

Detailed Project Report of Par-Tapi-Narmada link project CHECK LIST

I	General Data		
1	Name of the project	Par-Tapi-Narmada link project	
2	Location:		
a	State (s)	Maharashtra and Gujarat	
b	District (s)	Nasik district of Maharashtra and Valsad, Navsari, Dangs, Tapi, Surat, Bharuch, Narmada, Vadodara, Chhota Udepur and Panchmahal districts and Saurashtra region of Gujarat	
c	Taluka (s)	Peint, Surgana, Dharampur, Vansda, Waghai, Songadh, Mandvi, Mangrol, Valiya, Zagadiya, Rajpipla, Tilakwada Sankheda, Jetpur pavi, Nasvadi, Kavant, Bodeli, Chhota Udepur, Halol, Kalol, Ghoghamba and Saurashtra region	
d	Location of Head works	Latitude (N)	Longitude (E)
	(i) Jheri Dam	20° 22' 25"	73° 25' 51"
	(ii) (a) Paikhed Dam	20° 27' 42"	73° 23' 37"
	(b) Paikhed barrage	20° 27' 11"	73° 22' 30"
	(iii) (a) Chasmandva Dam	20° 37' 02"	73° 22' 36"
	(b) Chasmandva barrage	20° 36' 05"	73° 18' 50"
	(iv) Chikkar Dam	20° 42' 00"	73° 30' 50"
	(v) Dabdar Dam	20° 48' 58"	73° 32' 05"
	(vi) Kelwan Dam	20° 55' 30 "	73° 32' 00"
e	Survey of India Topo-sheets 1:50,000 Scale	46 F/12 46G / 2, 3, 5, 6, 7, 8, 9, 11, 12 46H / 2, 3, 5, 6, 7, 9, 10	
f	Earthquake Zone number	Seismic Zone - III	
g	Complete address for correspondence along with pin	Superintending Engineer, National Water Development	

	code/e-mail	Agency, 3 rd Floor, Om Plaza Building, Dharampur Road, Abrama, Valsad, Gujarat PIN- 396 002 Tele-Fax No. 91-2632- 226067, E-mail: nwdavalsad03@rediffmail.com
3	Category of the project	
a	Irrigation or Multipurpose	Multipurpose
b	Storage or diversion	Storage project
II	Planning	
4	Has the Master plan for overall development of the river basin been prepared and stages of basin development discussed briefly?	Yes
5	Have the alternative proposals been studied and their merits and demerits discussed?	Yes
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, Discussed in chapter-10 of Volume I-Main Report
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 as well as down-stream of all the proposed projects has been accounted for while arriving at the

		surplus quantity of water for transfer to proposed Par-Tapi-Narmada link to drought prone area of Saurashtra and Kutch region of Gujarat State by substitution.
10	Has the provision for municipal and industrial water supply been made	Provision of Municipal and Industrial water supply along periphery of Reservoirs and canal has been made.
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.	Par-Tapi-Narmada link project is an InterState project involving Maharashtra and Gujarat States.
a	Sharing of water	Water availability study of the project carried out during DPR preparation has been accepted by both the States. Issue of sharing of water and power between Gujarat and Maharashtra are under finalization.
b	Sharing of cost	Based on the DPR specific MoU for sharing of cost & benefits including arrangements for management and control of water will be entered into amongst the States of Maharashtra and Gujarat and Union Government. (Refer Para no.2 of tripartite MoU – Annexure -1.3 of Volume -II)
c	Sharing of benefits (irrigation, flood control, power etc.)	

d	Acceptance of the submergence by the upstream State(s)	Submergence area of Jheri reservoir is spread in Maharashtra, Paikhed reservoir is spread in both Gujarat and Maharashtra, and Chasmandva reservoir is spread in both Gujarat and Maharashtra. Submergence of proposed Chikkar, Dabdar and Kelwan reservoirs are spread in Gujarat. The location and submergence area of reservoirs is acceptable to both States.
e	Acceptance by the upstream State(s) of compensation of land coming under submergence.	As part of EIA study, R&R package for PAPs has been evolved keeping in view the provisions of National Rehabilitation and Resettlement Policy- 2007 and the provisions of Land Acquisition, Rehabilitation and Resettlement Bill – 2013. Provision for compensation of land coming under submergence has been made in R&R plan. Refer Chapter–12, Volume I – Main Report.
f	Settlement of oustees	R&R package for PAPs has been evolved keeping in view the provisions of National Rehabilitation and Resettlement Policy- 2007 and the provisions of Land Acquisition, Rehabilitation and Resettlement Bill – 2013. Refer Chapter–12, Volume I-Main Report.
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, Refer para 4.1.1 of Chapter 4 of Volume I-Main Report and Plates 4.1 to 4.17 of Volume VII-Drawings of Survey & Investigations
	(b) Reservoir surveys	Yes, Refer para 4.1.2 of Chapter 4 of Volume I-Main Report and Plates 4.18 to 4.29 of Volume VII-Drawings Survey & Investigations
	(c) Head-works surveys (dam, dykes, barrages, weirs, etc., and auxiliary components)	Yes, Refer para 4.1.3 of Chapter 4 of Volume I-Main Report and Plates 4.30 to 4.38 of Volume VII -Drawings Survey & Investigations
	(d) Plant and Colonies sites	No, however Indicative map of plant and colony layout is at Plate 4.39 of Volume VII-Drawings Survey & Investigations
	(e) Canals, Branch canals and water distribution system	Yes, Refer para 4.1.5 and 4.1.8 of Chapter 4 of Volume-I of Main Report.
	(f) Major canal structures	Yes, Refer para 4.1.5 of Chapter 4 of Volume-I of Main Report
	(g) Power house, switch-yard, surge shafts, tailrace	Yes, Refer para 4.1.6 of Chapter 4 of Volume-I of Main Report
	(h) Tunnel(s), adits, penstocks, etc.	Yes, Refer para 4.1.7 of Chapter 4 of Volume-I of Main Report
	(i) Surveys(Detailed and sample) of areas of the command for OFD and drainage works	Yes, Refer para 4.1.8, 4.1.8.1 & 4.1.8.2 of Chapter 4 of Volume I - Main Report, Plates 4.40 to 4.43 of Volume VII-Drawings Survey & Investigations and Appendix 4.1 of Volume-III.
	(j) Soil surveys	Yes, Refer para 4.2.6 of Chapter 4 of Volume I-Main Report and Plate 4.45 of Volume VII- Drawings

		Survey & Investigations
	(k) Surveys for soil conservation	Yes, Refer para 4.1.9 of Chapter 4 of Volume I- Main Report
	(l) Any other surveys a)Archaeological,	Yes, Refer para 4.2.1 of Chapter 4 of Volume I- Main Report and Annexure 4.2.1 & 4.2.2 of Volume -II
	b)Mineral survey	Yes, Refer para 4.2.2 of Chapter 4 of Volume I- Main Report and Annexure 4.3 of Volume -II
	c)Right of way survey	Yes, Refer para 4.2.3 of Chapter 4 of Volume I- Main Report
	d)Communication survey	Yes, Refer para 4.2.4 of Chapter 4 of Volume I-Main Report and Plate 4.44 of Volume-VII
V	Geological Investigations	
13	Have the geological surveys for the following items been carried out and report on geology of the following appended?	
a	Regional as whole	Yes, Refer para 4.3.1 of Chapter 4 of Volume I - Main Report
b	Reservoir(Local Geology)	Yes, Refer para 4.3.2 of Chapter 4 of Volume I- Main Report
c	Head works and energy dissipation area	Yes, Refer para 4.3.3 of Chapter 4 of Volume I-Main Report, Plate 4.46 to 4.50 of Volume VII- Drawings, Survey & Investigations and Appendix 4.2 of Volume-III.
d	Power house and appurtenances	Yes. The investigations at head works covers the areas of powerhouse
e	Intake and regulators	Yes. The investigations at head works covers the areas of Intake and regulators etc.
f	Tunnel(s), Penstock hill, etc.	Due to public hindrance,

g	Major canal structures	Investigation could not be carried out at DPR stage. The same will be carried out at Pre construction stage.
h	Communication routes	
VI	Seismic Investigations	
14	Has the Seismicity of the region been studied and co-efficient of vertical/horizontal acceleration for the various structures discussed?	Yes, Refer para 4.3.4 of Chapter 4 of Volume I-Main Report and Appendix 4.3 of Volume-III.
15	Has the approval of the National Committee for recommending design of seismic co-efficient for River Valley Project (NCSDP) been obtained?	Yes, Refer para 4.3.4 of Chapter 4 of Volume I-Main Report and Annexure 4.4 of Volume-II.
16	Is there a possibility of liquefaction of foundations? If so whether liquefaction studies been carried out?	No
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	Yes, Refer para 4.4 of Chapter 4 of Volume I-Main Report Appendix 4.4 to 4.9 of Volume-III ; Plates 4.52 to 4.56 of Volume VII Drawings Survey & Investigations and Annexures 4.5 to 4.9 of Volume-II
b	Masonry/concrete dam/weir, etc.	Yes, Refer para 4.4 of Chapter 4 of Volume I-Main Report Appendix 4.4 to 4.9 of Volume-III ; Plates

		4.52 to 4.56 of Volume VII Drawings Survey & Investigations and Annexures 4.5 to 4.9 of Volume-II
c	Barrage(s)/Weir(s)//head regulator(s) etc	Yes. The Investigations at head works covers the areas of barrages and regulators
d	Canal(s) & Canal Structures	Due to public hindrance, Investigation could not be carried out at DPR stage. The same will be carried out at Pre construction stage.
e	Power house(s), tunnel(s), transformer cavern(s), desilting chamber(s), surge tank(s)/ shaft(s), intake(s) canal structures, etc.	Yes. The Investigations at head works covers the areas of power houses.
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)	Yes, Refer para 4.5.1 of Chapter 4 of Volume I- Main Report; Annexures 4.10.1 to 4.15.2 of Volume-II; and Plates 4.58 to 4.63 of Volume VII- Drawings Survey & Investigations
b	Sand	Yes, Refer para 4.5.2 of Chapter 4 of Volume I-Main Report Appendix 4.9 of Volume-III
c	Rock and coarse aggregate	Yes, Refer para 4.5.3 of Chapter 4

		of Volume I-Main Report Appendix 4.9 of Volume-III
d	Bricks and tiles	Yes, Refer para 4.5.4 of Chapter 4 of Volume I-Main Report
e	Pozzolona	Yes, Refer para 4.5.5 of Chapter 4 of Volume I-Main Report
f	Cement and lime stone	Yes, Refer para 4.5.6 of Chapter 4 of Volume I-Main Report
g	Steel	Yes, Refer para 4.5.7 of Chapter 4 of Volume I-Main Report
h	Any other	Yes, Refer para 4.5.9 of Chapter 4 of Volume I-Main Report
20	Have the sources for each of the above material been identified and need etc. indicated?	Yes, Refer para 4.5.1 to 4.5.9 of Chapter 4 of Volume I-Main Report
21	Have the proposals for procurement of scarce materials been indicated?	Yes, Refer para 4.5.8 of Chapter 4 of Volume I-Main Report
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, Refer para 4.6.1 of Chapter 4 of Volume I-Main Report
ii	Temperature	Yes, Refer para 4.6.5 of Chapter 4 of Volume I-Main Report
iii	Wind Speed	Yes, Refer para 4.6.3 of Chapter 4 of Volume I-Main Report
iv	Gauge & Discharge	Yes, Refer para 4.6.2 of Chapter 4 of Volume I-Main Report
v	Sediment	Yes, Refer para 4.6.6 of Chapter 4 of Volume I-Main Report
vi	Water quality	Yes, Refer para 4.6.7 of Chapter 4 of Volume I-Main Report
vii	Evaporation	Yes, Refer para 4.6.8 of Chapter

		4 of Volume I-Main Report
	(b) Has the above data been collected & appended ?	Yes,
X	Hydrology	
23	Is the hydrology dealt with in details in a separate volume? Have the brief details been included in this report?	Yes, Refer Chapter-5, Volume I-Main Report and Appendix No. 5.1 of volume IV.
24	Have an index map and bar chart showing location of various hydro-metric, climatic and rainfall stations existing/ongoing/planned water resources projects and the data availability at those stations been attached?	Yes, Refer Chapter-5 of Volume I-Main Report
25	Have required detail note about project specific hydro-meteorological data observatories been attached.	Yes, Refer Chapter-5 of Volume I-Main 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, Refer Chapter-5 of Volume I-Main Report
28	Have hydrological studies been carried out for the following:	
a	To establish the availability of water for the benefits envisaged.	Yes, Refer Chapter-5 of Volume I-Main Report and Appendix -5.1 of Volume – IV.
b	To determine design flood for the various structures (Spillway, weir,	Yes, Refer Chapter-5 of Volume I-Main Report and Appendix –

	barrage, etc.)	5.3 and 5.4 of Volume – IV.
c	Sediments storage	Yes
d	Design flood for diversion during construction	Yes
e	Tail water rating curve	Yes, Refer Chapter – 5 of Volume I-Main Report
f	Evaporation rates from reservoirs/concerned area	Yes
g	Command area rainfall	Yes
29	Has the Ground Water Potential (existing use and additional availability) been indicated ?	Yes
30	Have the studies regarding reservoir sedimentation been carried out and revised Elevation-Area Capacity curves been used in the simulation studies? (Working Table)?	Yes, Refer Chapter-5 of Volume I-Main Report and Appendix – 5.2 of Volume IV
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?	Yes
32	Have the details of the simulation studies (Working Table) and conclusions arrived from the various alternatives explaining the factors and assumptions been included and discussed?	Yes, Refer Chapter-5 of Volume I-Main Report Appendix – 5.5 of Volume – IV.
33	Have the number of failures for difference aspects been indicated?	Yes, Refer Chapter-5 of Volume - I
34	Have the likely desirable and undesirable changes in the hydrologic	Yes, Refer Chapter-5 of Volume I-Main Report

	regime due to the project been brought out in the report?	
35	Is the criteria adopted for selection of the construction diversion flood discussed?	Yes
36	Has the basis for determining the storage capacity been discussed?	Yes
37	Have integrated working tables (for more than one reservoir in the system) been prepared?	Yes
38	Has carry over storage been prepared? If so, whether studies for most economic carry over storage been done?	No
39	Have the flood routing studies been carried out?	Yes. Refer Chapter-6 of Volume I-Main Report
40	Have the back water studies been carried out?	Yes. Refer Chapter-5 of Volume I-Main Report
XI	Land acquisition and resettlement of oustees	
41	Have the type and quantum of land proposed to be acquired in the submergence area project area, area coming under canal and distribution system, area required for rehabilitation of the oustees been detailed?	Yes, Refer Chapter- 12 of Volume I-Main Report
42	Is the basis for provision for land acquisition indicated?	Yes, Refer Chapter- 12 of Volume I-Main 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	Yes, Refer Chapter- 12 of Volume I-Main Report

	resettlement	
44	Are the basis of land acquisition of the submerged area upon FRL/MWL etc. discussed?	Yes, Refer Chapter- 12 of Volume I-Main Report
XII	Design	
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	A design of various components of the project has been carried out by Central Water commission (CWC).
46	Has the selection of final location of the head works and appurtenances, in preference to the other sites investigated, been discussed?	Yes
47	Have the layout of the project viz., location of head works, workshop, sheds, offices, colonies, etc. been finalized and discussed?	Yes
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
49	Have the detailed designs been prepared for the following components and got vetted by CDO?	Civil designs of various components of the project have been carried out by Central Water Commission.
a	Earth or rock fill dam, masonry or concrete dam, spillway, barrage, weir, etc. and appurtenances.	Yes
b	Energy dissipation arrangements, training wells, etc.	Yes
c	Openings through dam-galleries, head regulators, penstocks, other outlets, sluices, etc.	Yes

d	Regulators	Yes
e	Canal and water conductor system	Yes
f	Canal structures	Yes
g	Pump house , intake structures	Yes
h	Power house, tunnels, surge shaft	Yes
i	Instrumentation	Yes
j	Power evacuation arrangement	Yes, Power evacuation studies carried out by Tehri Hydro Development Corporation India Limited (THDCIL)
k	Design of Hydro Mechanical equipments	Yes. E&M studies carried out by Tehri Hydro Development Corporation India Limited (THDCIL)
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
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?	Model studies will be conducted at construction stage.
52	Has the final alignment of canal(s) and branch canal(s) been discussed in the light of various alignments studied?	Yes
a.	Does the canal design provide for meeting requirements of rush irrigation?	Yes
b.	Have any intermediate storages and tail tanks been considered to reduce the canal capacities?	No.

53	Are the canals and distribution system being lined and if so what is the minimum capacity of the channel proposed to be lined?	Only main canal to be lined
54	Is the location of canal structures on main and branch canals fixed after detailed surveys of the final alignments?	Yes
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
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 if so, are the results discussed and incorporated in the design?	No
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	Yes

	justified?	
61	Have the 10-daily/monthly Crop water requirements at the canal head been worked out?	Yes, Monthly crop water requirement 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 distributory / minor / sub-minor furnished?	The water distribution system of Government of Gujarat will be followed.
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, Refer to Annexure – 9.25 of Volume - II.
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, Refer to Annexure – 9.25 of Volume - II.
67	Have the semi-detailed soil surveys been carried out for the entire command? If not the extent of area surveyed may be indicated.	Yes
68	Have soil and land irrigability classifications brought out in the report?	Yes
69	Is the method used for determining the crop water requirements	Yes

	discussed?	
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.	Yes
72	Whether drinking water needs of the population projected for the 25-30 years after construction of the project on enroute and that in the command of the project considered.	Yes
73	Are the areas and percentages of the CCA that will be irrigated during kharif, rabi, two seasonal, summer and perennial been indicated?	Yes
74	Is justification furnished for irrigating perennials and summer crops from the reservoir?	Yes
75	Have the monthly reservoir operation studies been carried out at least for 20 years and summary on annual basis attached?	Yes
76	Have the number of blocks selected for detailed surveys for On Farm Development (OFD) works including drainage and total area covered by	Yes, Sample command area surveys have been carried out in en-route command area including OFD work.

	such blocks been indicated?	
77	Have the arrangements for financing the OFD works and proposals if any, for strengthening the same been discussed?	No
78	Have the agencies responsible for execution of the OFD works been identified and simultaneous planning of execution of OFD works along with engineering works discussed?	Not Applicable
79	Has the year-wise phasing of irrigation development as a result of the project been discussed?	No
80	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, However, suitable provisions have been kept in the estimate for future demand also.
81	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
82	Is there any stabilisation of existing irrigation proposed?	Yes
XIV	Flood Control and Drainage	
83	Have the various flood control components of the multipurpose project been indicated?	Not Applicable
84	Have the damage areas in pre-project & post project situations been identified and flood intensities worked out at each of the damage	Not Applicable

	centre(s) which gets affected?	
85	Have the following flood aspects been discussed?	
a	Flood cushion in the reservoir	Not Applicable
b	Maximum moderated flood out flows over the spillway etc. and its frequency	Yes
c	Existing and proposed safe carrying capacities of the channel below the dam after construction of flood embankment, channel improvement, river diversion, etc.	Yes
d	Synchronized moderated peak floods due to release(s) from the Dam upstream and uninterested catchment upto the damage centers	Yes
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
86	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.)	Yes
c	Maximum intensity of 1,2 & 3 day rainfall	Yes
d	Deficiencies in farm drains	Yes
e	Deficiencies in existing natural drains	Yes

f	Proposal for improvement of drainage / water logging/alkalinity/salinity of the area along with justification thereof.	Not Applicable
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.	Not Applicable
XV	Navigation	Not applicable
87	Is the present scheme for remodeling of the existing facilities and /or extension of the navigable reach or establishing new navigable reach?	
88	Is the existing inland transport system being fully utilized? If not, have the bottlenecks in its full utilization been identified and discussed?	
89	Have the surveys for goods and passenger traffic been carried out and discussed?	
90	Is the extent of modification required in the existing system discussed and justified?	
91	Do design for the canal sections and structures take into account the Navigation requirements?	
92	Have the proposals to develop the new scheme and phases of development in the different reaches been discussed?	
93	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 subsidies the tariff, tollage, craft registration fee, passenger fare, etc. to attract traffic.	
94	Has the State Inland Water Authority been consulted while finalizing the scheme and its view point discussed?	
95	Has economic justification and viability of the Navigation component of the multipurpose project been discussed?	
XVI	Power	
96	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 8 of Volume I-Main Report
b	Total energy available and peaking capacity of the system in the State as well as in the region from different sources.	Yes, Refer Chapter 8 of Volume I-Main Report
c	Integrated operation of the system and present status of utilisation in the State as well as in the region.	Yes, Refer Chapter 8 of Volume I-Main Report
d	Surpluses and shortfalls in the system in the State as well as in the region.	Yes, Refer Chapter 8 of Volume I-Main Report
e	Future plans of power development from different sources in the State/region.	Yes, Refer Chapter 8 of Volume-I
f	Fitment of the scheme in planning of power development of the State/region	Yes, Refer Chapter 8 of Volume I-Main Report

g	Energy generated from the project, firm power; seasonal power and total power	Yes, Refer Chapter 8 of Volume I-Main Report
h	Proposal for transmission lines connecting to the existing system/grid	Yes, Refer Chapter 8 of Volume I-Main Report
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.	Yes, Refer Chapter 8 of Volume I-Main Report
XVII	Construction Programme and Plant and Manpower Planning	
97	Are the major components of work proposed to be done departmentally or through contractor	Through contractor
98	Have the various alternative construction programme been studied and proper justification furnished for the final programme adopted?	Yes
99	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
100	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	Yes
b	Earthwork in filling-impervious, semi-pervious and pervious	Yes
c	Rockfill- for dam, toe, riprap, etc.	Yes

d	Stone for masonry	Yes
e	Coarse aggregate for concrete	Yes
f	Sand – for filter, masonry/ concrete	Yes
g	Gravel – for filter	Yes
h	Steel of various sizes and type	Yes
i	Cement- normal, quick/slow setting with or without pozzolana, special types	Yes
j	Lime –surkhi - pozzolana	Yes
k	Scarce material – special steel	Yes
l	Other material – fuel, electricity, explosive, etc.	Yes
101	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	Yes
102	Have the labour intensive items of the various major components of the project been identified and the quantities of such items worked out?	Yes
103	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
XVIII	Foreign Exchange	
104	Have the details of the plant and machinery, spares, instruments and scarce materials to be imported worked out?	Most of the requirements of plants and machinery, spares, equipments / instruments, etc proposed to be procured would be met indigenously.
105	Has the phasing of imports and source(s) of imports been discussed item wise?	Not Applicable

106	Are the imports to be affected under foreign grants/credits or internal resources of the country?	Not Applicable
107	Is the scheme covered under State sector or Central sector	State sector
XIX	Financial Resources	
108	Has the concurrence of the State Finance Department been obtained?	Based on the DPR the concerned Department of Governments of Maharashtra and Gujarat will obtain the concurrence of their respective Finance Departments
109	Is the scheme included in the Five year/Annual plan? If not, what is the present position regarding its inclusion in the plan?	To be included by Government of India
110	Whether the scheme has already been started? If so, is the present stage of construction indicated?	Yet to be started
111	Have the year wise requirement of funds been indicated?	Yes, Refer Chapter-10 of Volume I-Main Report
112	Is the scheme covered or proposed to be covered under any foreign assistance/aid agreement?	No
XX	Estimate	
113	Is the separate volume of estimate attached as appendix?	Yes, Refer Appendix Volume – VI (A) - Cost estimate.
113	Is the year to which the rates adopted in the estimate relate to indicated?	Yes, Refer Chapter 13 of Volume I-Main Report
115	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, References to analysis of rates furnished in Appendix Volume – VI (B).
116	Are the provisions for the following items made on the basis of sample	

	survey and sub-estimates:	
a	Distributaries, minor and sub-minors	Yes
b	Water courses	Yes
c	Drainage	Yes
d	CAD works	Yes
XXI	Revenues	
117	Are the basis for the following sources of revenues furnished?	
a	Betterment levy and proposal for its recovery	Not Applicable
b	Irrigation cess	Not Applicable
c	Flood protection cess	Not Applicable
d	Crop wise water rates	No revenue from crop wise water rates considered.
e	Sale of water for village/ city/ industrial/power /water supply	The rates considered as prevailing in Gujarat.
118	Have these rates been compared with the existing rates at the other projects in the State region?	Yes, Existing rates of the State government have been adopted.
119	In case the rates are being enhanced, has the concurrence of the concerned department(s) been obtained?	As per prevailing adopted system.
120	Have the organizational set up for the collection of revenue been indicated?	No, existing system of Government of Gujarat will be utilized
XXII	B-C Ratio	
121	Are the allocated costs for the following components of the multipurpose project worked out and basis therein furnished?	
	(a) Irrigation	Yes
	(b) Power	Yes
	(c) Flood Control	Not Applicable
	(d) Navigation	Not Applicable
	(e) Water supply	Yes
	(f) Any other	Not Applicable
122	Have the various departments of the	Based on the DPR the issue of

	State/Centre agreed to the sharing of the above allocated cost?	sharing of cost by State Govts. of Maharashtra and Gujarat will be decided. (Refer Para No. 2 of tripartite MoU – Annexure -1.3 of Volume - II).
123	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?	Yes
124	Have the crop wise benefits been worked out for proposed cropping pattern after the introduction of irrigation in consultation with the agriculture department and Statement furnished?	Yes
125	Is the B.C. ratio of Irrigation Projects acceptable or otherwise justified?	Yes
126	Is the B.C. ratio for Flood Control Projects acceptable or otherwise justified?	Not Applicable
127	Have the financial and economic return Statements been furnished keeping in view the phasing of development?	Yes
128	Are the benefits other than those considered in the B.C. ratio and financial return Statement been identified?	Yes
129	Is the benefit from Gallper land, if proposed, based on lease rates admissible and Statement from concerned Central /State authorities furnished?	Not Applicable

130	Are the benefits from fisheries, horticulture, if proposed, based on lease rates admissible and Statement from concerned Central/State authorities furnished.	Yes
XXIII	Ecological aspect	
131	(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	No
ii	Water logging, salinity/alkalinity	No
iii	Quality of surface and ground water	No
iv	Groundwater recharge	No, However, groundwater table will improve in the downstream areas of the proposed reservoirs.
v	Health hazard-water borne diseases, industrial pollution, etc.	No
vi	Submergence of important minerals deposits	No
vii	Submergence of monuments/archeological sites	No
viii	Fish culture and aquatic life	Yes, the same will be improved considerably due to the creation of six reservoirs.
ix	Plant life (flora)	No
x	Wild Life	No
xi	Migratory birds	No, same will be improved
xii	National Park and sanctuaries	No
xiii	Seismicity due to filling of reservoir	No

xiv	Likely change in the regime of the river	No
xv	Any other	No
	(b) Have the environmental and forest clearance from MoE&F been obtained? If not what is status thereof?	The Ministry vide letter No.J-12011/55/2008-IA.I, dated 8 th June 2009 accorded clearance for pre-construction activities at the proposed site as per the provisions of EIA Notification-2006 alongwith the TORs for preparation of EIA report. Final clearance will be obtained after completion of DPR.
XXIV	Colonies and Buildings	
132	Has the planning of the colony/building been done keeping in view the ultimate use for optimum utilization of the investment?	Yes
133	Has an estimate of the extent of higher cost involved been made and details discussed?	Yes
134	Are the permanent buildings being constructed required for maintenance of the project only?	Yes
135	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
136	Have the interested agencies been consulted in planning of the buildings to suit their requirements later on?	Not yet
137	Have the proposals for disposal of temporary buildings been discussed?	Yes
XXV	Public participation and Cooperation	

138	Are the possibilities of these been discussed in:	
	(a) Planning	Yes
	(b) Construction	No
	(c) Improved agricultural practices	Yes
139	Have public debates about utility of projects been held and the response thereof outlined in the Report?	Not yet
XXVI	Soil Conservation	
140	Is the need for soil conservation measures in the catchment of the project discussed?	Yes