

Chapter 12 Estimates

12.1 General

The estimates for the project are prepared based on the "Guidelines for preparation of detailed project reports of irrigation and multipurpose projects" of Govt. of India, Ministry of Water Resources-2010.

The total cost of the Mahanadi (Barmul) - Godavari (Dowlaiswaram) link canal project including six projects works out to be Rs. 54019 crore. The cost of the link project is estimated under the following three units. Details are given in **Table 12.1**.

Table 12.1
Cost of the link project

| Description | M-G Link (crore Rs) | Six Projects (crore Rs) | Total (crore Rs) |
|----------------------------|------------------------|----------------------------|---------------------|
| Unit - I Head works | 462 | 4426 | 4888 |
| Unit-II Conveyance system | 45215 | 2866 | 48081 |
| Unit - III Power component | 561 | 489 | 1050 |
| Total | 46238 | 7781 | 54019 |

The abstract of the total estimated cost of Mahanadi (Barmul)- Godavari (Dowlaiswaram) link canal project is furnished in **Annexure 12.0**. The cost estimates have been prepared on the basis of the latest available schedule of rates and escalating the prices @ 7.5 % per annum as per price index for 2018-19.

12.2 Unit I – Head works

The total cost of head works is estimated to be Rs. 4888 crore. This estimate includes cost of construction of a new dam and appurtenant works across river Mahanadi at Barmul and Six projects viz. Ong Project, Tel Integrated Project, Upper Udanti irrigation Project, Uttei Roul Project, Khadaga Hydropower Project and Salki Hydropower Project. Apportioned cost of link project has been arrived on the basis of the water use through link canal. This estimate also includes extra provision for increase in the capacity of head regulator to cater for the increased discharge as required for Mahanadi(Barmul)- Godavari(Dowlaiswaram) link canal. The abstract of estimate is furnished at **Annexure 12.1** and sub-head-wise details are furnished in **Annexure 12.2.1**.

12.3 Unit II - Conveyance System

Total cost of conveyance system consisting of M-G link canal, branch canals, distributaries, field channels, structures etc. including canal system of six projects works out to Rs. 48081 crore. The abstract of cost of Unit II is presented in **Annexure 12.2**. The cost of M-G link canal alone works out to Rs. 45215 crore and cost under various sub-heads is worked out as follows:

12.3.1 Classification of minor heads/sub-heads

Unit-II of M-G link has been divided into the following minor heads classified as direct and indirect charges.

A. Direct charges

Direct charges include the following items:

| | Rs. in crore |
|----------------------------------|---------------------|
| I - Works | 40133 |
| II - Establishment | 4367 |
| III - Tools and plants(Ordinary) | 401 |
| IV - Suspense | Nil |
| V - Receipts and Recoveries | (-) 274 |
| Sub-total | 44627 |

B. Indirect charges

Indirect charges include the following items:

| | |
|---|--------------|
| a) Capitalised value of abatement of land revenue | 187 |
| b) Audit and account charges | 401 |
| Sub-total | 588 |
| Total cost of conveyance system | 45215 |

12.3.1.1 Direct Charges

I - Works

'A' Preliminaries

The provision made under this sub-head is Rs. 803 crore. The percentage worked out is 2% on cost of I-Works (i.e Rs. 40133 crore). This sub-head covers the expenditure on pre-construction survey, detailed survey and investigations to be conducted during execution, design studies, field tests etc.

'B' Land

Provision made under this sub-head covers the cost of land acquisition for link canal, branch canals, distributaries, field channels, embankment, power house and camp colonies. The cost of land acquisition and related items works out to Rs. 3738 crore. The abstract is given at **Annexure 12.3.1** and the details in **Annexures from 12.2.3 to 12.2.3.1 to 12.2.3.3.**

'C' Works

Provision made under this sub-head covers the cost of increasing the height of the existing Salia reservoir including the rehabilitation and resettlement for the additional submerged areas, which works out to 108 crore. The link canal out falls into the reservoir and takes off from the right side of the reservoir. The details are given at **Annexure 12.2.4.**

'D' Regulators

A provision of Rs. 218 crore has been made for construction of cross regulators, off take sluices and cross regulators for branch canals. The abstract is given at **Annexure 12.2.5** and the details are given in **Annexures from 12.2.5.1 to 12.2.5.3.**

'F' Cross drainage works

The cross drainage works are (1) aqueducts/syphon aqueducts, (2) under tunnels, (3) super passages and (4) Inlets. Cost for these structures is deduced from cost curves. Total cost of cross drainage works is estimated to be Rs. 5140 crore. The abstract is given at **Annexure 12.2.6.** Details are given in **Annexure from 12.2.6.1 to 12.2.6.3.**

Aqueducts

The total cost of aqueducts/syphon aqueducts comes to Rs. 4944 crore. The details of estimate are given in **Annexure 12.2.6.1.**

Under tunnels

The total cost of under tunnels works out to Rs. 160 crore. The details are given in **Annexures 12.2.6.2.**

Super passages

The total cost of super passages comes to Rs. 37 crore. The details are given in **Annexures 12.2.6.3.**

'G' Bridges

The total cost of bridges works out to Rs. 297 crore. The details are given in **Annexure 12.2.7.**

Single lane bridges

The cost under this sub-head works out to Rs. 118 crore. The details are given in **Annexure 12.2.7.1 to 12.2.7.3.**

Double lane bridges

The cost of double lane bridges works out to Rs. 87 crore. The details are given in **Annexure 12.2.7.4 to 12.2.7.6.**

Railway bridges

The cost of railway bridges works out to Rs. 86 crore. The details are given in **Annexure 12.2.7.7.**

Foot bridges

The cost of foot bridges works out to Rs. 6 crore. The details are shown in **Annexure 12.2.7.8.**

'H' Escapes

The total cost of escapes comes to Rs. 40 crore. The details are given in **Annexure 12.2.8.**

'K' Buildings

The buildings are classified broadly as permanent and temporary buildings. These are further classified as residential and non-residential buildings. A sum of Rs. 435 crore is provided for buildings. The details are given in **Annexures 12.2.9.1 to 12.2.9.3** and abstract in **Annexure 12.2.9.**

'L' Earthwork and lining

Total cost of earthwork and lining for the link canal including tunnels is estimated to be Rs.25689 crore. The abstract of cost is given in **Annexure 12.2.10** and details are given in **Annexures from 12.2.10.1 to 12.2.10.6.**

'M' Plantation

A provision of Rs. 28 crore is made under this sub-head for plantations along the link canal and branch canals. The details are given in **Annexure 12.2.11.**

'N' Tanks and reservoirs

A sum of Rs. 8 crore is provided for improving the existing tanks in the command area. The details are given in **Annexure 12.2.12.**

'O' Miscellaneous

The total provision made under this sub-head is Rs. 185 crore. The details are given in **Annexure 12.2.13.**

'P' Maintenance

A provision of Rs. 677 crore is made under this sub-head for the maintenance of all works during construction period. The details are given in **Annexure 12.2.14.**

'Q' Special Tools and Plants

A provision of Rs. 171 crore is made under this sub-head. The net amount charged to special tools and plants is computed after deducting hire charges at 75% on the capital cost of machinery. Abstract & Estimate are given at **Annexure 12.2.15 & 12.2.15.1.**

'R' Communications

A lump sum provision of Rs. 18 crore is made under this sub-head for connecting important work spots with existing roads, roads to quarries, temporary diversion etc. The details are given in **Annexure 12.2.16.**

'U' Distributaries, minors and sub-minors

A provision of Rs. 1529 crore is made under this sub-head. The details are given in **Annexure 12.2.17.**

'V' Water courses/Field channels

A provision of Rs.458 crore is made under this sub-head for providing field channels in the command area. The details are given in **Annexure 12.2.18.**

W' Drainage

A provision of Rs. 528 crore is made under this sub-head for drainage system in command area. The details are given in **Annexure 12.2.19**.

'X' Environment and ecology

A provision of Rs. 64 crore is made towards afforestation, restoration of land in construction areas by filling, grading etc. to prevent further erosion and for protective measures as may be necessary. The details are given in **Annexure 12.2.20**.

II - Establishment

An amount of Rs. 4367 crore has been provided under this sub-head for establishment including leave and pensionary charges at 12% on I-works less B-Land. The same is included in **Annexure 12.2.2**.

III-Tools and Plants (Ordinary)

A sum of Rs. 401 crore is made under this sub-head to cover the cost of survey instruments, camp equipment, office furniture and equipment and other small tools which works out to about 1% of the cost of I-Works. The same is included in **Annexure 12.2.2**.

IV- Suspense

No provision is kept under this sub-head.

V - Receipts and Recoveries

An estimated deduction by way of resale or transfer of temporary buildings and sale of special T & P and miscellaneous receipts from rent charges of buildings is provided as Rs. 274 crore. The same is given in **Annexure 12.2.21**.

12.3.1.2 Indirect Charges

a) Audit and Account Charges

A provision of Rs. 401 crore is made under this head at about 1% of the cost of I-Works to cover the establishment charges of the Accounts staff. The same is included in **Annexure 12.2.2**.

Abatement of Land Revenue

A provision of Rs. 187 crore at 5% of the land cost is provided towards abatement of land revenue due to land acquisition for canals and camps. The same is included in **Annexure 12.2.2**.

12.4 Unit III – Power component

The power component under this sub-head consists of proposed power houses at Barmul dam and Tel project, Salki & Khadaga hydropower projects. The total cost works out to Rs. 1050 crore. The abstract of cost under **Unit III** is presented in **Annexure 12.3**. The details are given in **Annexures 12.3.1**.