Chapter 13
Benefit Cost Ratio

13.1 Yearly Programme of Development

The entire work on execution of the project is programmed to be completed in a period of 8 years. It is proposed to commence irrigation to a part of the command from the Sixth year and full potential is expected to be created by the end of VIIIth year. The power house at the inlet of the interconnecting tunnel between Punnamedu and Achankovil Kal Ar reservoir is scheduled for completion by the end of Vth year and power generation from this unit is expected to commence from VIth year. The other power units are expected to be commissioned by the end of VIIIth year. The year wise programme for development of project is furnished below:

Potential created (cumulative) at the end of each year

Year	Irrigation (ha)	Power (MU)	
I	NIL	NIL	
II	NIL	NIL	
III	NIL	NIL	
IV	NIL	NIL	
V	19657	0.8	
VI	43994	0.8	
VII	68371	17.4	
VIII	91400	1114.0	

13.2 Benefit cost ratio and financial return

Pamba – Achankovil – Vaippar link project is a multipurpose project proposed to be executed in a single stage. Irrigation facilities are provided to an area of 91400 ha in the state of Tamil Nadu per annum. Seven power houses are proposed in the project, 3 at dam sites and four at canal drops along the main canal. The project will utilise a quantum of 634.76 Mm^3 for irrigation and 10 Mm^3 of water will be released for power generation during 6 hours peak period from Achankovil Kal Ar to be pumped back in the remaining 16 hours. The other power houses utilise the water released for irrigation / downstream releases during lean season. The total cost of the project including the power component works out to Rs. 1397.91 crores.

Computation of B.C. ratio is based on the guidelines given in working group report “Guidelines for preparation of detailed project reports of irrigation and multipurpose projects”. The expected value of produce before and after introduction of irrigation are worked out. The gross value of the benefits of

the project for the pre project and post project conditions are computed adopting the yields and prices of commodities collected from Agricultural and Marketing departments. The benefits from power production are also considered under gross benefits. Net value of the benefits is computed after allowing for the loss in the area coming under submergence due to excavation of canal and distributaries and considering the rates of fodder input, pesticides, labour, etc.

The annual cost is computed allowing for 10% of interest on total estimated cost of the project including the cost of land development at Rs. 2000/- per ha. The B.C ratio works out to 1.008 .

Benefit – Cost Ratio of the Project (Rs. in lakh)

I Cost of Project

a)	Estimated Cost of the Project	139791.00
b)	Cost of land developments at Rs. 2000/- per ha of CCA i.e., 101555 ha.	2031.10
	Total	141822.10

II Annual Benefits

a)	Net value of produce – post project	13267.185
b)	Net value of produce – pre project (-)	1377.196
c)	Loss in agriculture production in area coming under submergence and land going out of cultivation in project area, canal distribution systems, etc., (1% of gross value of produce before irrigation) (-)	45.479
	Sub-total (-)	1422.675
	Net value of benefits from irrigation	11844.510
d)	Annual benefit from power	27568.650
e)	Total benefits from irrigation and power	39413.160

III Annual Cost

a)	Interest at 10% of estimated total cost of the project	13979.100
b)	Depreciation of the project at 1% of the cost of project	1397.910
c)	Charges for power for lifting of water	22830.000
d)	Annual operation and maintenance charges (Rs. 50/- per ha for 91,400 ha of annual irrigation)	45.700
e)	Maintenance of the head works (1% of the cost of head works i.e., 82834)	828.340
	Annual Cost	39081.050

IV Benefit - Cost Ratio = 39413.16 / 39081.05

= **1.008**