Chapter 11
Construction Programme and Manpower and Plant Planning

11.1 Construction programme

The construction work of Nagarjunasagar - Somasila link project is proposed to be completed in 8 years. It is proposed to complete all the preliminary works such as additional surveys, design studies, laboratory tests, and construction of approach roads etc. in the first 3 years. The process of land acquisition and thereafter rehabilitation and resettlement, procurement of machinery and T&P are proposed to be taken-up from the first year itself and can be completed by the end of third year. Construction of colonies and approach roads for the same and laying of electric lines shall also be commenced from first year onwards. The construction of power block, powerhouse, head regulator and tunnel are to start with excavation from the fourth year and would be completed by the end of seventh year. The excavation of canals is to commence from third year and construction of the cross drainage and cross masonry (CD and CM) works are proposed to be completed by the end of eighth year. The lining work of the entire length of canal will be started in fourth year and the same will be completed by the end of eighth year. The distributary system as well as drainage including command area development are programmed to be taken-up simultaneously in the third year and can be completed by eighth year. The proposed diversion to Somasila reservoir will be started by the end of eighth year. The unit wise construction programme is given in the following paras:

Unit I - Head works

All the preliminary works are proposed to commence in the first year and to be completed by the end of third year including designs and field tests. The construction works of power dam and head regulator shall be taken-up from fourth year and completed by the end of seventh year. Other miscellaneous works are also slated to be taken-up and completed simultaneously.

Unit II - Conveyance System

The preliminary works shall be started from first year and to be finished by third year including land acquisition, rehabilitation and resettlements. Construction of camp colonies is also proposed to be started in the first

year itself and completed by the end of second year. The excavation for main canal, branch canals, construction works of CD & CM structures are to be started from third year and completed by the end of eighth year. The procurement of special tools and plants is to be taken-up and completed in one year time i.e. in the third year. Construction of distributaries, minors and water courses, are also to be simultaneously started in the third year and completed by eighth year. Plantation can be taken-up in the seventh year and to be completed by eighth year.

Unit III - Powerhouse

The preliminary works such as design of various components of powerhouse and laboratory tests shall be started in the first year and completed by the end of third year. Procurement of tools and plants is to be done in third year. All the power plant civil works and electrical works shall be started in the fourth year and completed by seventh year.

11.2 Material planning

The works broadly comprise of the following items

(i) Construction of power block and head regulator
(ii) Construction of powerhouse at the head of the link canal
(iii) Construction of 1.265 km long tunnel at RD 3.58 km
(iv) Construction of link canal, branch canals, distributaries and field channels and allied works.

All the construction materials like soil for embankments, sand and coarse aggregates are available within a maximum lead of about 60 km from the proposed alignment of the link canal. Nearest stone and sand quarries have been identified during the surveys and investigations, throughout the length of the link canal. Cement and steel required can be procured from places identified for the purpose, which are well connected by roads and railways. These aspects are already dealt in detail in Chapter on “Surveys and Investigations”.

11.3 Plant and machinery planning

The special tools and plants required for construction of the link project are shown in Table 11.1**.**

Table 11.1
Requirement of special tools and plants for construction of link canal

Sl.No.	Item	No.
I.	**"Q" Special tools and plants (Machinery)**	
1	Hydraulic Excavator 3.8 m^3	18
2	Hydraulic Excavator 2.84 m^3	3
3	Rear dumper 35T	110
4	Wagon drills	10
5	Air compressors 40 cft	10
6	Concrete mixture 1077 cft	5
7	Concrete mixture 1 m^3 with weight batcher	10
8	Dozer 320 HP	4
9	Water tanker 7500 Lts.	17
10	Water pump 10 HP	7
11	Vibrator rollers	4
12	Trucks 8-10T	33
13	Motorised water tanker 7500 Lts.	50
14	Trailors 25T	2
15	Trailors 40T	2
16	Pneumatic tractor 50 HP	30
17	Trailors 7.5T	30
18	Crane 10 T	1
19	Generator 75 kVA	4
20	Water pump	10
21	Workshop equipment	90
22	Dewatering equipment	10
23	Explosive van	2
II.	**Inspection and transportation vehicles**	
24	Jeeps	125
25	Cars	8
26	Ambulances	2
27	Buses	2
28	Station wagons	30
29	Jeep trailors	20

11.4 Manpower planning

It is proposed to have, in all, five Circle offices including a designs Circle under one Chief Engineer's office to be located at Ongole. Each of these Circles in turn will have four Divisions located at various places along the canal alignment for effective execution of works. In addition to these, four Circle offices will have one Mechanical Division each. It is

also proposed to have two Pay and Accounts Offices to facilitate the fiscal transactions in respect of the works and other payments like Salaries, T.A & D.A etc. to the personnel working in the project offices. Two Special Deputy Collector offices are proposed to set up for the land acquisition and other related works. Suitable places along the link alignment for locating all these offices have been tentatively identified to facilitate effective monitoring and control over the execution of various works.

11.5 Programme of year-wise expenditure

The total cost of the Nagarjunasagar - Somasila link project is estimated to be Rs 6321 crore at 1998-99 price level. Table 11.2 shows the tentative distribution of the year-wise expenditure for construction of the link project, so as to complete the same within the proposed period of construction of 8 years.

Table 11.2
Year-wise expenditure for the construction of the link canal

Year	Expenditure (Rs. in lakh)			
	Unit I	Unit II	Unit III	Total
1st	137	17613	619	18369
2nd	195	19531	803	20529
3rd	232	70071	667	70970
4th	669	75722	4048	80439
5th	1744	80373	11262	93379
6th	1748	105083	11288	118119
7th	1713	107841	11306	120860
8th	-	109839	-	109389
Total	6438	585623	39993	632054

If financial allocations are made in accordance with the above proposed year-wise distribution alongwith addition required due to possible inflation, the construction of the project can be completed within the proposed period of 8 years.