

**Detailed Project Report of
Godavari (Inchampalli) – Cauvery (Grand Anicut) link project
CHECK LIST**

I	GENERAL DATA		
1	Name of the project	Godavari (Inchampalli) – Cauvery (Grand Anicut) link project	
2	Location	Latitude- 10 ⁰ 50' 19"to 18 ⁰ 41' 22" N & Longitude- 78 ⁰ 41' 51" to 80 ⁰ 02' 18" E	
a	State (s)	(i) Project area: Telangana, Andhra Pradesh & Tamil Nadu (ii) Other riparian States: Maharashtra, Karnataka, Madhya Pradesh, Chhattisgarh, Odisha	
b	District (s)	(i) Telangana: Warngal, Khammam & Nalgonda (ii) Andhra Pradesh: Krishna, Guntur, Prakasam, Chittoor & Nellore (iii) Tamil Nadu: Tiruvallur, Vellore, Kancheepuram, Tiruvannamalai, Villupuram, Cuddalore, &Thanjavur	
c	Taluka (s)	A no. of talukas/mandals in the above districts of the project area will get benefited.	
d	Location of Head works	Latitude (N)	Longitude (E)
	(1) Inchampalli barrage	18 ⁰ 37' 00"	80 ⁰ 20' 00"
	(3) Nagarjunasagar dam	16 ⁰ 34' 23"	79 ⁰ 18' 47"
	(4) Somasila dam	14 ⁰ 29' 15"	79 ⁰ 18' 25"
	(5) Grand Anicut	10 ⁰ 49' 50"	70 ⁰ 57' 32"
e	Survey of India Topo-sheets 1:50000	65B/2,3&6,56N/15&16, 56O/4,8,11to15, 56P/1,2,5to8,11,12,15&16, 56L/9&13, 57M/5 to 11, 57N/ 5 to 8,11&12, 57O/9 to 12&14, 57P/8,9,10,11, 58M/ 1 to 5, 7 & 8, 58J/13	
f	Earthquake Zone	The project lies in Seismic Zones- II & III	

		as per the zoning map of India (IS 1897 – 1984)
g	Complete address for correspondence along with pin code/e-mail	Superintending Engineer, National Water Development Agency, 1 st Floor, Mahatma Gandhi Markfed Bhavan, 5-2-68, Jambagh, Hyderabad. Telangana 500001 Ph: 040-24601209 Fax : 040-24601207 Email : sehyd-nwda@nic.in
3	Category of the project	
a	Irrigation or Multipurpose	Multipurpose
b	Storage or diversion	Diversion
II	PLANNING	
4	Has the Master plan for overall development of the river basin been prepared and stages of basin development discussed?	The master plans/planning by the respective states have been discussed in the report as necessary.
5	Have the alternative proposals (including set of smaller developments vis-à-vis a single large development) been studied and their merits and demerits discussed?	Yes. The aspects of various alternatives have been discussed.
6	Does the scheme fit in the overall development of the river basin and its priority in the overall development of the basin discussed?	Yes
7	Have the other Departments concerned with the development been informed?	Yes

8	Is the present scheme proposed to be executed in stages? If so, are its various stages of execution and development discussed in the report?	Yes
9	Are the effects of the scheme on the riparian rights & existing upstream and downstream projects, etc. discussed?	Yes. The requirement of water for all the existing, ongoing and future projects located in the up-stream catchment and committed requirements in the downstream have been duly accounted for while arriving at the quantity of water for diversion through the link project.
10	Has the provision for municipal and industrial water supply been made?	Yes.
III	INTERSTATE AND INTERNATIONAL ASPECTS	
11	Are there any International/Interstate issues involved? If so, have these issues been identified and present status of agreement or tribunal decision indicated specially in respect of this project.	Yes.
a	Sharing of water	The DPR shall form the basis for discussions among the concerned States on sharing of water, cost and benefits.
b	Sharing of cost	
c	Sharing of benefits (irrigation, flood control, power etc.)	
d	Acceptance of the submergence by the upstream State(s)	The submergence due to the proposed barrage at Inchampalli is confined to river portion only. Some land in Telangana

e	Acceptance by the upstream State(s) of compensation of land coming under submergence.	State is coming under submergence of intermediary storages at Tummalagutta and Peddavagu .
f	Settlement of oustees	R&R package for PAFs,if any from the link project will be evolved keeping in view the provisions of Land Acquisition, Rehabilitation and Resettlement Act-2013 after CEIA study.
IV	SURVEYS	
12	Have the detailed topographical surveys been carried out for the following items and maps prepared as per prescribed scales?	
	(a) River surveys	Yes
	(b) Pond surveys	
	(c) Head-works surveys (dam, dykes, barrages, weirs, etc., and auxiliary components)	Yes
	(d) Plant and Colonies sites	To be carried out at pre-construction stage.
	(e) Canals, branch canals and water distribution system	Yes. Surveys for main link canal were carried out. Please Refer Chapter-4: 'Surveys & Investigations' of Volume I- Report. Surveys for branch canals and water distribution system shall be carried out at pre-construction stage.
	(f) Major canal structures	Yes. Please Refer Chapter-4: 'Surveys & Investigations' of Volume I- Report .
	(g) Power house, switch-yard, surge shafts, tailrace	Tunnel & adit survey to be carried out at pre-construction stage.
	(h) Tunnel(s), adits,	

	penstocks, etc.	
	(i) Surveys(detailed and sample) of areas of the command for OFD and drainage works	To be carried out at pre-construction stage.
	(j) Soil surveys	Soil surveys (Land use/ land cover mapping) carried out through NRSC for the reach from Nagarjunasagar to Somasila. These surveys are not required for the command areas under Inchampalli-Nagarjunasagar reach since were already done by the State Govt. Please refer Chapter-4 Volume I- Report Detailed soil surveys are be carried out for the remaining reaches of the link system at pre-construction stage.
	(k) Surveys for soil conservation	
	(l) Any other surveys	No. To be carried out at pre-construction stage.
	a)Archaeological,	No. To be carried out at pre-construction stage.
	b)Mineral survey	
	c)Right of way survey	Surveys as required will be carried out at pre-construction stage.
	d)Communication survey	Yes. Please refer Chapter-4 of Volume I- Report.
V	GEOLOGICAL INVESTIGATIONS	
13	Have the geological surveys for the following items been carried out and report on geology of the following appended?	Yes. The preliminary geological investigations are carried out by GSI for all the reaches. Please refer Chapter 4 of Volume I- Report.
a	Region as whole	Yes.
b	Reservoir(Local Geology)	In respect of barrage at Inchampalli, detailed surveys are to be carried out at pre-construction stage.
c	Head works and energy dissipation area	In respect of barrage at Inchampalli, detailed surveys are to be carried out at

		pre-construction stage.
d	Power house and appurtenances	In respect of canal head power house at Musi/Nagarjunasagar reservoir, detailed surveys are to be carried out at pre-construction stage.
e	Intakes and regulators	To be carried out at pre-construction stage.
f	Major canal structures	
g	Tunnel(s), Penstock(s), hill(s), etc.	
h	Communication routes	May not be required.
VI	SEISMIC INVESTIGATIONS	
14	Has the Seismicity of the region been studied and co-efficient of vertical/horizontal acceleration for the various structures discussed?	The link canal takes off from proposed barrage at Inchampalli barrage on Godavari river and out falls into existing Grand Anicut on Cauvery river, utilising Nagarjunasagar on Krishna river and Somasila on Pennar river as balancing reservoirs. Since no new dam/reservoir is proposed for diversion of water through the link canal, no site specific seismic studies are conducted at present. Such studies, if required will be carried out at pre-construction stage.
15	Has the approval of the National Committee for recommending design of seismic co-efficients for River Valley Projects (NCSDP) been obtained?	
16	Is there a possibility of liquefaction of foundations? If so whether liquefaction studies been carried out?	
VII	FOUNDATION INVESTIGATIONS	
17	Have the detailed foundation investigations (including in-situ tests and laboratory tests) for the following structures been carried out and detailed report(s)	

	appended?	
a	Earth and rock fill dam/barrage/weir.etc	No new dam is involved.
b	Masonry/concrete dam/weir, etc.	
c	Barrage(s)/Weir(s)//head regulator(s) etc	
d	Canal(s) & Canal Structures	Yes, carried out at feasibility report stage. Please refer Chapter 4 of Volume I- Report.
e	Power house(s), tunnel(s), transformer cavern(s), desilting chamber(s), surge tank(s)/shaft(s), intake(s) canal structures, etc.	To be carried out at pre-construction stage.
18	Are there any special features affecting the designs?	No
VIII	CONSTRUCTION MATERIAL SURVEY	
19	Have the surveys and laboratory tests for the following construction materials been carried out and report(s) appended?	
a	Soils for impervious, semi-pervious and pervious zones of earth and rock-fill dam(s)	No earth and rock-fill dam is proposed.
b	Sand	Yes, carried out at feasibility stage. Please refer Chapter 4 of Volume I-Report
c	Rock and coarse aggregate	
d	Bricks and tiles	Available locally in the vicinity of the project area
e	Pozzolona	Not considered to be used in the construction of the project
f	Cement and lime stone	Required cement for construction of the project is available in project

		area.
g	Steel	To be procured from the plants located within the project region
h	Any other	-
20	Have the sources for each of the above material been identified and need etc. indicated?	Yes, Please refer Chapter 4 of Volume-I Report
21	Have the proposals for procurement of scarce materials been indicated?	No scarce materials are anticipated to be used in the project which may cause hindrance to the construction of the project.
IX	HYDROLOGICAL AND METEOROLOGICAL INVESTIGATIONS	
22	(a)Have the hydrological and meteorological investigations been carried out and status of following data discussed in report?	
i	Rainfall	Yes, Please refer Chapter 4 of Volume-I Report
ii	Temperature	
iii	Sunshine	
iv	Gauge & Discharge	
v	Sediment	
vi	Water quality	
vii	Evaporation	
viii	Wind speed	Yes, Please refer Chapter 4 of Volume-I Report
	(b) Has the above data been collected & appended?	Yes, collected.
X	HYDROLOGY	
23	Is the hydrology dealt with in details in a separate volume? Have its brief details been included in this report?	No separate volume. Details are furnished in Chapter-5of Volume-I Report.
24	Have an index map and bar chart showing locations of various hydro-	Yes, Index map of the link project and the basin maps of

	metric, climatic and rainfall stations existing/ongoing/planned water resources projects and the data availability at those stations been attached?	Godavari, Krishna, Pennar and Cauvery are included in Volume-III: Drawings.
25	Have required detail note about project specific hydro-meteorological data observatories been attached?	Yes, Please refer Chapter-5 of Volume-I Report
26	Have required detail in case of Himalayan rivers, if project being planned in upper reaches, the satellite imageries of project catchment especially one during snowmelt period(March-may) and one during monsoon(June-September) period been attached?	Not Applicable
27	Are details notes about quality, consistency, processing and gap filling of the data included	Yes, Please refer Chapter-5 of Volume-I Report
28	Have hydrological studies been carried out for the following:	
a	To establish the availability of water for the benefits envisaged.	Yes, Please refer Chapter-5 of Volume-I Report
b	To determine design flood for the various structures (Spillway, weir, barrage, etc.)	Since the diversion is proposed from the proposed Inchampalli barrage, the aspects of design flood and diversion flood etc., are not discussed in the present study
c	Sediments storage	
d	Design flood for diversion during construction	
e	Tail water rating curve	Not applicable
f	Evaporation rates from reservoirs/concerned area	Yes, data collected. Please refer Chapter-8 in Volume-I- Report.
g	Command area rainfall	
29	Has the Ground Water Potential	Yes. Please refer Chapter-8 in

	(existing use and additional availability) been indicated ?	Volume-I- Report
30	Have the studies regarding reservoir sedimentation been carried out and revised Elevation-Area Capacity curves been used in the simulation studies? (Working Table)?	Simulation studies for proposed Inchampalli barrage have been carried out considering Elevation-Area Capacity values taken from Inchampalli project report/ generated from field surveys/maps. Please refer Chapter-5 of Volume-I Report
31	Have the ecological requirements of water such as low flow augmentation and water quality control etc. and water requirement for domestic, industrial use and power generation (thermal, hydel, nuclear) been considered and included in the Project Report and incorporated in the simulation studies?	Since, water are being proposed for diversion through the link project only during the monsoon period and also several streams (including Sabari river) are joining the Godavari river d/s of Inchampalli barrage, no adverse effect on account of link diversion is anticipated. As such, no ecological requirements are considered. The proposed diversion of 7000 Mm ³ of water through the link project considered in the simulation studies is for extending irrigation, domestic and industrial water supply benefits in the project area. Please refer Chapter-5 of Volume-I Report
32	Have the details of the simulation studies (Working Table) and conclusions arrived from the various	Yes. Please refer Chapter-5 of Volume-I Report

	alternatives explaining the factors and assumptions been included and discussed?	
33	Have the number of failures for different aspects been indicated?	
34	Have the likely desirable and undesirable changes in the hydrologic regime due to the project been brought out in the report?	No adverse effect on downstream hydrologic regime is anticipated since diversion of water is proposed out of available spills at Inchampalli barrage.
35	Is the criteria adopted for selection of the construction diversion flood discussed?	Since the diversion is proposed from the proposed Inchampalli barrage, the aspects of diversion flood are not discussed in the present study
36	Has the basis for determining the storage capacity been discussed?	Yes. Please refer Chapter-5 of Volume-I Report.
37	Have integrated working tables (for more than one reservoir in the system) been prepared?	Simulation for only Inchampalli has been carried out. However, it was studied whether Nagarjunasagar reservoir has enough storage space to accommodate the link waters and by which date further diversion from Nagarjunasagar should take place at the earliest so as not to spill.
38	Has carry over storage been prepared? If so, whether studies for most economic carry over storage been done?	Not applicable. The proposed diversion is from a barrage.
39	Have the flood routing studies been carried out?	

40	Have the back water studies been carried out?	
XI	LAND ACQUISITION AND RESETTLEMENT OF OUSTEES	
41	Have the type and quantum of land proposed to be acquired in the submerged area, project area, area coming under canal and distribution system, area required for rehabilitation of the oustees been detailed?	Yes, Please refer Chapter- 11& 12 of Volume-I Report. This will be firmed up during the CEIA study of the link project.
42	Is the basis for provision for land compensation indicated?	Yes, Please refer Chapter-13 of Volume-I Report
43	Have the rehabilitation measures, amenities and facilities to be provided to the Project Affected Persons been discussed and whether their provisions included in the report? Are these in accordance State's policy/project specific policy/draft national policy for rehabilitation and resettlement?	The rehabilitation measures, amenities and facilities to be provided to the Project Affected Persons, if any shall be finalized during the CEIA study of the link project.
44	Are the basis of land acquisition of the submerged area upto FRL/MWL etc. discussed?	Yes, Please refer Chapter- 11 of Volume-I Report
XII	DESIGNS	
45	Does the State have established a Central Design Organisation and State level multidisciplinary Advisory Committee and whether its composition has been indicated in the report	Not applicable. Designs are carried out by NWDA.
46	Has the selection of final location of the head works and appurtenances, in preference to the other sites	Yes

	investigated, been discussed?	
47	Have the layout of the project viz., location of head works, workshop sheds, offices, colonies, etc. been finalized and discussed?	Yes. Locations of Head works have been finalised.
48	Has the layout of the various major components of the head works been discussed in the light of site feature, geology, and foundation characteristics, etc.	Yes, Please refer Chapter-6: Design aspects in Volume-I: report
49	Have the detailed designs been prepared for the following components and got vetted by CDO?	Designs of various components of the project have been carried out by NWDA.
a	Earth or rock fill dam, masonry or concrete dam, spillway, barrage, weir, etc. and appurtenances.	Yes. Design of barrage and its appurtenances has been carried out. Please refer Chapter-6 of Volume-I Report
b	Energy dissipation arrangements, training wells, etc.	Not applicable
c	Openings through dam-galleries, head regulators, penstocks, other outlets, sluices, etc.	Yes. Design of head regulator has been carried out. Please refer Chapter-6 of Volume-I Report
d	Regulators	Yes, Please refer Chapter-6 of Volume-I Report
e	Canal and water conductor system	
f	Canal structures	
g	Pump house , intake structures	
h	Power house, tunnels, surge shaft	Yes –Designs for tunnels along the canal alignment and power house are carried out. Please refer Chapter-6 of Volume-I Report
i	Instrumentation	To be taken up at pre-construction stage as necessary

j	Power evacuation arrangement	Power evacuation studies are to be carried out at pre-construction stage for the solar power component planned on canal top/bank and hydro power through canal head power house.
k	Design of Hydro Mechanical equipments	Yes, Please refer Chapter-6 of Volume-I Report
50	Have the salient features of the above components and the assumptions made in the design of above components of the project been indicated and basis of assumption discussed?	Yes. Please refer Chapter-6 of Volume-I Report
51	Have any model studies been carried out for location of the dam, spillway and other appurtenances checking the design profile of the spillway, energy dissipation arrangements, location of outlets/ regulators, etc?	No proposed dam is involved.
52	Has the final alignment of canal(s) and branch canal(s) been discussed in the light of various alignments studied?	Yes, discussed for main canal.
a.	Does the canal design provide for meeting requirements of rush irrigation?	No. Since the link diversion is planned mostly from the spills as available at Inchampalli and is not according to the water demands in the command area, additional capacity towards rush irrigation is not considered.
b.	Have any intermediate storages and tail tanks been considered to reduce	Yes. Existing Nagarjunasagar on river Krishna and Somasila

	the canal capacities?	on river Pennar have been considered as balancing reservoirs to supplement the pond storage at Inchampalli barrage.
53	Are the canals and distribution system being lined and if so what is the minimum capacity of the channel proposed to be lined?	Main canal is proposed to be lined. The minimum capacity of main link canal at tail end is 351cumec.
54	Is the location of canal structures on main and branch canals fixed after detailed surveys of the final alignments?	Yes. Fixed after detailed surveys for main canal. For branch canals/pipe distribution network, locations of canal structures are to be fixed at pre-construction stage.
55	Are the regulation arrangements of the off-taking channel both near and away from the cross regulators discussed?	Yes
56	Are sufficient escapes including terminal escapes provided on the main / branch canal distributaries / minors?	Yes. provided for main canal.
57	Have the basis for adopting water way for the cross drainage works been discussed?	Yes
58	Have the proposals for rating the canal section by providing standing wave flumes, rating of the falls, broad crested weirs. V-notches etc. been discussed for the canal and distribution system?	No
59	Have any model studies for major canal structure(s) been carried out and	No

	if so, are the results discussed and incorporated in the design?	
XIII	IRRIGATION AND COMMAND AREA DEVELOPMENT	
60	Have the conveyance and field irrigation efficiencies for paddy and upland crops during Kharif, rabi, etc. been indicated, discussed and justified?	Yes. Refer Chapter-8 of Volume-I Report
61	Have the 10-daily/monthly Crop water requirements at the canal head been worked out?	Yes, Monthly crop water requirements are worked out.
62	Are there any proposals for introducing Warabandi and if so have these proposals been discussed in the report and sample calculations for a typical distributary /minor/ sub-minor furnished?	Not proposed now. These shall be finalised subsequently.
63	Has the present position of irrigation in the command through existing canals, tanks, lift schemes, wells, etc. been brought out in the report?	Yes
64	Are the particulars of all irrigation projects (including minor schemes) existing/proposed in the command been indicated?	Yes
65	Are there potential areas, where ground water is available? If so, has the quantity & quality of the ground water been indicated?	Yes, Please refer Chapter-1 &8 of Volume-I Report
66	Has the quantum of available ground water been assessed and plan for its conjunctive use with surface water been prepared and incorporated in the report?	Yes, Please refer Chapter- 1 & 8 of Volume-I Report Conjunctive use is not incorporated in the DPR, but its scope is mentioned.

67	Have the semi-detailed soil surveys been carried out for the entire command? If not the extent of area surveyed may be indicated.	Soil surveys (Land use / land cover mapping) carried out through NRSC for the reach from Nagarjunasagar to Somasila. The soil surveys for the command areas in the remaining reaches shall be carried out at pre-construction stage.
68	Have soil and land irrigability classifications brought out in the report?	Land irrigability classifications was got done through NRSC for the reach from Nagarjunasagar to Somasila. Yes. Please refer Chapter-4 of Volume-I Report
69	Is the method used for determining the crop water requirements discussed?	Yes. Please refer Chapter-8 of Volume-I Report
70	Has the pre-project cropping pattern and the proposed cropping pattern along with justification been furnished?	Yes
71	Has the proposed cropping pattern been certified by Centre/State Agricultural Authorities giving the Statement of having considered the soil characteristics and land irrigability characteristics of the command area in deciding the percentage of the command area falling under respective crops as suggested in DPR?	No. To be got certified from the Agricultural Authorities of the respective States.
72	Whether drinking water needs of the population projected for the 25-30 years after construction of the project	Yes. Drinking water needs of the population projected to 2050 AD in the command area are

	on enroute and that in the command of the project considered?	considered.
73	Whether the proposed G.W utilisation is certified by CGWB and a statement furnished	No G.W. utilisation is planned in the proposal.
74	Are the areas and percentages of the CCA that will be irrigated during kharif, rabi, two seasonal, summer and perennial been indicated?	Yes
75	Is justification furnished for irrigating perennials and summer crops from the reservoir?	Yes. These constitute minimal percentage.
76	Have the monthly reservoir operation studies been carried out at least for 20 years and summary on annual basis attached?	Yes. Daily simulation of Inchampalli pond for 30 years (1981-82 to 2010-11) has been carried out. Please refer Chapter-5 of Volume-I : Report
77	Have the number of blocks selected for detailed surveys for On Farm Development (OFD) works including drainage and total area covered by such blocks been indicated?	No. Proposed to be carried out at pre-construction stage.
78	Have the existing locations of the Trial cum Demonstration Farm, input centres (seeds, fertilizer and insecticides) in the command been indicated and proposal to strengthen the same discussed?	Yes
79	Have the arrangements for financing the OFD works and proposals if any, for strengthening the same been discussed?	No
80	Have the agencies responsible for execution of the OFD works been	No. Will be identified at pre-construction stage.

	identified and simultaneous planning of execution of OFD works along with engineering works discussed?	
81	Has the year-wise phasing of irrigation development as a result of the project been discussed?	Yes
82	Is the existing communication system telephone, wireless, and roads within command area sufficient to meet the requirement after full development of irrigation? If not, have the new proposals been planned and discussed?	Yes, Suitable provisions have been kept in the estimate for coping with the future development.
83	Is the adequacy of the marketing centres in the Command Area and new proposals to meet the requirements after full development of irrigation been discussed?	Yes
84	Is there any stabilisation of existing irrigation proposed?	Yes
XIV	FLOOD CONTROL AND DRAINAGE	
85	Have the various flood control components of the multipurpose project been indicated?	Not Applicable. All head works are either barrages or existing projects.
86	Have the damage areas in pre-project & post project situations been identified and flood intensities worked out at each of the damage centre(s) which gets affected?	Not Applicable
87	Have the following flood aspects been discussed?	Not Applicable. All head works are either barrages or existing projects.
a	Flood cushion in the reservoir	Not Applicable
b	Maximum moderated flood out flows	Not Applicable

	over the spillway etc. and its frequency	
c	Existing and proposed safe carrying capacities of the channel below the dam after construction of flood embankment, channel improvement, river diversion, etc.	Not Applicable
d	Synchronized moderated peak floods due to release(s) from the dam upstream and unintercepted catchment upto the damage centers	Not Applicable
e	Average annual expenditure incurred on flood relief works	Not Applicable
f	Area and population affected/likely to be affected before/after the project	Not Applicable
g	Estimated saving in annual loss of life, property, cattle, crops, etc. (evaluated in terms of money) due to flood control.	Not Applicable
88	Have the following drainage aspects of command area been discussed?	
a	Existing Surface and sub-surface drainage network and problems of the drainage congestion, water logging, alkalinity/salinity, if any.	Yes
b	Studies on sub soil water table (pre-monsoon, post-monsoon etc.)	No
c	Maximum intensity of 1,2 & 3 day rainfall	No
d	Deficiencies in farm drains	No
e	Deficiencies in existing natural drains	No
f	Proposal for improvement of drainage / water logging/alkalinity/salinity of the area along with justification	Yes, suitable provision has been made in the cost estimate.

	thereof.	
g	Identification of the area in Command which will get benefited due to execution of drainage network and benefits thereof in terms of relief from crop damage, increased yields, etc.	No. Will be identified during pre-construction stage
XV	NAVIGATION	
89	Is the present scheme for remodeling of the existing facilities and /or extension of the navigable reach or establishing new navigable reach?	Navigation aspect is not planned in the project proposal.
90	Is the existing inland transport system being fully utilized? If not, have the bottlenecks in its full utilization been identified and discussed?	Not Applicable
91	Have the surveys for goods and passenger traffic been carried out and discussed?	
92	Is the extent of modification required in the existing system discussed and justified?	
93	Do design for the canal sections and structures take into account the navigation requirements?	
94	Have the proposals to develop the new scheme and phases of development in the different reaches been discussed?	
95	If the area is being served by inland water transport, have the following been discussed:	
a	The existing toll rates and registration fees, for the crafts(size wise)	
b	Proposals for revision of tollage rates	

	and fees, if any	
c	Concurrence of the competent authorities for revision of rates and fees.	
d	Proposal to subsidize the tariff, tollage, craft registration fee, passenger fare, etc. to attract traffic.	
96	Has the State Inland Water Authority been consulted while finalizing the scheme and its view point discussed?	Not Applicable
97	Has economic justification and viability of the navigation component of the multipurpose project been discussed?	Not Applicable
XVI	POWER	
98	Have the following points been discussed?	
a	Availability of the power generating capacity in the State as well as in the region from different sources	Yes, Refer Chapter-9 of Volume-I Report
b	Total energy available and peaking capacity of the system in the State as well as in the region from different sources.	
c	Integrated operation of the system and present status of utilisation in the State as well as in the region.	
d	Surpluses and shortfalls in the system in the State as well as in the region.	
e	Future plans of power development from different sources in the State/region.	
f	Fitment of the scheme in planning of power development of the	

	State/region	
g	Energy generated from the project, firm power; seasonal power and total power	Yes. Hydro power at canal head power houses and solar power generation through canal top/bank solar plants is proposed. Refer Chapter-9 of Volume-I Report
h	Proposal for transmission lines connecting to the existing system/grid	To be planned at pre-construction stage
i	Project cost per kwh installed and per kwh generated at bus bar as compared to the different hydro-electric, thermal generation and gas projects and different sources in the State as well as in the region to justify the power component of the project.	No.
j	Whether the proposed addition to the transmission system has been shown on a geographical map. Whether options considered for the proposed addition have been discussed with statement of justification for the selected option after carrying out supporting studies covering load flow studies, short-circuit studies (three phase and single phase) and stability studies	To be taken up at pre-construction stage
XVII	CONSTRUCTION PROGRAMME AND PLANT AND MANPOWER PLANNING	
99	Are the major components of work proposed to be done departmentally or through contractor?	Through contractor
100	Have the various alternative construction programme been studied	Yes

	and proper justification furnished for the final programme adopted?	
101	Has the proposed construction programme been prepared and synchronized for timely completion of each of the major component of work including Command Area Development?	Yes
102	Have the year wise quantities of the following materials of construction been worked out for various components of the project?	
a	Excavation separately in – soft and hard strata	Total quantities of the required materials have been worked out. Please refer Chapter-10 of Volume-I Report
b	Earthwork in filling-impervious, semi-pervious and pervious	
c	Rockfill- for dam, toe, riprap, etc.	
d	Stone for masonry	
e	Coarse aggregate for concrete	
f	Sand – for filter, masonry/ concrete	
g	Gravel – for filter	
h	Steel of various sizes and type	
i	Cement- normal, quick/slow setting with or without pozzolana, special types	
j	Lime –surkhi-pozzolana	
k	Scarce material – special steel	
l	Other material – fuel, electricity, explosive, etc.	
103	Have the year wise quantities to be executed by machine/labour for each of the major component been worked out for each of the above material	
104	Have the labour intensive items of the	No

	various major components of the project been identified and the quantities of such items worked out?	
105	Have PERT chart or CPM diagrams for construction programme of various components been made and included in report? Has organization set up and frequency for project monitoring been indicated in the Report.	Yes. Bar Chart is prepared for construction programme.
XVIII	FOREIGN EXCHANGE	
106	Have the details of the plant and machinery, spares, instruments and scarce materials to be imported worked out?	Not visualized as of now. Most of the requirements of plants and machinery, spares, equipments / instruments, etc would be procured indigenously.
107	Has the phasing of imports and source(s) of imports been discussed item wise?	No
108	Are the imports to be affected under foreign grants/credits or internal resources of the country?	Not Applicable
109	Is the scheme covered under State sector or Central sector	Central sector
XIX	FINANCIAL RESOURCES	
110	Has the concurrence of the State Finance Department been obtained?	Not Applicable
111	Is the scheme included in the Five year/Annual plan? If not, what is the present position regarding its inclusion in the plan?	Not yet included. DPR is prepared.
112	Whether the scheme has already been started? If so, is the present stage of	Yet to be started

	construction indicated?	
113	Have the year wise requirement of funds been indicated?	Yes, Please refer Chapter-10 of Volume-I Report
114	Is the scheme covered or proposed to be covered under any foreign assistance/aid agreement?	No
XX	ESTIMATE	
115	Is the separate volume of estimate attached as appendix?	No. Included as part of Volume-II Annexures of DPR
116	Is the year to which the rates adopted in the estimate relate to indicated?	Yes, Please refer Chapter-13 of Volume-I Report
117	Have the analysis of rates for various major items of work for the major components of the project been furnished and with basis of analysis described?	Yes, Please refer Chapter-13 of Volume-I Report
118	Are the provisions for the following items made on the basis of sample survey and sub-estimates:	Provision is made on the basis of lumpsum rate.
a	Distributaries, minor and sub-minors	
b	Water courses	
c	Drainage	
d	CAD works	
XXI	REVENUES	
119	Are the basis for the following sources of revenues furnished?	
a	Betterment levy and proposal for its recovery	Not Applicable
b	Irrigation cess	Yes. Please refer Chapter-14 of Volume-I Report
c	Flood protection cess	Not Applicable
d	Cropwise water rates	No
e	Sale of water for village/city/industrial/power /water	Yes. The rates fixed by Hyderabad Metropolitan Water

	supply	Supply and Sewerage Board are considered. Please refer Chapter-14 of Volume-I Report.
120	Have these rates been compared with the existing rates at the other projects in the State region?	No Comparison done. The rates fixed by Hyderabad Metropolitan Water Supply and Sewerage Board are considered.
121	In case the rates are being enhanced, has the concurrence of the concerned department(s) been obtained?	The rates fixed by Hyderabad Metropolitan Water Supply and Sewerage Board are considered.
122	Have the organizational set up for the collection of revenue been indicated?	No, existing set up respective State Govts. can be utilized.
XXII	B-C RATIO	
123	Are the allocated costs for the following components of the multipurpose project worked out and basis therein furnished?	Unit/Head wise cost is assessed. Use wise cost apportionment is not done.
	(a) Irrigation	No
	(b) Power	No
	(c) Flood Control	Not Applicable
	(d) Navigation	Not Applicable
	(e) Domestic water supply	No
	(f) Industrial water supply	No
124	Have the various departments of the State/Centre agreed to the sharing of the above allocated cost?	The stage has not arisen as of now.
125	Have the crop wise benefits been worked out for irrigated and un irrigated crops being grown before project in consultation with the agriculture department and Statement furnished?	No. Worked out as per the guidelines and prevailing market rates.
126	Have the crop wise benefits been worked out for proposed cropping	No. Worked out as per the guidelines and prevailing

	pattern after the introduction of irrigation in consultation with the agriculture department and Statement furnished?	market rates.
127	Is the B.C. ratio of Irrigation Projects acceptable or otherwise justified?	B.C ratio is calculated for the whole project- not component wise
128	Is the B.C. ratio for Flood Control Projects acceptable or otherwise justified?	Not Applicable
129	Is the B.C. ratio for power component of the project acceptable or otherwise justified?	B.C ratio is calculated for the whole project- not component wise
130	Have the financial and economic return Statements been furnished keeping in view the phasing of development?	Yes
131	Are the benefits other than those considered in the B.C. ratio and financial return Statement been identified?	Yes. There is additional benefit of energy generation through canal top/bank solar plants. Please refer Chapter-9 Power of Volume-I Report
132	Is the benefit from Gallper land, if proposed, based on lease rates admissible and Statement from concerned Central /State authorities furnished?	Not Applicable
133	Are the benefits from fisheries, horticulture, if proposed, based on lease rates admissible and Statement from concerned Central/State authorities furnished?	Yes; Please refer Chapter-9 Power of Volume-I Report
XXIII	ECOLOGICAL ASPECTS	
134	(a) Is the area likely to have any of	

	the following environmental and ecological problems due to the altered surface water pattern? If yes whether preventive measures have been discussed?	
i	Excessive sedimentation of the reservoir and the upper reaches of the river and its tributaries tailing into reservoir	Not likely. Only a barrage is proposed. The sediment will be flushed downstream regularly.
ii	Water logging, salinity/alkalinity	Not likely
iii	Quality of surface and ground water	Not likely
iv	Groundwater recharge	No. In fact, groundwater table will improve in the downstream areas of the proposed storages.
v	Health hazard-water borne diseases, industrial pollution, etc.	Not likely
vi	Submergence of important minerals deposits	No
vii	Submergence of monuments/archeological sites	No.
viii	Fish culture and aquatic life	No. In fact, fisheries production is likely to improve considerably due to the creation of the barrage pond.
ix	Plant life (flora)	No
x	Wild Life	No
xi	Migratory birds	Not likely. In fact, the bird population will improve on account of creation of storages/tanks.
xii	National Park and sanctuaries	No
xiii	Seismicity due to filling of reservoir	Not likely since a medium sized barrage/pond only is proposed.

xiv	Likely change in the regime of the river	Not likely
xv	Any other	No
	(b) Have the environmental and forest clearance from MoE&F been obtained? If not what is status thereof?	Yet to be obtained. The ToR for the proposed CEIA studies of the project are being submitted.
XXIV	COLONIES AND BUILDINGS	
135	Has the planning of the colony/building been done keeping in view the ultimate use for optimum utilization of the investment?	Yes
136	Has an estimate of the extent of higher cost involved been made and details discussed?	No
137	Are the permanent buildings being constructed required for maintenance of the project only?	Yes. Provision is made as per the guidelines for preparation of DPR of irrigation & multipurpose projects-2010
138	Can the buildings other than required for maintenance of the project being constructed be put to some other use after the completion of the project by the department or any other agencies?	Yes. Can be used by Govt. departments or other project authorities
139	Have the interested agencies been consulted in planning of the buildings to suit their requirements later on?	No. will be taken up at pre-construction stage.
140	Have the proposals for disposal of temporary buildings been discussed?	Not discussed.
XXV	PUBLIC PARTICIPATION AND COOPERATION	
141	Are the possibilities of these been discussed in:	
	(a) Planning	Yes
	(b) Construction	Yes

	(c) Improved agricultural practices	Yes
142	Have public debates about utility of projects been held and the response thereof outlined in the Report?	Not yet. During the CEIA, public hearings will be conducted
XXVI	Soil Conservation	
143	Is the need for soil conservation measures in the catchment of the project discussed?	No; will be taken up during the CEIA studies of the link project.