S.No. 14 of 1988

GOVERNMENT OF INDIA
CENTRAL WATER COMMISSION
PROJECT APPRAISAL ORGANISATION

TELUGU-GANGA PROJECT, ANDHRA PRADESH

Estimated cost Rs. 83149 lakhs

CCA: 199000 Ha.

NOTE FOR CONSIDERATION OF THE ADVISORY COMMITTEE ON IRRIGATION, FLOOD CONTROL & MULTIPURPOSE PROJECTS

NEW DELHI

April 1988

Sl.No.14 of 1988

Note on Telugu Ganga Project (AP) for consideration of the Advisory Committee of the Ministry of Water Resources on Irrigation, Flood Control and Multipurpose Projects.

Estimated Cost Rs. 834.49 crores

CCA 199000 ha.

Annual Irrigation 199000 ha.

1. Introduction

Considering the scarcity of drinking water for the Metropolitian city of Madras in Tamil Nadu and the limited water resources available to the State of Tamil Nadu to meet such requirements, at the initiative of the Late Prime Minister Smt. Indira Gandhi the Governments of Maharashtra, Karnataka and Andhra Pradesh agreed on 14th April 1976 to spare 5 TMC each out of their respective shares of Krishna waters to enable the Government of Tamil Nadu to draw upto 15 TMC per annum for drinking water supply to Madras city. Subsequently by another inter state agreement of 28th October 1977 amongst the States of Karnataka, Maharashtra, Andhra Pradesh and Tamil Nadu it was agreed that the Govt. of Tamil Nadu may be permitted to draw waters to the tune of 15 TMC from Srisailam reservoir on Krishna river during the period from 1st July to 31st October each year through an open lined channel. It also fixed the carrier canal capacity at 1500 cusecs. This Agreement also provided that the arrangements for the conductor system shall be as agreed upon by the Governments of Andhra Pradesh and Tamil Nadu and that it should not be utilised for irrigation or other consumptive purposes. It also stipulated that Central

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Govt. should ensure that the provisions are adhere to. This agreement was subject to formal ratifications by the respective States. The Govt. of Andhra Pradesh ratified the above agreement subject to the specific condition that the restrictions imposed in the agreement do not in any way affect the rights of the State of Andhra Pradesh to utilise waters of Krishna river for the purposes of irrigation and other consumptive uses (see Annexure-II).

After investigations carried out by both the States of Andhra Pradesh and Tamil Nadu and a sequence of meetings held between them an agreement was entered into in April 1983 by Tamil Nadu and Andhra Pradesh which provided for the manner of supply of 15 TMC of Krishna waters for Madras City as also the scope for irrigation enroute in Andhra Pradesh. This agreement became the basis for formulation of the Telugu Ganga Project by Andhra Pradesh and the Krishna water supply for Madras city project by Tamil Nadu Government. [This agreement also laid down the guidelines for sharing of the cost of the common works (see Annexure-III).]

II Project Proposals

The Telugu Ganga Project envisages transfer of 15 TMC of Krishna waters from Srisailam reservoir for Madras water supply. In addition 2.347 lakh ha (5.80 lakh acres) of irrigation is proposed utilising 29 TMC of Krishna waters to be drawn from Srisailam reservoir and 30 TMC of Pennar waters to be drawn from the Somasila reservoir. The districts to be benefited are Kurnool, Cuddapah and Chittoor of Rayalaseema which are drought prone and Nellore district of coastal area.

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The main components of the project are :

1) Approach channel from Srisailam Reservoir to Head Regulator at Pothireddipadu and including the Head Regulator at Pothireddipadu (3.40 KM).

2) Main Canal from Head Regulator at Pothireddipadu to Banakacherla cross regulator including the cross regulator (16.338 KM).

3) Canal from Banakacherla cross Regulator to Velugodu balancing Reservoir (7.25 KM).

4) Velugadu Balancing Reservoir.

5) Canal from Velugodu Balancing Reservoir to the off-take point of the canal to Sri Pothuluri Veerabrahmendraswamy Reservoir (106.66 KM).

6) Canal to Sri Pothuluri Veerabrahmendraswamy Reservoir (32.68 KM).

7) Sri Pothuluri Veerabrahemendraswamy Reservoir.

8) Canal from the off-take point of the canal of Sri Pothuluri Veerabrahmendraswamy Reservoir to Regulator at Chinnamukkapalle (43.64 KM).

9) Canal from the regulator at Chinnamukkepalle to Pennar river (6 KM).

10) Somasila Kandaleru canal upto the off-take of south feeder canal (2.6 KM).

11) Somasila-Kandaleru canal beyond the off-take of South Feeder canal (43.125 KM).

12) Kandaleru Reservoir.

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13) Kandaleru-Poondi canal upto last off-take for irrigation in Andhra Pradesh (119.961 KM).

14) Kandaleru-Poondi canal from the last off-take for irrigation in Andhra Pradesh to Andhra Pradesh Tamil Nadu Border (31.926 KM).

15) Irrigation canals from Velugodu Balancing Reservoir and Sri Pothuluri Veerabrahemandraswamy Reservoir.

16) Irrigation canals from Kandaleru Reservoir system.

The canal system from Andhra Pradesh - Tamil Nadu border to Poondi reservoir near Madras city is prepared as a separate report by the State Government of Tamil Nadu. This is a continuation of the Telugu Ganga Project.

For meeting the irrigation requirements of 29 TMC of Krishna waters, the surplus waters available at Srisailam reservoir after meeting the allocated shares of Karnataka and Maharashtra as per the KWDT award and the irrigation requirements on other projects in Andhra Pradesh is proposed to be diverted and stored in two balancing reservoirs which will be utilised for rabi dry irrigation in an area of 1.052 lakh ha. (2.60 lakh acres) in the districts of Kurnool and Cuddapah districts, The waters ear marked for Madras water supply will be let into Somasila reservoir which is an existing one. The canal from the Somsila reservoir upto Andhra Pradesh Tamil Nadu border besides carrying water for Madras water supply also will irrigate 1.194 lakh ha (2.95 lakh acres) of area in Chittoor and Nellore districts, by utilising 30 TMC of Pennar waters from the Somasila reservoir and impounding the same in the proposed Kandaleru reservoir. In addition 10120 ha (25,000 acres) existing paddy irrigation will be stabilised.

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III. Hydrology and water availability

For meeting the requirement of 15 TMC of Krishna waters at 100% dependability and also 29 TMC of Krishna waters and 30 TMC of Pennar waters at 75% dependability for irrigation purposes, the intergrated working tables have been prepared for the Srisailam - Nagarjuna Sagar reservoirs and also Somasila-Kandaleru reservoirs. These working tables have been examined and also discussed with the State Engineers. While these studies showing the success of the project for utilising 29 TMC of Krishna waters has been accepted, for utilis ation of 30 TMC of Pennar waters under Kandaleru system of Telugu Ganga, the Hydrology Directorate is of the view that after meeting the requirements of 48.54 TMC under the Somasila project, the extent of waters available would be about 20.20 TMC. As such the extent of irrigation proposed under the Kandaleru system will be need to be suitably curtailed.

IV. Irrigation Planning and water Requirements

The project as proposed by State Government envisaged providing irrigation facilities to an area of 224606 ha (5,55,000 acres). In addition 10120 ha (25000 acres) of Kharif, paddy will be stabilised. The districtwise benefits proposed are as under:-

1. Kurnool	43700ha (1,08,000 acres)	From Krishna waters
2. Cuddapah	61514 ha (1,52,000 acres)	
3. Cittoor	21044 ha (52,000 acres	From Pennar waters
4. Nellore	98341 ha (2,43,000 acres)	
Total:	224606 ha (5,55,000 acres	
Stabilisation	10120 ha (25,000 acres	6070 ha in Cuddapah 4050 ha in Nellore
Grand Total	234723 ha (5,80,000 acres)	

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The cropping pattern is based on systematic and quick Soil surveys conducted by the Department of Agriculture The reconnaissance Soil survey of the proposed command has already been taken up.

Originally the proposed cropping pattern consisted of rabi irrigation dry crop of ground nut only. The water requirements were accordingly worked out by climatological approach assuming 65% field application efficiency and 70% conveyance efficiency. The cropping pattern was slightly modified taking into account the suggested cropping pattern by the Department of Agriculture based on the systematic quick . surveys.

Under the Kandaleru system the irrigated dry crops envisaged in rabi is 1.194 lakh ha (2.95 lakh acres) utilising 29.968 TMC and 4047 ha (10,000 acres) of existing Kharif paddy using 1/3rd supplementation for which the demand worked out is 1.467 TMC. Thus the total demand under the Kandaleru reservoir comes to 31.345 TMC for benefitting an area of 1.234 lakh ha (3.05 lakh acres). However, in the latest combined working table of Somasila and Kandaleru the total demand for Kandaleru irrigation has been indicated as 28.2 TMC. The Hydrology Directorate have indicated that the water utilisation for irrigation from the Pennar waters may be reduced by 8 TMC either at Somasila for Somasila Project or at Kandaleru reservoir. Assuming that the demand for supplementation for 4047 ha (10,000 acres) paddy remains as 1.46 TMC as estimated previously, the irrigated dry rabi ayacut of 1.194 lakh ha (2.95 lakh acres) is irrigated

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by (28.20 - 1.467) i.e. 26.733 TMC. On proportionate basis with 8 TMC reduction in utilisation of water, the area of irrigated dry crops which can be grown using 18.733 Tmc has been worked out as 83650 ha. (2.067 lakh acres) approximately. For this reduced area of irrigated dry crops under Kandaleru the same cropping pattern is proposed to be adopted with reduced areas.

The existing and proposed cropping pattern for reduced irrigation as suggested above is given in Annexure-IV. It is suggested that the State Government may review the cropping pattern based on the detailed soil surveys and water requirements reworked out.

V. Conjunctive use of ground water

The irrigation proposed in the canal command area of 2.347 lakh ha (5.80 lakh acres) is mainly for irrigating dry crops that too during rabi season. The Central Ground Water Board is of the view that " As a result of the proposed irrigation in command areas the quantum of recycle the water contributing to the ground water regime is 68.81 MCM (21.51 TMC) only. This will affect the existing hydraulic regime especially the ground water. A rise of water table by 1 m is however observed near Sri Kalahasti of Chittoor district and by 3.66 to 4.50 m in Nellore district is indicated. It would be necessary to establish key observation wells in the command area and monitor them regularly. As such long term ground water regime studies will be of immense value in future. It would also be adviseable to take up ground water development programme in the potential areas.

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The State Ground Water Department may take up studies in this direction".

The above views of the Central Ground Water Board have been communicated to the State Government.

VI. Rehabilitation

The submerssion details for the 3 proposed balancing reservoirs are as under:-

	Velugodu (1)	Sri Pothuluri Veera Brahmendra swamy (near Brahmargari Matam) (2)	Kandaleru (3)
Submergence:			
a) Total submergance (ha.)	4776	2812	14232
b) Forest land (ha)	3157	418	3408
c) Cultivated land (ha)	1696	1300	5275
d) No. of villages submerged	1	6	19
e) Families affected	20	750	1769

The policy of the State Government is to carry out rehabilitation on the basis of cash compensation for the land required on the market rates alongwith an ex. gracia payment of upto Rs. 5,000 per family. The State Government have indicated that the same policy has been adopted in the case of Srisailam project and their experience is that the affected population preferred this policy. A total of 26 villages involving a population of 16,982 would require rehabilitation. Provision for cash compensation has accordingly been proposed for this project also.

No tribal population is affected due to submergence etc. in the project area.

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VII. Inter State Issues

The Telugu Ganga Project in addition to drawl of 15 TMC of Krishna waters from the Srisailam reservoir towards Madras city water supply also propose to utilise 29 TMC of Krishna waters from the surplus flows available at Srisailam reservoir for irrigation in Rayalaseema enroute. The Government of Maharashtra and Karnataka have objected to the proposal on the ground that the canal for water supply to Madras city should not be utilised for any other purposes and also that the Government of Andhra Pradesh was not entitled to new projects utilisation of Krishna waters in excess of quantity allocated to the Andhra Pradesh State by the Tribunal, as the allocation of 800 TMC to Andhra Pradesh State is already committed. The contention of the Government of Andhra Pradesh is that as per Clause V(c) of the final order of the Tribunal the State of Andhra Pradesh was at liberty to use remaining water flowing in any water year upto 2000 A.D. and what the Andhra Pradesh were planning was utilising surplus water available taking into consideration the allocated shares for different States by the Tribunal but without acquiring any prescriptive rights over the same.

The Ministry of Water Resources is separately making efforts to resolve differences amongst the three States.

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VIII. Environmental aspects

The forest land required towards submerssion under the 3 balancing reservoirs and under the canals is 10,000 ha. 26 Villages involving a population of 16982 (2539 families) would require rehabilitation.

To discuss the Environmental and Forest aspects of this project a meeting was convened on 28th October 1987 under the Chairmanship of the Secretary, Ministry of Environment and Forest. It was concluded therein that:

(1) The State officials will work out to the satisfaction of the Ministry of Environment and Forest the outstanding lacuna, if any, in the compensatory aforestation plan.

(2) The stand suggested by the Andhra Pradesh Authorities to carry out rehabilitation on the basis of cash compensation has been noted. Since this is not the accepted policy by the Government of India for rehabilitation, the suggestion made by the Andhra Pradesh authorities would be considered for taking a decision.

The clearance of the Department of Environment and Forest is not yet received.

IX. Cost Estimate

The Government of Andhra Pradesh has submitted an estimate for Rs. 843.27 crores. This was based on 1985-86 schedule. This was examined and comments were communicated

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to the State Government in September 1986. The compliance of the State Government to the comments were received in November 1987. These were further discussed by the State Engineers with the Cost Engineering Directorate of Central Water Commission and the estimate has been finalised for Rs. 858.01 crores. Out of this the cost of the common carrier canal from the Srisailam reservoir upto Bankacherla regulator and the Banakacherla regulator is to be shared by the Srisailam right branch canal project also. The share cost of the SRBC works out to Rs. 23.52 crores. The estimated cost of the project to be charged to Telugu Ganga is thus Rs. 834.49 crores. The share cost to be borne by the Tamil Nadu Government has been indicated as Rs. 228.62 crores.

The abstract of cost is given in the Annexure -V.

X. Benefit cost ratio

The annual benefits both for the pre irrigation and post irrigation condition have been worked out taking into account the proposed reduction in irrigation under Pennar system. The yield inputs etc., are as furnished by the State Agriculture Department. The benefit cost ratio works out to 1.9 . The benefit cost ratio calculations are given vide Annexure - VI.

XI. Plan Proposals

The Telugu Ganga Project was taken up for execution in April 1983. Upto March 1987 an expenditure of

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Rs. 60.48 crores has been incurred and Rs. 85 crores is likely to be spent during 1987-88. The planning Commission has approved an outlay of Rs. 115 crores during the Seventh Five Year Plan period. The project is targetted to be completed by March 1993 as per the Annual Plan document of the State Government.

XII. Technical Examination

The Telugu Ganga Project estimated to cost Rs. 825.36 crores at 1983-84 level was received in August 1983. This was only an outline plan. The detailed estimate however was received in December 1983 for Rs. 637 crores. The project report was however, prepared without proper investigations or surveys. The water availability of this project duly supported by working tables was also not furnished. The project therefore was under correspondence between the Specialised Directorates of the Central Water Commission and the State Government. While the design aspects were cleared as early as in September 1986, the project could not be finalised beeause the water availability for 100% success for Madras city water supply and 75% success for irrigation both from Krishna waters and Pennar waters could not be established by the State Government. Based on the revised working tables for the Srisailam-Nagarjunasagar and Somsila-Kandaleru systems furnished in January 1988, the Hydrology Directorate have opined that the working tables for Srisailam-Nagarjunasagar are acceptable. They have however,

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indicated that with this the availability of waters for the Krishna delta from 100% dependability as at present will reduce to 75% in the post Telugu Ganga stage. As regards the working tables for Somasila-Kandaleru taking into consideration the deficiencies in the studies they have advised that without making any further detailed sutidies, the total irrigation utilisation from the Pennar waters may be reduced by 8 TMC. Accordingly the irrigation planning under the Kandaleru system has been curtailed from 1.194 lakh ha (2.95 lakh acres) to 83650 ha (2.067 lakh acres). The overall benefits will be 1.99 lakh ha (including stabilisation 10120 ha of Kharif paddy).

The estimated cost at 1985-86 price level has been finalised by the State Engineers in consultation with the Cost Engineering Directorate to Rs. 858.01 crores. The cost chargeable to Telugu Ganga after deducting share cost to be charged to SRBC (Rs. 23.5 crores) works out to 834.49 crores.

The benefit cost ratio works out to 1.9.

XIII. General:-

This Project has been examined in CWC for its technical and economical aspects for determining its feasibility. The examination is based on the data submitted by the project authorities and clarifications furnished during the processing. The scrutiny does not cover the examination of detailed designs and working drawings of individual component in regard to their structural,

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hydraulic and mechanical performance and safety which is to be ensured by the project authorities.

The project in addition to conveying drinking water for Madras city water supply, provides irrigation facilities to drought districts of Kurnool, Cuddapah and Chittoor. The project is techno economically viable. The project is put up to the Advisory Committee for consideration.

Revised Check List

Project : Telugu Ganga Project

Estimated cost : Rs. 834.49 crores

C.C.A. (ha./acre) : 1.99 lakh ha/4.9171 lakh acres

PART - I DATA SHEET

i) (a)	Name of Project and State (attach an Index Plan) :	Telugu Ganga Project and Andhra Pradesh (appended)
(b)	Is the project included in the plan and what is the allocation for it? :	Included in VII Plan. VII Plan provision is Rs. 11500 lakhs.
ii) (a)	Total estimated cost of the project including credits/debits from connected project and foreign exchange component. :	Rs. 858.01 crores and which includes the share of Rs. 23.52 crores and Rs. 228.62 crores of SRBC &T.Nadu State respectively.
(b)	Yearly optimum phasing of expenditure and foreign exchange (subject to reasonable equipment, personnel and finance being available.) :	To end of VI Plan 4846 lakhs 1985-86 4535 " 1986-87 6048 " 1987-88 8500 " 1988-89 7000 " 1989-90 15000 " 1990-91 15000 " 1991-92 15000 " 1992-93 7520 "
iii)	Salient features of the works : (Location, length, height and type of dam, gross and live storage, FRL, MWL, length of canals, whether any lift involved). :	Enclosed at Annexure-I
iv)	Commanded area (GCA,CCA,etc) (Hectores/acres) :	G.C.A. 5.589 lakh ha/13.81 lakh acres CCA 1.99 lakh ha/4.917 lakh acres
v)	Expected irrigation, power and other benefits: (cropped area, in ha/acre) :	1.99 lakh ha/ 4.917 lakh acres
vi)	Cost per hectare/acres of gross irrigated area :	Rs. 17,153/hect.
vii)	Benefit cost ratio with 10% rate of interest on capital outlay. :	1.90 : 1

Cont. 2/-

viii. Financial return

a) Anticipated financial ruturn:
i) At the end of 5 years after completion.

ii) At the end of 10 years after completion,

iii) On full development of irrigation.

b) If the project is unproductive what are the special grounds for undertaking it?

PART-II DESCRIPTIVE REPORT AND COMMENTS

A. Water resources engineering and other technical aspects:

i) Assumptions and date (give broad details of hydrology, yield, utilisation etc.) : Furnished in the main note

ii) Salient features of physical programme and its phasing: : Programmed to be completed in 1992-93.

iii) Does this project envisage inter-linking with other projects now or at a future date? : No inter-linking.

iv) Is the project self contained or does it envisage further stages of development? If the latter, describe their scope and relationship to the present project. : The project is self contained

v) Has any curtailment or enhancement of the scheme been considered for greater advantages or economy and whether the scheme proposed will undergo any changes on that account? : The project as a whole is considered.

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vi. Inter State Aspects:

a) Are there any inter-state interests or issues involved such as U/s and D/s utilisation, submergence, etc.? : Yes, These are discussed in the Note.

b) If so, has the concurrence of other concerned States been obtained for implementation of the scheme with regard to questions such as sharing of project water costs, benefits etc.

vii) Are there any special features peculier to the project in regard to Planning and design : No

B. Cost Estimates and Foreign Exchange:

i) Attach an abstract of cost : Enclosed at Annexure-V.

ii) Do the costs include necessary provision of drainage? If so, what is the amount provided. : Yes. Rs. 57.50 lakhs at Rs. 10/- per acre of CCA (Rs. 24.70 per hector)

iii) Has the specific concurrence of the State Finance Deptt. been obtained for taking up the project. : Yes

C. Water Utilisation

i) Drainage aspects. : Considered and provision made.

ii) Soil conservation in the catchment, and commanded area. : Not applicable.

iii) Measures against salinity and alkanity. : These are not anticipated as only irrigated dry crops are proposed.

iv) Colonisation Plans (if necessary). : Not necessary

v) Is there an ayacut development plan? : Yes

vi) Are any minor irrigation projects proposed in the ayacut? : No

vii) Measures for construction of field channels and water courses. : Provided in the Project Estimate at the rate of Rs. 234 per acre of CCA (Rs. 578 per hector).

Cont. 4/-

D. Benefits:

i)	Are the command area and the annual irrigation estimates reliable?	:	Yes
ii)	What are the existing and proposed croping patterns?	:	These are given in the Annexure-IV.
iii)	What is the net additional agricultural produce expected?	:	7,04,170 tonnes
iv)	Are the cropping patterns and estimates of benefits sound and reasonable? Do they have the concurrence of the State Agriculture Deptt.	:	Yes
v)	What is the benefit cost ratio at 10% interest charges? Attach calculations.	:	1.90 : 1
vi)	What is the phasing or expected benefits?		

E. Revenues:

i)	What are the rates of betterment levy proposed, the period for recovery, year of commencement and estimated yield?	:	No betterment levy is proposed.
ii)	Are any charges proposed for irrigation facilities as distinct from water charges?	:	No.
iii)	Give the scale of water rates for the various crops.	:	Rs. 60/ha for I.D. Rabbi
iv)	How do the rate of betterment levey and water charges compare with that obtaining in other projects in the region? Has the concurrence of State Revenue Department been obtained for these rates?	:	The water charges are uniform through out the State. Yes concurrence is obtained.
v)	Give the phasing of revenues.		

F. Outstanding Comments:

Give outstanding comments of the CWC, Ministry of Agriculture and Irrigation, and Ministry of Finance (if any).

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PART-III REVISION OF PROJECT FEATURES AND COSTS:
(REQUIRED ONLY IN CASES OF REVISION).

i) History of the Project:

ii) Nature of changes in the project. :

ANNEXURE-I

Sailent features of Telugu Ganga Project

1. River basin : Krishna and Pennar
2. Irrigation:
   a) Gross command area : 558.9 th.ha.
   b) Culturable command area : 199 th. ha.
   c) Annual irrigation : 199 th. ha.
   d) Intensity of irrigation : 100%
   e) Districts benefited : Kurnool, Cuddpah, Chittoor and Nellore. Out of which Kurnool, Cuddapah and Chittoor are drought pron.
   f) Utilisation of irrigation : 29 TMC of Krishna water and 20.20 TMC of Pennar water
3. Drinking water supply : 15 TMC of Krishna waters for Madras city water supply.
4. Project proposals:
   i) Canal:
   Total length of main canals (Lined) : 405 KM
   ii) Canal carrying capacity at the head : 315.73 cumecs
   iii) Carrying capacity at the tail and at Andhra Pradesh, Tamil Nadu border : 28.32 cumecs
   iv) Balancing reservoirs
   No. of balancing reservoirs : 3 Nos.

	Volugodo (1)	Sri Pothuluri Veera Brahmendra swamy (near Brahmamgari matam) (2)	Kandaleru (3)
Catchment area km.sq.	218.4	52.4	391.0
Gross storage (Mcum)	480.0	465.0	1926.0
Live storage (Mcm)	406.0	408.74	1688.0
Submergance:			
a) Total submergance ha.	4776	2812	14232
b) Forest land	3157	418	3408
c) Cultivated land	1696	1300	5275
d) No. of villages submerged	1	6	19
e) Families affected	20	750	1769

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5.	Forest land required:	
	i) Under reservoirs	: 6983 ha.
	ii) Under canals	: 3017 ha.
	Total	: 10,000 ha.
6.	Estimated cost of the project	: Rs. 834.49 crores (at 1985-86 Price level) Excluding the SRBC share of common carrier Canal i.e. Rs. 23.52 crores.
	a) Share of Tamil Nadu Government	: Rs. 228.62 crores.
	b) Cost per ha. of annual irrigation	: Rs. 17,153
	c) B.C. Ratio	: 1.90

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ANNEXURE - II

HYDERABAD-500 002
DATED: 6-12-1977.

From:
M. Gopala Krishna, I.A.S.
Secretary to Government,
Irrigation & Power Department,
Secretariat, Hyderabad.

To,
The Secretary to the Govt. of India
Ministry of Agriculture & Irrigation.
[Department of Irrigation]
NEW DHLHI

Letter No. 4454/Irr. V.1/77-4

Sir,

Sub: Supply of drinking water to Tamilnadu-Agreement concluded on 28-10-1977-Ratification-Regarding.

Ref: From the Govt. of India, D.O. Lr. No.5/25/73 WD, Dated 14-11-1977.

I am directed to invite attention to the reference cited and to to state that the Government of Andhra pradesh have ratified the agreement concluded on the 28th October, 1977 at Delhi amongst the States of Andhra Pradesh. Karnataka, Maharashtra and Tamilnadu regarding conveying of 15 TMC of Krishna Waters for water supply to Madras City subject specifically to the condition that the terms of the agreement are confined only to the scheme of conveying 15 TMC of water to Madras city with restriction as to user applicable only between the agreed off take point of the line channel upto Somasila and that they do not in any way affect the rights of the State of Andhra Pradesh to utilise the waters of Krishna river for purposes of Irrigation and other consumptive uses in any area and in any manner in conformity with the decision of the Krishna Water Disputes Tribunal.

Yours faithfully,
Sd/- M.GOPALAKRISHNAN,
Secretary to Government
Irrigation & Power Dept.

ANNEXURE - III

MINUTES OF DISCUSSIONS BETWEEN CHIEF MINISTERS OF ANDHRA PRADESH AND TAMILNADU HELD ON 15-6-1978 AT HYDERABAD ABOUT THE CONVEYING OF 15 TMC OF WATER FROM SRISAILAM TO MADRAS CITY.

* * *

The meeting was attended by the Chief Ministers of Andhra Pradesh and Tamilnadu, the Minister of Agriculture & Irrigation and Minister of Electricity, Tamilnadu and the Minister, Major Irrigation & Commercial Taxes of Andhra Pradesh. The Chief Secretary, Govt. of Andhra Pradesh and other officers, particupated in the discussions [Annexure-A]

The Secretary, Public Works Department, Tamilnadu, Govt. referred to the following points on which decisions have to be taken:

i] Off-take point between Srisailam and Somasila from which the open lined channel will start for conveying water to Somasila as per the agreement reached on 28-10-77 amongst the States of Andhra Pradesh, Karnataka and Maharashtra and Tamilnadu.

ii] The terms of drawal of 15 TMC of water from Srisailam raservoir.

iii] The alignment of the channel to take water from the agreed off-take point to the Somasila reservoir and again from the Somasila reservoir to the reservoir in Tamilnadu. Tamilnadu would like to have the feasibility examined for a joint canal from Somasila [as it would save costs] for taking water to Madras City and Irrigating some areas in Nellore District, Andhra Pradesh.

iv] The period of conveying water:- As per the agreement, it is between 1st July and 31st October every year. However Tamilnadu reservoirs have no adequate storage capacity to store the flows over and above the quantity to be used in the 4 months period; it needs additional reservoir capacity in Andhra Pradesh. For banking this water terms are to be agreed upon between the two states. Technical details have to be worked out once it is agreed in principle that storage for Madras city can be provided for in reservoir [s] in Andhra Pradesh.

v] As it will take at least 10 years to complete the entire project and the cost may go beyond Rs.200 crores. Tamilnadu would like to have 5 TMC from out of the committed figure of 15 TMC to be supplied in the intermediary period from somasila Reservoir which is now coming up. The entire programme will commence in both the reaches simultaneously.

2. It was agreed that the details mentioned above will be examined for technical feasibility by the Officers from both the States under the supervision of a Laison Committee consisting of officers viz., Secretary, Irrigation & Power Department of Andhra Pradesh, Secretary, Public works department of Tamilnadu and Technical Officers. This committee will also prepare a time bound schedule for investigation and construction.

3. Investigation will start immediately with the sanctioning of a Circle by Andhra Pradesh and the proportionate cost will be borne by the Tamilnadu Government.

4. It was explained by Secretary, Irrigation & Power Department, Andhra Pradesh that in order to consider the feasibility of interim water supply [metioned above] the completion of Kandaleru and Somasila Reservoir [Second stage] is necessary - However, if somasila reservoir in second stage is completed earlier than one could consider supply of water directly in the interim period before Kandaleru reservoir is completed. Andhra Pradesh Govt. will examine these details. Hwerver in principle this suggestion is acceptable to Government of Andhra Pradesh.

5. Tamilnadu Govt. representatives mentioned that Tamilnadu Govt. are taking action to improve wherever feasible the reservoir capacity of the reservoir near Madras for enabling them to receive waters from Krishna river.

Sd/-
B. VIJAYARAGHAVAN
Secretary,
P.W.D., Tamilnadu.

Sd/-
M. GOPALAKRISHNAN
Secretary, I&P Dept.
Andhra Pradesh

LIST OF OFFICERS PRESENT AT THE MEETINGS OF CHIEF MINISTERS OF ANDHRA PRADESH AND TAMILNADU ON 15-6-1978 AT HYDERABAD ABOUT THE CONVEYING OF 15 TMC WATER FROM SOMASILA TO MADRAS CITY.

Andhra Pradesh:

1. Sri S.R. Ramurthy, IAS,	Secretary to Chief Minister, Andhra Pradesh.
2. Sri I.J. Naidu, IAS	Chief Secretary to Government.
3. Sri M.Gopalakrishnan, IAS.,	Secretary to Govt. Irrigation & Power Dept.
4. Sri B.G.K. Murthy	Advisers, Irrigation and Inter State matters.
5. Sri K.R. Chudamani	
6. Satanarayana Singh,	Special Officer, Water Resources
7. Sri V.Govindarajan, IAS.,	Special Asst. to Chief Minister.

Tamilnadu.

1. Sri B.Vijayaraghavan IAS.,	Secretary, P.W.Dept.
2. Sri. S. Manavalan,	Chief Engineer Irrigation.
3. Sri P.K. Balakrishnan,	Special Officer for Inter State Waters.

* * *

HYDERABAD
APRIL 18th 1983

AGREEMENT ENTERED INTO BETWEEN THE GOVERNMENTS OF ANDHRA PRADESH AND TAMILNADU FOR DRAWAL OF WATER FROM RIVER KRISHNA FOR MADRAS CITY DRINKING WATER SUPPLY

Whereas considering the acute scarcity of drinking water supply for the Metropolitan City of Madras and the limited water resources available to the State of Tamilnadu to meet such requirements, the Governments of Maharastra, Karnataka and Andhra Pradesh agreed on the 14th April, 1976 to spare 5 TMC each out of their respective shares of Krishna waters, to enable to Government of Tamilnadu to draw upto 15 TMC of Krishna water per annum for water supply to the city of Madras;

And whereas it was there after agreed at a meeting convened by the Union Minister of Agriculture and Irrigation on the 27th October, 1977 and attended by the representative of the states of Karnataka, Tamilnadu, Maharastra and Andhra Pradesh, that the Government of the Tamilnadu shall be permitted to draw not more than 15 TMC in a water year from Srisailam Reservoir during the period from 1st July to 31st October, through an open lined channel from the point of off-take to be agreed upon by the Governments of Andhra pradesh and Tamilnadu, between Srisailam and Somasila designed to carry a discharge not exceeding 1500 cusecs and that the arrangements for the conductor system shall be as agreed upon by the Governments of Andhra Pradesh and Tamilnadu and that the Government of Tamilnadu shall bear the cost of arrangements for conveying water from Srisailam reservoir to Poondi and the maintenance and operation charges there to;

And whereas the aforesaid 1977 agreement was subject to formal ratification by the respective State Governments;

And whereas the Governments of Karnataka, Tamilnadu and Maharashtra had ratified the aforesaid 1977 Agreement and the Government of Andhra Pradesh had ratified the agreement subject to the specific

condition that the restrictions imposed in the agreement do not in any way affect the rights of the State of Andhra pradesh to utilise the waters of Krishna River for purposes of Irrigation and other Consumptive uses;

And whereas following the decisions above mentioned, the Chief Ministers of Andhra Pradesh and Tamilnadu met on the 15th June, 1978 at Hyderabad and agreed to commence investigations on the above project and to get the progress of investigations monitored by a liaison Committee;

And whereas the investigations carried out by the Governments of Andhra Pradesh and Tamilnadu have established the technical feasibility of the project;

And whereas the Government of Andhra Pradesh have schemes for utilisation of Krishna waters for irrigation and other purposes within the State and schemes of both the states have common components.

Now therefore these presents witness that the Government of Andhra Pradesh and Tamilnadu do hereby agree and bind themselves, their successors and representatives as follows:-

1. [i] The Governments of Andhra Pradesh and Tamilnadu agree that the point of off-take of the lined channel referred to in Clause [iv] of the 1977 agreement shall be near about Chennamukkapalli, Cuddapah Taluk.

[ii] The Government of Andhra Pradesh agree to construct the components of Madras city Water Supply Scheme specified in Schedule 'A' which are within Andhra Pradesh boundaries, with its own men and materials, the cost being shared as described in the followin clause.

[iii] The Governments of Andhra Pradesh and Tamilnadu agree to share the expenditure on the construction improvements including lining and maintenance of the components specified in Schedule 'A' and Srisailam reservoir in accordance with the guidelines specified in Schedule 'B'.

[iv] The Governments of Andhra Pradesh and Tamilnadu agree that in respect of the Madras Water Supply Scheme transmission losses in the water conductor system from Srisailam reservoir to Andhra

Pradesh--Tamilnadu border be restricted to 3 TMC in a water year. The Government of Andhra Pradesh agree to carry out necessary remedial measures to restrict the losses to 3 TMC. The cost of such remedial measures will be shared by Andhra Pradesh and Tamilnadu in the water conductor system proportionate to the benefit derived where the water conductor system is common and where the water conductor system is intended exclusively for Tamilnadu, the entire cost of remedial measures shall be borne by Tamilnadu.

[v] The Governments of Andhra Pradesh also agree to provide a storage space of 5 TMC in Kandaleru reservoir for Madras City water supply and arrange to issue water required for Madras city water supply at the Tamilnadu border from a combined irrigation-cum-water supply canal on the lines indicated in the schedule of supplies made out in Schedule 'C' subject to the limitation that total quantity of water made available at State-border is 15 TMC less losses in any water year as per sub-clause [iv] of this clause.

2. The Governments of Andhra Pradesh and Tamilnadu agree that the component works detailed in Schedule 'A' will be executed by the Government of Andhra Pradesh in accordance with the details furnished in the Joint Project Report mutually agreed upon by both the Governments. Any change in the Joint Project Report in respect of hydraulic particulars of bed levels and full supply levels of canals governing the water supply to Madras City, shall be effected only with the approval of the Liaison Committee.

3. The Government of Tamilnadu do hereby agree to bear the proportionate cost of the Project as determined by the guidelines detailed in the Schedule 'B'. The broad pattern of provision of funds by both the Governments will be agreed to in advance of the commencement of the execution of the project. The payments by Tamilnadu will be made in advance for half year in April and October against the forecast of expenditure by the Andhra Pradesh Government for the ensuing half year, the accounts of sharing cost being finalised at the end of each half year, to be adjusted in the succeeding half year. The forecast will be for each component of the project and the payment by the Government of Tamilnadu will be regulated as may be agreed by both the Governments.

4. The Government of Tamilnadu also agree to bear the proprotionate cost of maintenance of the entire storage-cum-conveyance system in accordance with the guidelines included in Schedule 'B'. The amount will be paid in advance every year in April against the forecast of expenditure that will be made by the Andhra Pradesh Government, the actual expenditure being adjusted in the succeding financial year.

5. The Liaison Committee now functioning will continue to monitor the progress in the implementation of the scheme and also ensure effective cooridination between the two Governments after the completion of the shceme.

6. The Government of Tamilnadu shall utilise the Krishna water exclusively for drinking water supply and not for any other purposes.

7. The Governments of Andhra Pradesh and Tamilnadu agree that the Madras water Supply Project will require a minimum of three years and a maximum of six years for completion. The two Governments will take all possible measures for early completion. In furtherance of this objective and pursuant to the provisions of clause 3 of this agreement, the Government of Tamilnadu agrees to pay to the Government of Andhra pradesh in advance each half year a sum of Rs.30 crores in April and October commencing from April, 1983 in each of the years 1983-84, 1984-85 and 1985-86 together with additions on account of cost adjustments based on actual to cover the cost of component works mentioned in Schedule 'A'.

8. Subject to the foregoing provisions, nothing in this agreement shall be construed as abridging or taking away the rights of the Government of Andhra Pradesh to utilise the waters of the Krishna River for any purpose including irrigation.

9. Without prejudice to the components mentioned in Schedule 'A' the Government of Andhra Pradesh may add any other component from time to time for the maximum utilisation of the waters of the Krishna River within the State for any other prupose.

[N.T.RAMA RAO]
CHIEF MINISTER
ANDHRA PRADESH

[M.G. RAMACHANDRAN]
CHIEF MINISTER
TAMILNADU.

SCHEDULE - 'A'

COMPONENTS OF THE SCHEMES

The Project will consist of the following components:-

1. Approach channel from Srisailam Reservoir foreshore to the Head regulator at Pothireddupadu.
2. The Head regulator at Pothireddupadu.
3. Lined canal from Pothireddipadu Head regulator to Banakacherla cross regulator across Mittakondala ridge.
4. Banakacherla cross Regulator.
5. Main canal system from Bankacherla cross regulator to the point of off-take.
6. Open lined channel from the point of off-take to Somasila.
7. Somasila reservoir II stage.
8. Canal from Somasila reservoir to Kandaleru reservoir.
9. Kandaleru Reservoir.
10. Canal from Kandaleru reservoir to Andhra Pradesh, Tamilnadu border.

[N.T. RAMA RAO]
CHIEF MINISTER
ANDHRA PRADESH

[M.G.RAMACHANDRAN]
CHIEF MINISTER
TAMILNADU

SCHEDULE - B

Guidelines for cost allocation

1. Srisailam Reservoir	Irrigation components of the cost of the project to be shared in proportion to the contemplated regulated quantity through the reservoir by both the States.
2. Approach channel from Srisailam reservoir foreshore to the Head regulator at Pothireddipadu.	On the basis of contemplated utilisation.
3. The Head regulator at Pothireddipadu.	
4. Lined Canal from Pothireddipadu Head regulator to Banakacherla cross regulator across Mittakondala ridge.	
5. Banakacherla cross regulator.	
6. Main canal system from Banakacherla to the point of off-take to Somasila.	
6. Main canal system from Banakacherla to the point of off-take.	
7. Open lined channel from the point of off-take to Somasila.	Full cost to Tamilnadu.
8. Somasila II Stage.	In proportion to the contemplated quantities diverted for Tamilnadu and quantity stored and diverted for Andhra Pradesh in second stage.
9. Link canal from Somasila to Kandaleru	Prorata on contemplated annual utilisation basis.
10. Kandaleru reservoir.	In the ratio of storage space allotted to Tamilnadu to the designed capacity of the reservoir.
11. Canal from Kandaleru to Tamilnadu border.	One cusec - mile rate reservoir.

Note: Guidelines for cost sharing in respect of additions and alternations in any of the component works, if it occurs, will have to be arrived at afresh.

[N.T. RAMA RAO]
CHIEF MINISTER
ANDHRA PRADESH

[M.G. RAMACHANDRAN]
CHIEF MINISTER
TAMILNADU.

SCHEDULE - C

SCHEDULE OF SUPPLIES TO BE MADE AT TAMILNADU BORDER

Month	Discharge		Remarks.
July	No exceeding	1000 C/s	The delivery at the
August	-dø-		
August	-do-	1000 C/s	Border will be at a
September	-do-	1000 C/s	Constant rate of
October	-do-	1000 C/s	1000 C/s restricting
November		Nil	the number of days
December		Nil	to limit the total
January	-do-	1000 C/s	supply at border to
February	-do-	1000 C/s	8.00 TMC during the
March	-do-	1000 C/s	period from July to
April	-do-	1000 C/s	October and 4 TMC
May		Nil	during the period from
June		Nil	January to April

Joint observation of gauge readings shall be conducted at a site near Tamilnadu border to be mutually agreed upon by both the States to determine the flow released to Tamilnadu at the border.

[N.T. RAMA RAO]
CHIEF MINISTER
ANDHRA PRADESH

[M.G. RAMACHANDRAN]
CHIEF MINISTER
TAMILNADU

ANNEXURE-IV

TELUGU GANGA PROJECT

Cropping Pattern

Crops	Existing in ha.				Proposed in ha				
	Well	Tanks	Dry	Total	Well	Tanks	Canal	Dry	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Kharif									
a) Paddy	4050	7690	4860	16600	–	1620	10120	4860	16600
b) Jowar	–	–	80	80	–	–	–	21260	21260
c) Bajra	11340	–	3250	14590	15150	–	–	19950	35100
d) Ragi	360	–	–	360	810	–	–	–	810
e) Korra	410	–	2840	3250	400	–	–	9650	10050
f) Ground Nut	5210	–	16600	21870	9210	–	–	132000	141210
g) Cotton	610	–	3440	4050	2650	–	–	2900	5550
h) Turmeric	1020	–	–	1020					
i) Chillies Red	450	–	–	450					
j) Chillies Green	200	–	–	200					
k) Onion	410	–	–	410					
l) Corriander	–	–	–	–					
m) Gingelly	–	–	80	80					
n) Pulses	–	–	1380	1380	–	–	–	2130	2130
c) Wheat	–	–	–	–					
	24060	7690	32350	64280	28220	1620	10120	192750	232710

Cont..... 2/-

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Rabi									
a) Paddy	-	4050	-	4050	-	4050	-	-	4050
b) Jowar	-	-	30360	30360	-	-	3568	-	3568
c) Bajra	80	-	-	80	-	-	3764	-	3764
d) Ragi	5160	-	-	5160	-		2520	-	2520
e) Korra	410	-	-	410	-				
f) Ground Nut	12150	-	8100	20250	-	-	159884	-	159884
g) Cotton	410	-	-	410	-	-	5260	-	5260
h) Turmeric									
i) Chillies Red	1620	-	-	1620	-	-	2830	-	2830
j) Chillies Green	-	-	-	-					
k) Onion	-	-	-	-					
l) Corriander	-	-	810	810					
m) Gingelly	2030	-	410	2440	-	-	3444	-	3444
n) Pulses	2030	-	4060	6090	-	-	3578	-	3578
o) Wheat	-	-	-	-	-	-	4050	-	4050
	23890	4050	43740	71680	-	4050	188888	-	192938
Grand Total :	47950	11740	76270	135960	28220	5670	199008	192750	425648

ANNEXURE-V

TELUGU GANGA PROJECT

ABSTRACT OF COST

I t e m s	Amount in lacs of rupees			Remarks
	Unit I	Unit II	Total @ 1985-86 price level	
A- Preliminary	201.15	404.96	606.11	
B- Land	3097.40	991.12	4088.52	
C- Works	16886.82	134.24	17021.06	
D- Regulator	-	1624.29	1624.29	
E- Falls	-	77.41	77.41	
F- X-Drainage works	-	5874.67	5874.67	
G- Bridges	-	688.20	688.20	
H- Escape	-	109.07	109.07	
K- Buildings	503.34	1163.49	1666.83	
L(i) Earth Work	-	30320.13	30320.13	
L(ii) Lining	-	6186.03	6186.03	
M- Plantation	31.43	115.64	147.07	
N- Tanks	-	42.00	42.00	
O- Miscellaneous	393.96	948.85	1342.81	
P- Maintenance	179.38	542.77	722.15	
Q-Special T&P	638.15	236.03	874.18	
R- Communication	101.73	392.55	494.28	
T- Water supply works	-	36.00	36.00	
U- Distributaries	-	5071.50	5071.50	
V-Water Courses	-	1345.50	1345.50	
W- Drainage	-	57.50	57.50	
X- Environmental and Ecology	20.91	90.28	111.19	
Y- Losses on stock	44.85	135.69	180.54	
Total for I Works	22099.12	56587.83	78686.95	

Cont: 2/-

(1)	(2)	(3)	(4)	(5)
II. Establishment	1520.14	4574.87	6095.01	
III. Tools & Plants @ 1% of I Works	220.99	565.88	786.87	
IV. Suspense	-	-	-	
V. Receipts & Recoveries	(-)468.92	(-) 187.07	(-) 655.99	
Total Direct Charges	23371.33	61541.51	84912.84	
Indirect charges				
a) Capitalization of abatement of land revenue	70.23	31.30	101.53	
b) Audit and Accounts charges @ 1% of I-works	220.99	565.88	786.87	
Total Indirect charges	291.22	597.18	888.40	
Grand Total:	23662.55	62138.69	85801.24	
Less SRBC Share of common carrier canals as given by RP Cell of CWC			(-) 2352.00	
			83449.24	

or say Rs. 834.49 crores

Annexure-VI

TELUGU GANGA PROJECT - ANDHRA PRADESH

CALCULATION OF B.C. RATIO

1.	a) Estimated cost of the Project		Rs. 60587.24 lakhs
	b) Cost of land development @ Rs. 1000/- per ha. for 1,99,018 ha.	+	Rs. 1990.18 "
			Rs. 62577.42 lakhs

II. Annual Net Benefits :

a) Net value of benefits for post project condition (Statement IV)			15875.96
b) Net value of benefits for pre-project condition (Statement III)	1925.69		
c) Loss in Agricultural net produce in areas coming under submergance and going out of cultivation	279.56		
	2205.25	-	2205.25
Annual Net benefits			13670.71

III. Annual Cost:

a) Interest @ 10% of the project (62577.42 x 0.1)		6257.74
b) Depreciation of the project @ 1% of the cost of the project (60587.24 x 0.1)		605.87
c) O&M charges @ Rs. 100/- ha. (1,99,018 x 100)		199.02
d) Maintenance cost of Head Works @ 1% (A.P. Share)		
i) Cost of Velugodu Reservoir	3324.65	
ii) PV BR	3959.00	
iii) Kandaleru Reservoir	7053.22	
iv) Pothi Reddy Padu Head regulator (292.07 x 29/63)	134.44	
	14471.31	144.71
(1% of 14471.31 = 144.71)		
Annual Expenditure :		7207.34

B.C. Ratio : $\frac{13670.71}{7207.34} = 1.90$

Statement - I

R E C E I P T

I. Post Irrigation

Sl. No.	Name of Crop	Area of Crop (Ha)	Value of Crop Rs./ha.	Gross value of Produce (Rs.)
1.	Paddy (K)	10,120	9990	10,10,98,800
2.	Jowar (R)	3,568	4500	1,60,56,000
3.	Bajra (R)	3,764	4688	1,76,45,632
4.	Ground Nut (R)	1,59,884	13500	251,84,34,000
5.	Ragi (R)	2,520	3750	94,50,000
6.	Cotton	5,260	17500	9,20,50,000
7.	Wheat	4,050	4000	1,62,00,000
8.	Pulses	3,578	6600	2,36,14,800
9.	Gingelly	3,444	5000	1,72,20,000
10.	Chillies	2,830	22500	6,36,75,000
	Total :	1,99,018 (Ha.) (4,91574 Acres)	-	287,54,44,232

II. Pre Project (Total abstract)

Sl. No.	Name of Crop	Area of Crop		Gross value of Produce (Rs.)
	Total (K&R)	135960 ha.	-	75,29,48,030

EXPENDITURE

Statement - II

I. Post Project

Sl. No.	Name of Crop	Area (Ha)	Inputs (Rs./ha.)	Gross value of Inputs (Rs.)
1.	Paddy	10120	4075	4,12,39,000
2.	Jowar	3568	3125	1,11,50,000
3.	Bajra	3764	3125	1,17,62,500
4.	Ragi	2520	2425	61,11,000
5.	Ground Nut	159884	4405	70,42,89,020
6.	Cotton	5260	7425	3,90,55,500
7.	Wheat	4050	2435	98,61,750
8.	Pulses	3578	3355	1,20,04,190
9.	Gingelly	3444	2025	69,74,100
10.	Chillies	2830	8025	2,27,10,750
	Total:	1,99,018	-	86,51,57,810

II. Pre-Project

Sl. No.	Name of Crop	Area (Ha.)	-	Gross value of Inputs (Rs.)
-	Total	1,35,960		40,82,83,600

Statement -III

(Rs. Lakhs)

I. Pre project Net Benefits:

i) Total Receipt		75,29.48
ii) Dung receipts @ 30% of Fodder expenses of 4.5% of gross value of produce	:	338.83
		7868.31

Expenses on inputs:

i) As per the Statement II	:	4082.84
ii) Fodder expenses @ 15% of gross produce (75,29.48 x 0.15 = 1129.42	:	1129.42
iii) Share and Cash rent @ 5% of gross value of produce 7529.48 x 0.05 = 376.47	:	376.47
iv) Depreciation on implements @ 2.7% of gross value of produce	:	203.30
v) Land Revenue @ 2% of gross value of produce	:	150.59
Total expenditure	:	5942.62
Net value of Produce	:	7868.31
	(-)	5942.62
		1925.69

Statement - IV

II. Net Value of Produce in Post Project condition

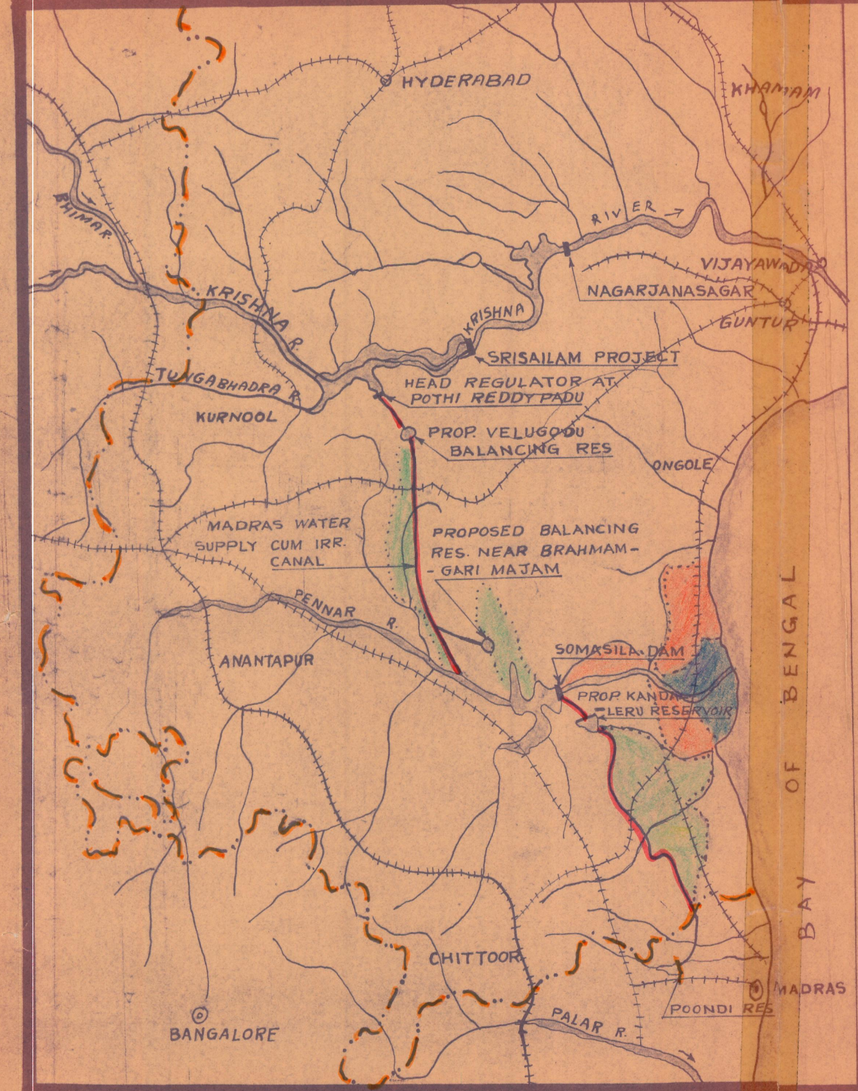
		(Rs. in Lakhs)
1. Gross value of Produce for Canal irrigated crops	:	28754.44
2. Dung , receipts 30% of fodder expenses @ 3% of gross value of Produce (28754.44 x 0.03 = 862.63)	:	862.63
		29617.07

Expenses on Inputs:

i) As per statement II		8651.58
ii) Fodder expenses @ .10% of gross value of produce	:	2875.44
iii) Depreciation on implements @ 2.7% on gross value of produce :	:	776.37
iv) Share and cash rent @ 3% of gross value of produce	:	862.63
v) Land revenue (2% of gross value)	:	575.09
Total expenditure:		13741.11

Net value of produce : 29617.07
Total expenditure (-) 13741.11

Net value of produce for post project 15875.96 Rs. lakhs



N

REFERENCES:-

1. RIVER, DAM & RESERVOIR
2. PROPOSED CANAL
3. COMMAND AREA — TELUGU GANGA, SOMASILA PROJECT, PENNAR DELTA
4. STATE BOUNDARY
5. RAILWAY LINE

मानचित्र
तेलगू गँगा परियोजना
(आंध्रप्रदेश)

SCALE 1" = 32 MILES

GOVERNMENT OF INDIA
CENTRAL WATER COMMISSION

INDEX MAP
OF
TELUGU GANGA PROJECT
(ANDHRA PRADESH)

TRACED BY: M.L. ARORA | DRG. NO. T.E.-225] JAN 85