

CHAPTER – X

BENEFIT COST RATIO AND FINANCIAL ASPECTS

10.1 General

The proposed Burhi Gandak-Noon-Baya-Ganga link project is a multipurpose project with flood control and irrigation benefits.

10.2 Benefits

10.2.1 Relief from flood

Damages occur in lower reaches of Burhi Gandak basin in the districts of Samastipur, Begusarai and Khagaria. The overall damages due to flood have been worked out on the basis of average annual flood damage of the three districts for the period 1998 to 2012. The overall average annual damage in these districts works out to be Rs. 20472.53 lakh. As per the studies carried out, reduction in flood damages to houses, crops and utilities would be of the order of about 70% of the overall flood damage. Thus the annual benefits due to reductions in flood damages has been worked out to be Rs. 14330.77 lakhs.

10.2.2 Irrigation benefit

The link project will provide irrigation facilities in the areas enroute the link canal in kharif season through main canal, branch canal, distributaries etc. in Samastipur, Begusarai and Khagaria districts. The link project will provide irrigation to the tune of 1.26 lakh ha in the enroute areas of aforesaid districts. The total annual benefits from irrigation works out to Rs. 58710.35 lakh.

10.2.3 Domestic and industrial benefits

The link may also provide water for domestic and industrial water supply in the project area. The possibilities can be explored by state Govt. However, no monetary benefits have been considered in the study.

10.2.4 Total annual benefits

The total relief from flood and irrigation benefit to be accrued annually from the project are worked out to be Rs. 73041.12 lakh. The details are given in **Table 10.1**.

Table 10.1
Annual flood relief & irrigation benefit from the link project

Sr. No.	Particulars	Amount (Rs. in lakh)
i	Net benefits as flood relief	14330.77
ii	Net annual benefits from irrigation	58710.35
	Total benefit	73041.12

10.3 Cost estimate

The total estimated cost of the link project has been worked out in Chapter–IX Cost Estimates and worked out to be Rs. 421374.92 lakh at the price level of the year 2012-13 which includes the cost of Unit – I Headworks viz. Burhi Gandak barrage of Rs. 97054.72 lakh, Unit-II Canal system of Rs. 302541.53 lakh and unit-VI Command area development of Rs. 21778.68lakh.

10.4 Benefit cost ratio and internal rate of return of the project

In order to examine the economic viability of the scheme, the benefit cost ratio has been worked out based on ‘Guidelines for Preparation of Detailed Project Reports of Irrigation and Multi-purpose Projects-2010, issued by Ministry of Water Resources, Govt. of India. The gross value of the benefits of the project for the pre-project and post project scenarios have been computed adopting the yields and prices of commodities collected from agricultural and marketing departments of Govt. of Bihar. The net benefit from irrigation works out to Rs. 47.00 lakh per 100 ha of cropped area. The benefit cost ratio has been worked out as 1.54. Details is given at **Annexure 10.1**.

The internal rate of return of the project considering 100 years life of the project has been worked out as 16%.