

9.5.2 Financial Cost on NW 2

With the freight movement demand of 0.78 million tonne, the capital cost works out to be Rs 271 crores (inclusive of capital outlay for barges). The inclusion of price escalation factor the cost becomes Rs 298.85 crores. The economic cost conversion is Rs 209.6 crores.

Table 9-3- The Budgeted Capital Expenditure and Cost Break-up on NW-II (unit: Rs crores)

Direct Capital Cost		Total Cost*	Yearly Breakup				
			1	2	3	4	5
I	Fairway Development						
a	Annual Improvement cost	50	10	10	10	10	10
II	Terminals	50	10	10	10	10	10
a	Inter-modal Terminals and Permanent Terminals	115	11.5	11.5	34.5	34.5	23
b	Floating Terminals upgradation	75	7.5	7.5	22.5	22.5	15
c	Improvement of Terminals	15	1.5	1.5	4.5	4.5	3
d	Port Back Offices	5	0.5	0.5	1.5	1.5	1
e	Slipway/dock with marine w/s facilities	10	1	1	3	3	2
III	Vessel Cost	10	1	1	3	3	2
a	Acquisition of Dredgers and Other vessels (50% is vessel cost to be provided by the operator and 50% is cost for dredgers)	91	18.2	18.2	18.2	18.2	18.2
b	Repairs of Existing Vessels	86	17.2	17.2	17.2	17.2	17.2
IV	Navigational Aids and Other Equipment	5	1	1	1	1	1
a	24 hrs Navigation in Patna to Kolkata	15	5	2.5	2.5	2.5	2.5
b	Survey and Communication Equipment	10		2.5	2.5	2.5	2.5
	Total Capital Cost	5	5				
	Physical Contingency	271	44.7	42.2	65.2	65.2	53.7
	Price Contingency (Price Escalation)	23.55	3.88	3.67	5.67	5.67	4.67
	Financial Cost (Excl. Price Contingency)	4.30	0.22	0.42	0.98	1.32	1.36
	Financial Cost (Incl. Price Contingency)	294.55	48.58	45.87	70.87	70.87	58.37
	Economic Cost (Excl. Price Contingency and Physical Contingency)#	298.85	48.81	46.29	71.85	72.18	59.72
		209.60	34.3	32.1	50.86	50.86	41.48

Source: NCAER, New Delhi

Note: 1. Physical Contingency = 0.08% of total cost, 2. Price Contingency = 0.005% of total cost
 3. SCF = 0.881 (SCF Standard Conversion Factor for trade goods), 4. Shadow Wage Rate = 0.5 of labor cost
 5. Share rate of equipment/costs to construction = 0.7, 6. Price Rate of Labor Cost to Construction = 1.8
 7. Share Rate of Labor Cost in Dredging = 1, 8. Corporate Income Tax = 0.35 of profit
 9. Personal Income Tax = 0.1% of labor cost
 10. Corporate Profit = 0.1 of Construction Cost
 #The Total Cost figures are from the Tenth Working Committee Report (1991-2007), IWAI

9.6 Grant from the Government

The total capital cost for the fully developed national waterway 1 and 2 is Rs 510 crores which excludes the capital outlay of 95 crores toward barges. The total capital outlay together for IWAI and barges will be Rs605 crores. The government needs to provide Rs 510 crores as a grant for the development of national

waterways, without any liability of recovery. If the government does not provide this grant then the IWAI may have to levy a development charge of Rs 3.9 per tonne-km to earn 10% IRR, which would make the project financially non-viable.

The table below indicates the tariff barge operator would expect if the cost of capital of barge is 10%, 15% and 18% respectively. This excludes any development charges levied by IWAI towards the use of waterways, as this option would make it a non-starter.

Table 9-4 Price per tonne-km that would yield an IRR of 10%, 15% and 18% for Barge Operation

Sl.No		10% IRR	15% IRR	18% IRR
1	Compounded capital cost at the end of five years gestation period on NW 1 & NW 2 (Rs lakh)	12,827	14,810	16,124
2	Present value: tonne-km (lakh)	17206	11836	9848
3	Capital Recovery per tonne-km to yield the targeted IRR (Rs) [1/2]	0.75	1.25	1.64
4	Operating Cost per tonne-km (Rs)	0.13	0.13	0.13
5	Price per tonne-km that would yield the targeted IRR (Rs.) [3+4]	0.88	1.38	1.77

Source: NCAER, New Delhi

As per table 9.4, the price per tonne-km for barge to yield an IRR of 10% works out to be Rs 0.88 / tonne-km. However for the barge operator to successfully carry out operation of barges on IWT a rate of return between 15% to 18% would be desirable as the cost of capital is in this range. Therefore the price per tonne-km of Rs 1.38 to Rs 1.77 would be the price range for the operator to charge from the users, assuming that he does not pay development charges to IWAI.

If IWAI takes on the responsibility of barge operations and does not invite private sector participation, then the grant required from the government would be Rs 605 crores. The details of the Financial Internal Rate of Return (FIRR) keeping in mind the financial cost and financial benefits accrued at fully developed scenario are tabulated in Table 9.4. However from the management point of view, this may not be optimal option.

A quick look at the financial figures arrived suggest that project level calculations should be done on a realistic, fully developed level where investment in both mechanical loading equipment at the terminals as well as night navigation and LAD at two meters on National Waterways must be taken into consideration. All the scenarios show negative IRR, which means that investment in IWT is not financially viable.

From the optimistic view, a fully developed scenario shows a positive IRR of 2.56 per cent. The assumption of the entire additional production, beyond the current levels of production of the year 2005 would shift to IWT seems unrealistic. It also assumes that the rail and road networks are at their peak capacity utilisation and there will be no further capacity enhancement of the two modes.

IWT is the cheapest and the most fuel efficient mode of transport and to this can be linked a chain of other tangible as well as intangible benefits, therefore, a whole-hearted effort should be made to invest in this mode for a fully developed status.

9.7 Conclusion

IWT, an infrastructure project can be categorised under public utility works and needs large initial capital outlay, which cannot be recovered from the beneficiaries/ users of IWT, as has been illustrated above. This necessitates the need to obtain Rs 510 crores towards IWT infrastructure as grant.

In such projects and investments of public sector organisations for transport or infrastructure building, it is the social cost-benefit analysis that has more relevance. IWT is one such project where direct and indirect intangible benefits far outweigh the direct financial benefits. Keeping in view the large EIRR obtained in this study, investments in Inland Water Transport are justified.