

## **Chapter – 12**

### **Benefit – Cost Ratio and Financial Returns**

#### **12.1 Benefits**

##### **12.1.1 Direct Benefits**

Availability of irrigation in the drought prone areas of upper Chambal sub-basin and also for the areas enroute of the link canal and domestic water will be the direct benefits from the project. The net annual benefits from the project in different alternatives from irrigation and domestic water supply are worked out. The benefits from water supply have been worked out with updated rate of Rs. 21.68 per cum. The expected gross value of produce and expenditure on seeds, manure, pesticides and labour etc. with and without irrigation are worked out. The gross values of the agriculture benefits for the pre-project and post-project conditions have been computed considering the yields per hectare and prices of commodities collected from the M.P. Mandi Board and Agricultural Department of the Government of Madhya Pradesh. The net annual benefits by irrigation and domestic water supply including upper Chambal projects works out to Rs. 66434 lakh in case of canal linking to Rana Pratap Sagar alternative-(a). In case of linking to Gandhi Sagar alternative-(b)-I and alternative-(b)-II, the net annual benefits by irrigation and domestic water supply including upper Chambal projects are Rs. 68834 lakh and Rs. 68432 lakh respectively.

##### **12.1.2 Indirect Benefits**

Auxiliary and incidental benefits that will occur by the commissioning of this scheme are of immense value to the people of the area. Ground water will get supplemented through the seepage of surface water used for irrigation and will increase in water table. The scarcity of drinking water in these dry areas will be mitigated considerable. The afforestation programme could be implemented on canal banks resulting in environmental improvement. The communication system will improve because of canal roads and CD works raising marketing opportunities. The formation of the reservoirs will help tourism development, fish and aquaculture, bird sanctuaries etc. Besides, there will be an increase in employment opportunities during the construction of project.

#### **12.3 Cost**

The total estimated cost of P.K.C. link canal project at price level 2002-03 works out to Rs.298902/-lakh, Rs.312547/- lakh and Rs.305830/- lakh for alternative (a), alternative (b)-I and alternative (b)-II respectively.

#### **12.3 B.C. Ratio**

The B.C. ratio for whole project including projects proposed in upper reaches of Chambal for all the three alternatives viz. Alt.(a), Alt.(b)-I and Alt.(b)-II is worked out as 1.67, 1.59 and 1.63 respectively. The details of B.C. ratio for all three alternatives with all the three options are given below:

Particulars	Patanpur to RPS dam (Alt-a) Rs. in lakh	Patanpur to GS dam (Alt- (b)-I) Rs. n lakh	Patanpur to GS dam (Alt- (b)-II) Rs. in lakh
Benefit cost ratio			
<b>Option-I</b>	1.21	1.07	1.12
<b>Option-II</b>	1.02	0.82	0.85
<b>Option-III</b>	1.67	1.59	1.63

## 12.4 Internal Rate of Return

The IRR for all the three alternatives and three options for each alternatives are given in Table-12.2.

**Table – 12.2**  
**Details of I.R.R.**

Particulars	Alternative- (a) (Patanpur to RPS)			Alternative- (b)- I(Patanpur to GS, lift from Kundaliya			Alternative- (b)-II (Patanpur to GS, lift after river Ahu)		
	Opt. I	Opt.II	Opt.III	Opt. I	Opt.II	Opt.III	Opt. I	Opt.II	Opt.III
I.R.R.	11%	9%	14%	10%	8%	14%	10%	8%	14%