 of 5)

REPORT OF WORKING GROUP ON IWT FOR 9TH PLAN

(A) THE GANGA RIVER (NW-I)

(IN 000 TONNES)

YEAR	FOOD GRAINS	FERTILIZER	STONES	RAW JUTE	CEMENT	SUGAR	POL	OTHERS	TOTAL
1995	900	248	1200	540	108	180	214	260	3650
2000	900	439	1902	972	129	180	295	882	5699
2005	1165	571	2099	1170	168	180	377	1195	6925
2010	1193	675	2317	1058	189	180	481	1285	7378

(B) THE B'PUTRA RIVER (NW-II)

(IN '000 TONNES)

COMMODITY	1991-92	1994-95	1999-2000	2004-2005
1. Tea	75	91	114	148
2. Foodgrains	94	114	144	184
3. Coal	268	326	409	520
4. P O L	296	330	400	509
5. Iron/Steel	80	95	115	147
6. Cement	100	130	165	211
7. Jute	71	86	108	138
8. Fertilizer	35	40	45	57
9. Forest Products	28	34	43	55
10. Salt	20	22	26	33
11. Sulphur	25	30	40	51
12. Lime Stone	250	305	380	485
13. Stone Quartzs	210	230	250	319
Total	1552	1833	2239	2857

C) WEST COAST CANAL(NW III)

(In '000 tonnes)

Year	Commodities						
	Foodgrain	Parcel & piece goods	Heavy Goods	Bulk Goods	Chem & Fert.	P.O.L.	Total
1994-95	63	548	12.5	618	622	223	2086
1999-2000	84.5	733	16.7	752	740	299	2625.2
2004-2005	113	981	22.3	932	898	400	3346.3
2009-2010	151.3	1312	30	1173	1109	535	4310.3

D) RIVER GODAVARI

(in '000 Tonnes)

S.NO	COMMODITY	1987	1999-2000	2004-2005
1	Coal		200	500
2	Paddy	34	55	86
3	Chillies	12	21	34
4	Tobacco	11	15	19
5	Pulses	2	3	6
6	Forest Products	106	106	107
7	Gen. Merchandise	74	87	99
8	Miscellaneous	37	43	49
	Total	276	530	900

E) Bulk commodities identified for IWT through SUNDERBANS

COMMODITIES	ROUTE	1990	1995	2000	2005
Coal	Pandu-Calcutta	181	377	696	964
	Calcutta- Pandu	35	66	113	143
	Calcutta-Karimganj	138	265	451	466
Bitumen	Calcutta-Pandu	20	27	35	46
	Clcutta-Karimganj	8	11	15	20
Wax	Pandu-Calcutta	24	30	30	30
Wood & Wood based industries	Pandu-Calcutta	14	37	53	67
	Karimganj- Calcutta	7	19	24	29
Tea	Pandu-Calcutta	24	26	29	32
Food grain	Calcutta-Pandu	45	58	63	65
	Calcutta- Karimganj	30	35	40	45
Cement	Calcutta-Pandu	45	110	130	160
	Calcutta-Karimganj	25	35	45	55
Iron & Steel/ironore	Calcutta-Pandu	267	267	938	995
	Calcutta- Karimganj	40	40	45	53
	Pandu- Calcutta	-	-	200	200
Other Cargo	Calcutta-Pandu	8	10	12	14
	Calcutta-Karimganj	25	31	37	41
	Pandu-Calcutta	15	30	34	38
	Karimganj-Calcutta	5	10	11	13
Total Bulks/ Break bulk	Calcutta-Pandu	420	538	1291	1432
	Calcutta-Karimganj	266	417	633	680
	Pandu-Calcutta	258	500	1042	1331
	Karimganj-Calcutta	12	29	35	42
		956	1484	3001	3476
HSD/LDO/Furnace oil Liquid Bulk	Pandu-Calcutta	-	56	111	111
Container traffic	Pandu-Calcutta	121	133	146	161
Tea (tonnage)	Pandu-Calcutta	2200	3600	4050	4350
Empty containers	Calcutta-Pandu	2200	3600	4050	4350

F) BULK COMMODITIES IDENTIFIED FOR IWT ON EAST COAST CANAL

(in '000 tonnes)

Srno	Commodities	1997-98	2000-2003	2007-2008
1	Coal	10000	20000	25000
2	Iron Ore	5000	5000	7500
3	Agriculture Product	30	40	50
4	Finished Goods	6	8	10
a)	Fertilizer	6	8	10
b)	Cement	7	10	12
c)	Salt	10	15	20
d)	Manufactured Products			
(i)	Tyres & Tubes	0.075	0.1	0.15
(ii)	Sea Food	0.1	0.15	0.2
(iii)	Industrial raw metarial	10	15	20
(iv)	Industrial Product	800	1000	1000
	Total	15869.175	26096.25	33622.35

G) RIVER KRISHNA

(IN TONNES)

S.NO.	COMMODITY	1987-88	1994-95	2004-2005
1	Clinker	72000	72000	72000
2	Gypsum	39600	61466	61466
3	Laterite Ore	94200	141597	142597
4	Cement	103950	142284	142284
5	Fertilizer	1856	2610	4253
6	Misc	11770	15509	23002
	Total	323376	435466	445602

H. KAKINADA KAKINADA - MADRAS CANAL

(in '000 tonnes)

Year	Commodities							
	Foodgrain	Coal	Bulk Goods	Heavy Goods	Chem & Fert.	Parcel & piece goods	Provisions	Total
1993-94	90.2	242.6	588	17.4	64.3	27.1	46.7	1076.3
1996-97	115	291.1	661.2	21.8	82	34.5	59.5	1265.1
2001-02	159.6	349.8	806.7	31	116	47.7	72	1582.8
2006-07	216.6	437.6	990.3	42.5	161	64.2	87.8	2000
2011-12	286	525	1215.5	56.6	215	84.2	108.2	2490.5

I) REPORT OF WORKING GROUP ON IWT FOR 9TH PLAN
OTHER WATERWAYS

WATERWAYS	IWT CARGO FORECAST
Goa	15 Million Tonnes (1995)
Mahanadi-Brahmani	8.2 Million Tonnes (1995) & 23.4 Million Tonnes (2000)
Barak	4.66 Lakh Tonnes (1999-2000)
Bombay Inland Watwerways	12.3 Million Tonnes (1991-92)
Narmada & Tapi	16 Million Tonnes (1995) 21.6 Million Tonnes (2000)

REPORT OF WORKING GROUP ON IWT FOR 9TH PLAN

Annexure-5.3
(Page 1 of 3)

ROUREWISE AND COMMODITY WISE IDENTIFIED CARGO FOR NATIONAL WATERWAYS

A. NATIONAL WATERWAY NO-I (THE GANGA), 1995-2010

From	From/Via :	To :	Product :	Tonnes per year (1000)			
				1995	2000	2005	2010
	DOWNRIVER						
Punjab	Allahabad	Calcutta	Foodgrains	804	804	804	804
	(Patna	Calcutta	Foodgrains	0	0	265	293)*
Punjab	Allahabad	Karimganj	Foodgrains	96	96	96	96
	Allahabad	Calcutta	Sugar	180	180	180	180
	Mirzapur	Pandu	Cement	96	96	96	96
	Manihari	Calcutta	Raw Jute	108	194	234	212
	Farakka	Calcutta	Raw Jute	216	389	468	423
	Berhampore	Calcutta	Raw Jute	216	389	468	423
	Munger	Haldia	Stones	600	0	0	0
	Dhulian	Haldia	Stones	600	0	0	0
	Munger	Calcutta	Stones	0	1170	1292	1426
	Dhulian	Calcutta	Stones	0	488	538	594
	Patna	Berhampore	Fertiliser	11	20	23	28
	Patna	Farakka	Fertiliser	11	20	23	28
	Patna	Manihari	Fertiliser	5	9	11	13
	Patna	Bhagalpur	Fertiliser	5	9	11	13
	Patna	Munger	Fertiliser	5	9	11	13
Chunar	Patna	Manihari	Cement	4	11	24	31
Chunar	Patna	Bhagalpur	Cement	4	11	24	31
Chunar	Patna	Munger	Cement	4	11	24	31
	UPRIVER						
	Munger	Patna	Stones	0	244	269	297
	Haldia	Barhampore	Fertiliser	19	33	47	57
	Haldia	Farakka	Fertiliser	19	33	47	57
	Haldia	Manihari	Fertiliser	8	13	23	28
	Haldia	Bhagalpur	Fertiliser	8	13	23	28
	Haldia	Munger	Fertiliser	8	13	23	28
	Haldia	Semaria	Fertiliser	8	13	23	28
	Haldia	Patna	Fertiliser	16	22	37	43
	Calcutta	Patna/Nepal	Fertiliser	125	232	269	311
	Calcutta	Patna	Proj. cargo	9	20	30	30
	Calcutta	Bhagalpur	Proj. cargo	5	9	15	15
	Calcutta	Farakka	Proj. cargo	5	9	15	15
	Calcutta	Patna	Others	109	382	510	552
	Calcutta	Semaria	Others	12	42	57	61
	Calcutta	Munger	Others	12	42	57	61
	Calcutta	Bhagalpur	Others	36	126	170	184
	Calcutta	Manihari	Others	12	42	57	61
	Calcutta	Farakka	Others	36	126	170	184
	Calcutta	Berhampore	Others	12	42	57	61
	Haldia	Patna	Others	12	42	57	61
	Haldia	Semaria	POL	214	295	377	481
		All Flows		3650	5699	6660	7085

* Represents subset of foodgrains if distributed storage centre in Patna.

(B) NATIONAL WATERWAY - II (BRAHMAPUTRA) ANNEXURE-5.3(Page 2 of 3)

(In '000 Tonnes)

Sr NO	COMMODITY	ORIGINATING STATION	DESTINATION STATION	CARGO IDENTIFIED FOR THE YEARS		
				1996	2000	2005
1	TEA	GUWAHATI/ TEZPUR/NEAMATI /DIBRUGARH	CALCUTTA	89.60	113.15	144.33
2	FOOD GRAINS	CALCUTTA	JOGIGHOPA/GUWAHATI/ TEZPUR/NEAMATI/ DIBRUGARH/SAIKHOWA	112.76	141.81	180.87
3	SALT	CALCUTTA	JOGIGHOPA/GUWAHATI/ TEZPUR/NEAMATI/ DIBRUGARH	20.14	22.67	28.91
4	COAL	CALCUTTA/ DIBRUGARH/ GUWAHATI/ NEAMATI	CALCUTTA/DHUBRI/ JOGIGHOPA/GUWAHATI/ TEZPUR/NEAMATI/ OTHER GHATS	328.80	397.91	507.52
5	POL	CALCUTTA/ JOGIGHOPA/ DIBRUGARH	CALCUTTA/GUWAHATI/ TEZPUR/DIBRUGARH	330.00	399.00	508.92
6	CEMENT	CALCUTTA/ GUWAHATI/ NEAMATI	JOGIGHOPA/GUWAHATI/ TEZPUR/DIBRUGARH/ NEAMATI/ OTHER GHATS	128.14	162.94	207.84
7	IRON & STEEL	CALCUTTA	JOGIGHOPA/GUWAHATI/ TEZPUR/NEAMATI/ DIBRUGARH	93.00	113.00	144.13
8	JUTE	DHUBRI/ JOGIGHOPA/ GUWAHATI/ TEZPUR	CALCUTTA	84.36	106.61	135.97
9	FERTILISER	CALCUTTA/ GUWAHATI/ DIBRUGARH	JOGIGHOPA/GUWAHATI/ TEZPUR/DIBRUGARH/ OTHER GHATS	39.26	43.95	56.05
10	SULPHUR	CALCUTTA	DIBRUGARH	28.00	38.00	48.47
11	FOREST PRODUCTS	DHUBRI/ JOGIGHOPA/ GUWAHATI/ DIBRUGARH/ SAIKHOWA/ OTHER GHATS	CALCUTTA/JOGIGHOPA/ GUWAHATI/DIBRUGARH	33.94	42.96	54.79
12	LIME STONE	JOGIGHOPA GUWAHATI/	CALCUTTA	245.00	332.00	423.45
13	SOTNE QUARTZ	JOGIGHOPA	CALCUTTA	208.00	235.00	299.74
			TOTAL	1741.00	2149.00	2740.99

C) NATIONAL WATERWAY - III (WCC & UDYOGMANDAL CHAMPAKARA CANALS)

ANNEXURE-5.3
(Page 3 of 3)

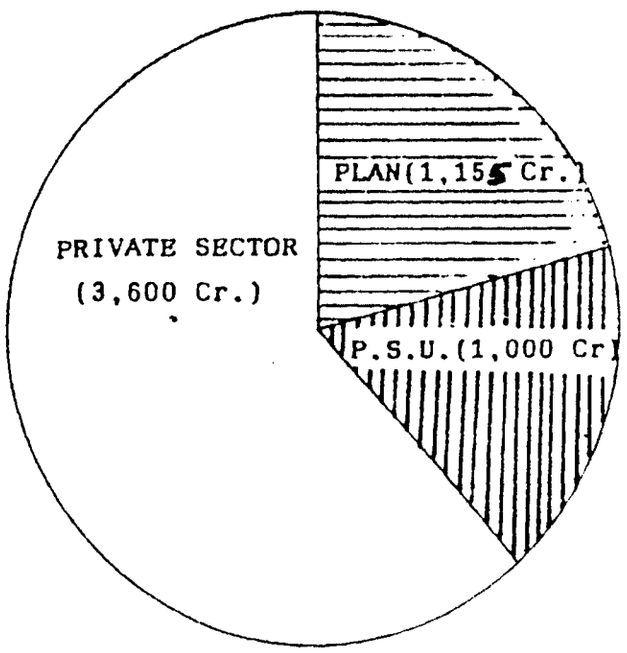
(In '000 Tonnes)

Sr NO	COMMODITY	ORIGINATING STATION	DESTINATION STATION	CARGO IDENTIFIED FOR THE YEARS		
				1996	2000	2005
1	FOOD GRAINS	KOCHI/KOLLAM/ ERNAKULAM	ALAPPUZHA/KAYAMKULAM /CHERTALA/AMBALAPUZHA/ /CHAVARA/KOLLAM/ KOTTAPURAM	63.17	84.54	113.13
2	PARCEL & PIECE GOODS	KOCHI/KOLLAM/ ERNAKULAM/VAIKOM/AR-OOKUTTY/ALAPPUZHA/ KAYAMKULAM/ /THRIKUNNAPUZHA/ CHAVARA/VECHOOR/ ALUVA/AMBALAPUZHA/ KOTTAPURAM	KAYAMKULAM/CHERTALA/ KOLLAM/CHAVARA/KOCHI/ ERNAKULAM/ALUVA/ KOTTAPURAM/VAIKOM/ AROOKUTTY/ALAPPUZHA/ AMBALAPUZHA/ THRIKUNNAPUZHA	547.66	732.88	980.77
3	HEAVY GOODS	ERNAKULAM/KOCHI	KOLLAM/KOTTAPURAM/ ALAPPUZHA	12.48	16.70	22.35
4	BULK GOODS	KOCHI/KOLLAM/ ERNAKULAM/VAIKOM/AR-OOKUTTY/ALAPPUZHA/ KAYAMKULAM/ /THRIKUNNAPUZHA/ CHAVARA/VECHOOR/ ALUVA/KOTTAPURAM /AMBALMUGAL /CHERTALA/ALUVA	KAYAMKULAM/ALAPPUZHA/ KOLLAM/CHAVARA/ERNA-KULAM/ALUVA/KOTTAPURAM KOCHI/VAIKOM/AROOKUTTY CHERTALA/THRIKUNNAPUZH /FLOOR/AMBALAMUGAL/ AROOKUTTY	617.67	752.07	931.94
5	CHEMICAL & FERTILI-SER	KOCHI/AMBALAMUGAL/ ALUVA/ELOOR	KOTTAPURAM/KOLLAM/ KAYAMKULAM/CHAVARA/ ELOOR/ALAPPUZHA/ AMBALAMUGAL	621.82	739.80	897.69
6	POL	ERNAKULAM/KOCHI/ AMBALAMUGAL	KOLLAM/KOTTAPURAM/ KOLLAM/CHERTALA/ ALAPPUZHA/CHAVARA	223.35	298.90	399.99
			TOTAL	2086.15	2624.89	3345.87

ANNEX.-7.1

REPORT OF WORKING GROUP ON IWT FOR 9TH PLAN

IDENTIFICATION OF FINANCIAL RESOURCES FOR IWT SECTOR FOR 9TH PLAN



INVESTMENT REQUIREMENT (Rs. in Crore)		PROPOSED SOURCE OF FINANCING (Rs. in Crore)	
1. Infrastructure development (IWAI)	710	Private Sector	3600
2. Infrastruture development (CIWTC)	272	Plan	1155
3. Cargo Vessels	3600	PSU share of	1000
4. Sbsidies 600+50+50+47 (SBS, LISS, IDF + State subsidy)	747		
5. CSS	244		
6. Farakka Barrage Schemes	142		
7. State Sector	40		
	5755		5755

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