

Chapter 13

Cost estimates

13.1 General

Estimate for the project is prepared as per the working group report "Guidelines for Preparation of Detailed Project Reports of Irrigation and Multipurpose Projects" published by the erstwhile Ministry of Irrigation (now Ministry of Water Resources), Govt. of India in the year 1980. The cost of the Krishna (Almatti) – Pennar link project has been estimated under three units. The cost of 'Head Works' is given in Unit – I. The cost of Conveyance System is given under Unit – II . The cost of Power House is given under Unit – III. The total cost of the link project is estimated as Rs. 659980 lakh at 2003-04 price level.

13.2 Unit - I : Head Works

For providing storage / diversion facilities in the upper reaches of the Pennar basin the cost of head works at Kalvapalli reservoir has been arrived at based on the cost estimates for Penna Ahobilam Project. The cost of head works also include the provision of head regulator at Almatti Reservoir and Bukkapatnam Tank. The cost of head-works works out to Rs. 5243 lakh.

13.3 Unit - II: Link Canal System

The cost of the canal system works out to Rs. 651951 lakh.

(A) Direct Charges: The direct charges include the following:

I	Works	Rs. 574120 lakh
II	Establishment	Rs. 67880 lakh
III	Tools and Plants (Ordinary)	Rs. 5741 lakh
IV	Receipts and Recoveries on Capital Account	Rs. (-) 1954 lakh
V	Cost of Land Development	-
	Sub-total	Rs. 645787 lakh

(B) Indirect Charges: The indirect charges include the following:

a)	Capitalised value of abatement of land revenue	Rs. 423 lakh
b)	Audit and Accounts charges	Rs. 5741 lakh
	Sub-total	Rs. 6164 lakh
	Total cost of the Unit-II (A + B)	Rs. 651951 lakh

13.3.1 Direct Charges

I – Works

A – Preliminaries: This sub-head covers the expenditure on investigation already done and to be conducted during execution, surveys, design studies, field tests, etc., and other laboratory tests. The provision made under this sub-head is Rs. 11482 lakh, at 2% of cost of I-Works (i.e., Rs. 574120 lakh).

B – Land: Provision made under this sub-head cover the cost of land acquisition along the canal alignment, structures, camp colonies and for field units. The cost of land acquisition and the related items works out to Rs. 8450 lakh. Provision is also made under this sub-head for Compensation for standing crops, Solatium charges, Establishment charges and Shifting charges of telephone and electrical lines. Provision is also made for measurement and demarcation of land and property, rent for use of land, legal charges and rehabilitation charges.

D – Regulators: A provision of Rs.1046 lakh (300 + 746) has been provided for construction of off take sluices and for cross regulators.

F – Cross Drainage Works: The cross drainage works are aqueducts / syphons aqueducts, syphons, super passages and under tunnels. The cost of CD works have been worked out based on the cost curve given in the DPR of Upper Krishna Project Stage-II (1998-99) and escalated to 2003-04 level. The total cost of cross drainage works is estimated to be Rs.50121 lakh.

Aqueducts: The total cost of aqueducts / syphon aqueducts works out to Rs.38641 lakh. The cost of aqueducts works out to Rs.36799 lakh and Syphon aqueduct works out to Rs.1842 lakh.

Syphons: The total cost of syphons works out to Rs.4287 lakh.

Super Passages: The total cost of super passages works out to Rs.4325 lakh.

Under tunnels: The total cost of under tunnels works out to Rs.2868 lakh.

G – Bridges:

Double Lane Road / Rail Bridges: The unit cost of one S.H. bridge works out to Rs.0.997 lakh per metre. The unit cost of National Highway bridge is kept as 1.2 times of that of State Highway bridge.

The total cost of double lane road / rail bridges works out to Rs.1759 lakh.

Single Lane Road / Rail Bridges: Unit cost of single lane road / rail bridge works out to Rs.0.787 lakh per metre. The total cost of single lane road / rail bridges works out to Rs.2180 lakh.

H – Escapes: The total cost of escapes works out to Rs.360 lakh.

K – Buildings: The buildings are broadly classified as permanent and temporary. They are further classified as residential and non- residential buildings. A sum of Rs.5683 lakh is provided for buildings.

L - Earth Work and Lining: An amount of Rs.431174 lakh has been provided for earthwork, which includes excavation and construction of embankments and tunnels.

Table 13.1
Abstract of cost for earthwork and lining

Sl. No.	Item of work	Cost (Rs. in lakh)
1.	Canal excavation	269314
2.	Tunnel excavation	47141
3.	Branch canal excavation	11029
4.	Canal lining	65871
5.	Tunnel lining	35104
6.	Branch canal lining	2715
	Total:	431174

M – Plantation: A provision of Rs.748 lakh has been made under this sub-head towards plantation on the embankment portion to be constructed and its maintenance. The remaining structures along the bunds are covered with natural vegetation.

N – Tanks and Reservoirs: A provision of Rs.50 lakh has been made under this sub-head for improvement of the existing Bukkapatnam tank.

O – Miscellaneous: The total provision made under this sub-head is Rs.1900 lakh.

P – Maintenance: A provision of Rs.5507 lakh has been made under this sub-head for the maintenance of works during construction period.

Q - Special Tools and Plants: A provision of Rs.7719 lakh is made for the purchase of equipment for excavation, transportation, compaction, concreting etc. The net amount charged to Q-Special Tools and Plants is Rs.719 lakh. This is after deducting 75% of the capital cost of machinery other than inspection vehicles.

R – Communication: A lump sum provision has been made under this sub-head is Rs.200 lakh for connecting important work spots with existing roads, roads to quarries, temporary river crossings, etc.

U – Distributaries, Minors and Sub-Minors: A provision of Rs.37583 lakh is made under this sub-head for the distributaries system inclusive of excavation of majors, minors and construction of cross masonry and cross drainage structures.

V – Water Course / Field Channels: A provision of Rs.9890 lakh is made under this sub-head for providing field channels in the command area.

W – Drainage: A provision of Rs.3757 lakh is made under this sub-head for drainage system in command area.

X – Environment and Ecology: A provision of Rs.127 lakh is made towards the study of environmental and ecological aspects by various organisations and for necessary protective measures.

Y - Losses on stock: A provision of Rs.1384 lakh is made @ 0.25% of cost of I-Works less A-Preliminaries, B-Land and Q-Special tools and plants towards losses on stock of material due to natural causes.

II – Establishment

An amount of Rs.67880 lakh is made under this sub-head for establishment including leave and pensionary charges at 12% on I-Works less B-Land.

III - Tools & Plants (Ordinary)

A provision of Rs.5741 lakh @ 1% of cost of I-Works less B-land is made under this head to cover the cost of survey instruments, office equipment and other small tools.

13.3.2 Indirect Charges

(i) Audit and Accounts Charges

A provision of Rs.5741 lakh is made under this head at about 1% of the cost of Works to cover the audit and accounts.

(ii) Abatement of Land Revenue

A provision of Rs.423 lakh at 5% of land cost is provided towards abatement of land revenue due to land acquisition for canals and camps.

13.4 Unit – III: Power House

A powerhouse is proposed at the exit of the tunnel no 1 for generating 13.5 MW of power. The cost of powerhouse with installed capacity of 13.5 MW near Almatti dam works out to Rs.2786 lakh.

13.5 Estimated cost

The total estimated cost of Krishna (Almatti) – Pennar link works out to Rs.659980 lakh as given below:

Unit – I	Head works	Rs. 5243 lakh
Unit – II	Canal System	Rs.651951 lakh
Unit- III	Power House	Rs.2786 lakh
	Total	Rs. 659980 lakh