Government of India
Ministry of Water Resources, River Development and Ganga Rejuvenation

Interim Report of the Group on Financial Aspects under

Task Force for Interlinking of Rivers

National Water Development Agency
July, 2018

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Abbreviations

ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
BCM	Billion Cubic Meter
CWC	Central Water Commission
CEA	Central Electricity Authority
DEA	Department of Economic Affairs
DPLP	Damanganga-Pinjal Link Project
DPR	Detailed Project Report
EA	External Assistance
ET	External Assistance
FR	Feasibility Report
FY	Financial Year
GCF	Green Climate Fund
GHG	Green House Gas
IBWT	Inter Basin Water Transfer
IIT	Indian Institute of Technology
IITM	Indian Institute of Tropical Meteorology
ILR	Inter-Linking of Rivers
IWT	Inland Water Transfer
JPO	Joint Project Office
KBLP	Ken-Betwa Link Project
MCM	Million Cubic Metre
MGLP	Mahanadi Godavari Link Project
M ha	Million hectare
MSTG	Manas Sankosh Teesta Ganga
MW	Megawatt
NCAER	National Council of Applied Economic Research
NDB	New Development Bank
NGO	Non Government Organizations
NPP	National Perspective Plan
NWDA	National Water Development Agency
PFR	Pre-Feasibility Report
PPP	Public-Private Partnership
PTNLP	Par-Tapi-Narmada Link Project
TA	Technical Assistance
TAC	Technical Advisory Committee
TEC	Techno Economic Clearance

Interim Report of the Group on Financial Aspects under Task Force for Interlinking of Rivers

List of Annexures

Interim Report of Finance Subgroup of Task Force on ILR

1.0 Introduction

1.1 Outline of ILR and Anticipated Benefits

1.1.1 Background:

The need for Inter-Basin Water Transfers (IBWT) in India arises from the fact of large spatial variations in rainfall and available water resources in space and time. This variability is anticipated to increase with anthropogenic climate change. As a result of this variability, drought and floods frequently co-exist in the country. Accordingly, diversion of water from water surplus basins to water deficit basins/areas will enable utilization of the surplus water which otherwise flows into the sea unutilised. Adaptation to likely adverse impact of climate change will require short term and long term measures, including Inter-Basin Water Transfers (IBWT). The Plan of Action of the National Water Mission under the National Action Plan on Climate Change (2008) identifies as one of its Strategies: "A(iv)*Encouraging water transfers from surplus to deficit areas*, with the sub-strategy of *expediting planning and implementation of schemes for inter-basin transfers*."

The Economic Survey (2017-18) has estimated possible shortfall of upto 20% of agricultural output by 2050 due to climate change. Additionally, IBWT projects also have significant potential for Green House Gas (GHG) mitigation, through reduction of fossil energy consumption for lift irrigation. In addition, several projects within the ILR programme may have potential for Inland Water Transport (IWT) of both freight and passengers, and water based transport is reckoned as the most fuel efficient means of transport.

1.1.2 The National Perspective Plan (NPP)

The erstwhile Ministry of Irrigation (now Ministry of WR, RD & GR) in August 1980 formulated the "National Perspective Plan for Water Resources Development". The NPP consists of two components, broadly indicated as the Peninsular component and the Himalayan component. While developing the National Perspective Plan, the transfer of water has been proposed mostly by gravity; lifts were kept minimal and confined to around 120m and only surplus water after meeting all in-basin requirements in the foreseeable future was planned for transfer to water deficit areas/basins.

1.1.2.1 Peninsular Rivers Development Component:

The programme is divided into four major parts:

i) **Interlinking of Mahanadi-Godavari-Krishna-Pennar-Cauvery rivers and building storages at potential sites in these basins:**

This part involves interlinking of the major river systems where surplus waters from the Mahanadi and the Godavari basins are intended to be transferred to the needy areas in the south, through Krishna, Pennar and Cauvery rivers.

ii) Interlinking of west flowing rivers, north of Mumbai and south of Tapi:

This programme envisages construction of as many optimal storages as possible on these streams and interlinking them to make available appreciable quantum of water for transfer to areas where additional water is needed. The scheme provides for taking a water supply canal to the metropolitan areas of Mumbai.

iii) Interlinking of Ken-Chambal:

This programme provides for a water grid for Madhya Pradesh, Rajasthan and Uttar Pradesh, and interlinking canals, backed by as many storages as possible.

iv) Diversion of other west flowing rivers:

The high rainfall on the western side of the Western Ghats runs down into numerous streams which discharge into the Arabian Sea. The construction of an interlinking canal system backed up by adequate storages could be planned to meet requirements of new areas on the western side as also for transfer of some waters towards the (rain-shadow) east to meet the needs of drought affected areas.

1.1.2.2 Himalayan Rivers Development Component

The Himalayan Rivers Development Component envisages construction of storages on the principal tributaries of Ganga and the Brahmaputra in India, Nepal and Bhutan along with interlinking canal systems to transfer surplus flows of the eastern tributaries of the Ganga to the West, apart from linking of the main Brahmaputra and its tributaries with the Ganga, and Ganga with Mahanadi and further South.

1.1.2.3 Benefits of the National Perspective Plan

The implementation of National Perspective Plan would give benefits of 25 million ha of irrigation from surface waters, 10 million ha by increased use of ground waters, raising the ultimate irrigation potential from 140 million ha to 175 million ha and generation of

34 million KW of power. In addition, there would be additional benefits of flood control, inland navigation, water supply, fisheries, salinity and pollution control, etc.

There are possibilities that several elements may generate carbon-credits, that may be monetized in future carbon markets under the Paris Agreement on Climate Change (2015).

1.2 Studies carried out by National Water Development Agency (NWDA)

To give concrete shape to the various components of NPP proposals the National Water Development Agency (NWDA) was set up in July 1982 by Government of India under Ministry of Water Resources, RD & GR. NWDA after carrying out numerous technical studies had identified 30 link projects (16 under Peninsular Component and 14 under Himalayan Component) for preparation of Feasibility Reports. The status of these links is given in **Annex-1.2.1**.

The Detailed Project Reports (DPRs) of Ken-Betwa, Par-Tapi-Narmada and Damanganga-Pinjal link projects have already been prepared and these projects may be taken up for implementation. Necessary funding arrangements are therefore needed for the implementation of these projects as well as for other projects which are in pipeline.

1.3 Constitution of the Finance Group on ILR

Almost all the link projects envisaged in the Interlinking of Rivers Programme have inter-State implications and also require huge investment. Keeping this in view, the Task Force on ILR in its 6th meeting held on 13thFebruary, 2017 decided to constitute a Finance Sub-group to look into the financial aspects of various inter basin water transfer proposals and suggest appropriate funding pattern. Accordingly, the Ministry of Water Resources, RD & GR vide OM dated 12.09.2017 (Annex – 1.3.1) constituted the Group on Financial Aspects under the Task Force for Interlinking of Rivers, headed by Dr. Prodipto Ghosh, former Secretary to the Government of India and Member of the Task Force. The tenure of the Group was initially four months, which was extended by four months by Ministry of Water Resources, RD & GR vide OM dated 24th April, 2018 **(Annex – 1.3.2)**. The Task Force in its 9th meeting held on 30thMay, 2018 agreed to further extend the tenure of the Financial Group upto 31st July, 2018.The composition and terms of reference (ToR) of the said Group are given below:

Composition of the Finance Group

1	Dr. Prodipto Ghosh, Former Secretary to Govt. of India, and Member of Task Force for ILR	Chairman
2	Shri A.B. Pandya, Former Chairman, CWC New Delhi	Member
3	Shri Rana Kapoor, Managing Director & CEO Yes Bank Ltd., 9th Floor, Nehru Centre, Worli, Mumbai	Member
4	Shri Avinash Mishra, joint Advisor (WR&LR), NITI Aayog vide NITI Aayog letter dated 12.04.2018 **(Annex – 1.3.3)**.	Member
5	Shri M.K. Mittal, Director (Finance), NHPC, NHPC Complex, Sector – 33, Faridabad.	Member
6	Shri H. Satish Rao, Retired Director General, ADB, Manila	Member
7	Shri Navin Kumar, Chief Engineer (IMO), CWC, Sewa Bhawan, R.K. Puram, New Delhi	Member
8	Shri R K Jain, Chief Engineer (HQ), NWDA, New Delhi	Member
9	Shri K.P. Gupta, Director (Tech.), NWDA, New Delhi	Member Secretary
Special Invitees		
1.	Shri Jagmohan Gupta, JS&FA, MoWR, RD & GR, New Delhi	
2.	Shri R.K. Pachauri, Chief Engineer (PPO), CWC, New Delhi.	
3.	Dr. Dipak Das Gupta, Former Principal Economic Advisor in the Ministry of Finance and India's representative on the Board of Green Climate Fund.	
4.	Shri M.K. Sinha, Assessor, Krishna Water Dispute Tribunal and Former Chief Engineer, CWC, New Delhi	
5.	Prof. A.K. Gosain, Department of Civil Engineering, IIT, Delhi	
6.	Dr. Vankina Tulsidhar, Retired Advisor ADB, Manila, Hyderabad	

Terms of Reference:

1. To study the documents related with funding of ILR projects prepared by the earlier Task Force on ILR set up by the Government of India in the year 2002:
2. To suggest funding mechanism for each link project:
3. To study the option(s) of declaring some of the IBWT links of NPP as 'National Project" on the pattern of Ken-Betwa link:
4. To study sharing of cost of link projects by respective beneficiary States and suggest the basis/formula to determine the cost sharing, and
5. Any other matter relevant to the above aspects.

Other terms and conditions:

1. The Group will meet as and when required and submit its report within a period of four months from the date of constitution of the committee; and
2. NWDA will provide Secretarial and other assistance to the Group.

1.4 Details of Meetings of Finance Group held

The Group has held 13 meetings as given below:

Meeting	Date of Meetings
First meeting	24.10.2017
Second meeting	17.11.2017
Third meeting	08.12.2017
Fourth meeting	09.01.2018
Fifth meeting	06.02.2018
Sixth meeting	27.02.2018
Seventh meeting	19.03.2018
Eighth meeting	18.04.2018
Ninth meeting	01.05.2018
Tenth meeting	12.06.2018
Eleventh meeting	28.06.2018
Twelfth meeting	12.07.2018
Thirteenth meeting	25.07.2018

1.5 Action Plan to Respond to the TORs:

In order to properly structure its work, and to facilitate periodic review of the progress, the Finance Group adopted an Action Plan, assigning lead responsibilities to the Members and Special Invitees, as shown in Table 1.1 below:

Table 1.1

Action Plan of the Finance Sub-group:

Task No.	Theme of Task	Anchor (s) for Theme	Relates to TOR(s) No(s)	Remarks
1	Review of earlier Task Force recommendations on financial aspects	Chair	1	Completed
2	Update cost of each link	NWDA + Shri	2,3,4	Completed

	and total for ILR at 2015 prices	M.K. Sinha		
3	Projections of public finance likely to be available for ILR upto 2050	NITI Aayog	2,3,4	Amalgamated with Task No. 3 Completed
4	Projections of private finance from Indian Financial institutions likely to be available for ILR upto 2050	Yes Bank + Shri Dipak Dasgupta	2,4	Completed
5	Projections of funding for ILR upto 2050 from multilateral financial institutions (WB, ADB, GCF, BRICS Bank, GCF, etc.)	NITI Aayog/Mr. Satish Rao + Shri Dipak Dasgupta	2,4	Completed
6	Assessment of policy constraints on external (commercial) borrowing	Sh. Shri Dipak Dasgupta	2,4	Inputs required from DEA and NITI Aayog
7	Review of specific funding models (PPP etc.) for private sector (domestic and international participation in ILR links)	Resource person(s) to be identified + YES Bank	2,4,5	Risk mitigation mechanisms for private sector participation to be also identified in respect of each type of model/ participant
8	Review of financing models and due diligence requirements of international financial institutions (WB etc.)	Resources persons(s) to be identified + Mr. Satish Rao + Shri Dipak Dasgupta	2,4,5	Completed
9	Principles for tariff setting/negotiation for ILR service (irrigation, drinking water, inland navigation, etc)	Chair + Shri A.B. Pandya + Shri Dipak Dasgupta (+ resource person (s)	2,4,5	Possibility of constitution of a ILR tariff regulatory board and its mandate to be also discussed
10	Identification of links for possible declaration as national projects and/or feasible ways of leveraging public finance for participation by other	Chair + Shri A.B. Pandya + Shri M.K. Mittal + YES Bank + Shri Dipak Dasgupta	2,4,5	Identification of links as national Projects accomplished by Special Committee on

	financing partners			ILR, rest is merged with Task No. 4
11	Identification of financing pattern for each (type of) link, including co-financing by beneficiary states	Chair + NWDA + Shri A.B. Pandya + Shri M.K. Mittal + YES Bank + Shri Dipak Dasgupta + Shri Satish Rao + Dr. Tulsidhar	2,4	Completed
12	Declaration of ILR projects as climate change adaptation and mitigation	Chair + Shri Dipak Das Gupta + Dr. A.K. Gosain, IIT Delhi	5	Completed
13	Drafting report of Finance Group	Chair + NWDA	1,2,3,4,5	Interim Report Completed

This Interim Report covers the Tasks completed upto the 13th meeting of the Group.

1.6 Directions of Hon'ble Minister MoWR, RD & GR

The Chair and members of the Finance Group were summoned to a review meeting by the Hon'ble Minister MoWR RD & GR on 03 May 2018. The Chair and members of the Finance Group apprised the Hon'ble Minister about the progress of the work of the Group, and received the following directions from the Hon'ble Minister:

In order to minimize capital and land costs, *the least cost technological alternative to a canal system should be explored for each link*. Specifically he suggested the following possibilities:

1) Transportation of water by pipelines
2) Reviewing alignments so that links proceed through backward areas where land costs are low, keeping the topographical requirement of gravity flow in mind
3) Desalination of sea water by renewable energy in coastal areas for drinking water and reuse for irrigation

There may be other technologically feasible alternatives.

The Finance Group should consider prospects of funding of the ILR projects through external borrowing similar to the Ahmadabad – Mumbai bullet train project funding, i.e. Government to Government long term sovereign loan with nominal rate of interest.

There would be no need to hedge forex risk as borrowing will be securitized by national forex reserves.

The Group should also consider prioritization of link projects and plan for funding the prioritized links first (KBLP, PTNLP, DPLP and Godavari (Akinepalli) – Cauvery link).

Additionally, it should be highlighted that ILR Projects will mitigate floods in surplus basins and drought in deficit basins. ILR projects may be projected as climate change adaptation projects. Some of the link canals can be planned for the co-benefit of inland water navigation.

As regards funding by participating States, waiver of taxes and levies on the construction equipments, etc. and royalty on construction materials etc. may be considered as part of share cost of the concerned States.

The Finance Group has attempted to respond to these Directions of Hon'ble Minister. However, some of these, for example technological alternatives to individual links and their alignments are beyond the competence of the Finance Group and will need to be addressed by the Task Force.

1.7 Feedback from Chair and Members of the Task Force on ILR:

During 9th meeting of the Task Force for ILR held on 30.05.18 the Chairman of the Finance Group made a presentation on the progress of the work of the Finance Group. The following feedback was received from the Task Force:

(i) An Interim Report may be submitted by the end of July, 2018.
(ii) Initially funding of Prioritized Links namely Ken-Betwa (DPR prepared), Par-Tapi-Narmada (DPR prepared), Damanganga- Pinjal (DPR prepared), and Godavari (Akinepalli)- Cauvery (PFR) should be worked out.
(iii) Funding from Government should be kept to a minimum, as suggested by Hon'ble Minister for WR, RD & GR on 03 April 2018 to Finance Group.
(iv) Outline strategy for international funding should be worked out.

1.8 Broad Macro-economic Assumptions made for Working Out Financing Plan:

In order to arrive at projections of availability of fiscal resources (from domestic Scheduled Commercial banks (SCBs)), and impact on fiscal parameters of sovereign borrowing[1](both internal and external), the following macro-economic assumptions in the period from the present till 2050 were adopted:

[1] At this stage, given that an institutional structure for implementation of the ILR programme, which may involve setting up of Special Purpose Vehicles (SPVs) and/or implementation through Public-Private Partnership (PPP)

GDP Growth Rates: *Projected* 8% per annum under *Anticipated Case* and 6% per annum under *Pessimistic* Case (involving unanticipated external shocks)

Inflation Rate: Assumed at 4% per annum, in line with the midpoint of the RBIs inflation target band. (However, all financial projections are made in both current prices of relevant year, as well as at constant 2015-16 price level).

Savings Rate of the economy: Is projected at 30% (of GDP) under the *Anticipated Case* and 27% (of GDP) under the *Pessimistic Case*. It is likely that as demographics of the country move towards a lower median age-group; savings behavior of the millennial generation would mean reduced savings, and greater bias towards consumption.

Percentage of savings flowing to domestic SCB deposits: Under the *Anticipated Case,* percentage of savings flowing into domestic SCB deposits is assumed at 24% and under the *Pessimistic Case* at 22%. This is lower than LPA (long period average) of 26% seen over FY09-17, as we assume that savings incrementally will flow into newer financial products, other than traditional bank deposits.

Percentage of aggregate deposits translating into credit: Under both the *Anticipated* and *Pessimistic* cases, this ratio is assumed at 75.9% - in line with LPA, as this is more a function of regulatory environment and could see some rise over the medium to longer term, but it is difficult to take a view on this point at this time.

Percentage of aggregate credit deployed to infrastructure sector, and to key sectors of Power, Roads, Telecom and 'Others': Over the last decade, it is seen that share of credit to infrastructure sector averaged at 12.2%. The share rose from 9.4% in FY09 to a peak of 13.4% over FY12-15, but since then has declined (to 10.3% in FY18) as several infrastructure projects came under stress.

For the period under consideration, we project that the share of credit to infrastructure revives in the near term, to reach an average growth of 12.5% over 2020-30, and increases further to 13.5% over 2031-40 and 14.0% over 2041-2050.

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modalities has yet to be worked out, it is assumed that all funding from non-fiscal sources will involve sovereign borrowing. Depending upon the precise nature of the institutional structure, funding may involve combinations of debt and equity, with sovereign guarantees of repayment.

On a sectoral basis, we assume that **share of credit to power** (within infrastructure credit) remains unchanged at 6.7% (vs. LPA of 6.9%), as focus on renewables compensates for decline in financing of thermal projects.

Share of credit off take to telecom declines progressively to 1.0% (vs. LPA of 1.4%) over 2020-30, 0.9% over 2031-40 and 0.8% over 2041-50, in line with sector's growth trend.

Share of credit off take to roads improves to 2.5% (vs. LPA of 2.3%) over 2020-30, 2.6% over 2031-2040 and 2.7% over 2041-50, in line with Government's *Bharatmala* project

As such, the share of credit off take to 'Other infrastructure' improves to 2.3% (vs. LPA of 1.6%) over 2020-30, 3.3% over 2031-40 and 3.8% over 2040-50.

For credit off take to ILR programme specifically, we assume that from credit off take to 'Other infrastructure', 3.0% over 2020-30, 6.0% over 2031-40 and 8.0% over 2041-50, may flow to the programme. While in percentage terms this share may appear small, but in absolute volume the credit off take is substantial (as we indicate in the subsequent section). *Also, it is felt that credit off take can be supported by granting PSL status to ILR programme related financing.*

Summary of basic macro-economic assumptions are given in Table – 1.2 below:

Table – 1.2
Summary of basic macro assumptions

Pessimistic Case		**Anticipated Case**	
Real GDP (annual)	**6.0%**	Real GDP	**8%**
Projected inflation (annual)	**4.0%**	Projected inflation	**4%**
Nominal GDP growth (annual)	**10%**	Nominal GDP growth	**12%**
GDS rate (% of GDP)	**27%**	GDS rate (% of GDP)	**30%**
% of GDS into bank Deposits	**22%**	% of GDS into bank Deposits	**24%**
% of agg. deposits in bank credit	**75.9%**	% of agg. deposits in bank credit	**75.9%**

Credit Deployment	**2019-30**	**2031-40**	**2041-50**
% Credit deployed for Infrastructure	12.5%	13.5%	14.0%
Of which,% Credit deployed for Power	6.7%	6.7%	6.7%
% Credit deployed for Telecom	1.0%	0.9%	0.8%
% Credit deployed for Roads	2.5%	2.6%	2.7%
% Credit Deployment for "Others"	2.3%	3.3%	3.8%
Of which(others), % deployed to ILR programme	3.0%	6.0%	8.0%

1.9 Risk Factors

1.9.1 Inter State issues involved in different links and action taken thereof

Preparation of various types of Reports, i.e., PFR/FR/DPR of different links themselves indicates the extent to which inter-State issues have been resolved. Inter-State issues involved with various links are described below:

A Peninsular links

Table 1.3
Details of Inter-State Issues of Peninsular Links

S.N.	Name of link	Inter-States issues, mainly involved among States	Type of inter-State issues and action taken thereof
1.	Mahanadi (Manibhadra) – Godavari (Dowlaiswaram) (It is the mother link for many other Peninsular links.)	Orissa, Chattisgargh, and Andhra Pradesh	(i) Orissa does not agree with the result of NWDA's Water balance study and indicates that Mahanadi is not a surplus basin. (ii) Orissa feels that their six projects of Tel and Ong basin should be considered as part of M-G link. Accordingly, system studies and simulation of multiple reservoirs have been entrusted to NIH. (iii) Orissa proposed to change Manibhadra dam site which had been agreed to by NWDA and site has been shifted to Barmul in upstream. The quantum of water to be transferred from Mahanadi to Godavari would be much larger if the Himalayan waters are transferred to Mahanadi. The technical details for accommodating this possible change in quantum of water have not been dealt with. (iv) Telangana proposes to divert

			Mahanadi water to Godavari river at proposed Inchampalli dam in their State. The proposals of NWDA envisaged the drop at Dowlaiswaram Barrage, now in Andhra Pradesh. (v) A Mahanadi Water Disputes Tribunal has already been constituted by MoWR,RD&GR on 12/3/2018 and water disputes raised by Odisha have been referred to the Tribunal for adjudication. In its complaint dated 19.11.2016 submitted to the Central Government under Section 3 of the ISRWD Act, 1956, the Government of Odisha raised issues such as quantum of minimum flow in Hirakud dam, surplus flow, and shares of States in minimum and surplus flows etc.
2.	Godavari (Inchampalli) - Krishna (Pulichintala) link	Telengana, Andhra Pradesh,	(i) On the request of Telangana water balance study of Godavari at Inchampalli was revised by NWDA which indicated that Godavari is surplus but quantum of surplus water available for diversion stands reduced considerably in view of the projects planned by Telangana Government. (ii) NWDA has also proposed an alternative to the above link. The link envisages transfer of surplus water from the share of Chhattisgarh in Godavari basin.
3.	Godavari (Inchampalli) – Krishna(Nagarjuna sagar) link	Andhra Pradesh, Chattisgargh, MP, Orissa, Karnataka and Maharashtra	
4.	Godavari (Polaravam) -	Andhra Pradesh, Chattisgargh,	This link is part of Polavaram Project for which DPR has already been

	Krishna (Vijayawada) link	MP, Orissa, Karnataka and Maharashtra	prepared by Govt. of A.P. with reduced quantum of transfer in line with GWDT award. DPR of Polavaram project envisages diversion of 84.7 TMC. Further this project has now been taken as a Central Project under provision of Andhra Pradesh Re-organization Act, 2014. As such implementation of the scheme is already under way although with a persistent demand from Orissa and Chhattisgarh for a review of submergence in their territories by the Polavaram dam. In earlier exercises by NWDA, the quantum of transfer was considered to be 120 TMC, which in view of no support from Mahanadi, is restricted to 80 TMC as envisaged in KWDT-1 and GWDT awards. However, higher transfer may enable facilitation of Krishna-Pennar link
5.	Krishna (Almatti) – Pennar link	Karnataka, Andhra Pradesh and Maharashtra	The feasibility of these schemes is dependent on transfer of water from Mahanadi – Godavari link, and Godavari – Krishna link. Hence, all the inter-State issues of these links are to be resolved.
6.	Krishna (Srisailam) – Pennar link	Andhra Pradesh, Karnataka and Maharashtra	
7.	Krishna (Nagarjunasagar) - Pennar(Somasila) link	Karnataka, Andhra Pradesh and Maharashtra	
8.	Pennar (Somasila) - Cauvery (Grand Anicut) link	Kerala, Tamil Nadu, Karnataka, Puducherry and Andhra Pradesh	-Do-
9.	Cauvery (Kattalai)-Vaigai -Gundar link	Kerala, Tamilnadu, Karnataka, Puducherry	(i) As per CWDT award, water allocation to basin States have been made on the basis of 50% dependable flow whereas

			NWDA's water balance Study is based on 75% dependable flow. Since the tribunal award does not explicitly indicate a distress sharing formula, inter-State issues in operation have emerged. (ii) If any additional water is transferred to Cauvery at any point, the Cauvery basin States may ask for shares in the transferred water. (iii) Kerala is also pressing hard to include ground water while working out total availability of water in the basin in NWDA's Study. Other States desire that use of ground water should be left to their discretion and this water should not be considered for inter basin transfer.
10.	Ken-Betwa link	Madhya Pradesh and Uttar Pradesh	This was one of the Priority Links, identified by the earlier Task Force (2000). Consensus for preparation of DPR of Ken-Betwa Project was reached for preparation of DPR among concerned States of U.P. and M.P. and the Centre, in year 2005; a tripartite MOU was signed by MP and UP States and Centre on 25.8.2005 The Advisory Committee on Irrigation, Flood Control and Multipurpose Projects of Ministry of Water Resources, RD & GR has accorded techno-economic clearance to the project subject to statutory clearances from MOEF and others. The project is poised for early implementation with all clearances available.

11.	Parbati-Kalisindh-Chambal link	Madhya Pradesh, Rajasthan, and U.P.	This was one of the Priority Links, identified by the earlier Task Force (2002). However consensus could not be reached between two States. Issues are as under: (i) Rajasthan wanted more share of water to which M.P. did not agree. Rajasthan wanted to take its water to Banas basin for filling Bisalpur dam with surplus monsoon flow to which M.P. had agreed earlier. (ii) M.P. wishes to split the project to make it an intra-State link. (iii) U.P. having 0.5% of Chambal basin area also wanted to be a party State in consensus building.
12.	Par-Tapi-Narmada link	Maharashtra and Gujarat	This was one of the Priority Links, identified by the earlier Task Force (2000). Consensus for this project was reached between Gujarat, Maharashtra and Union Government for preparation of DPR and tripartite MOU was signed on 3.5.2010. DPR has also been prepared by NWDA and sent to both Maharashtra and Gujarat States during August, 2015. The DPR has further been modified considering the observations/ suggestions of Govt. of Gujarat and presently it is under appraisal in CWC. Maharashtra wants its share of water in Tapi basin for utilisation in upper catchment in Maharashtra territory. Gujarat is of the view that any additional allocation of Tapi water to Maharashtra would affect their existing irrigation in command area

			of Ukai-Kakarapara Projects. As such, issue of sharing of water between Gujarat & Maharashtra for P-T-N link and Damanganga-Pinjal link is still under discussions within co basin States with Centre's mediatory efforts.
13.	Damanganga - Pinjal link	Maharashtra & Gujarat	This was one of the Priority Links identified by earlier Task Force (2002). Consensus for this project was reached between Gujarat, Maharashtra and Union Govt. for preparation of DPR and a tripartite MOU. DPR has also been prepared by NWDA and sent to Gujarat and Maharashtra in March, 2014. The Advisory Committee on Irrigation, Flood Control and Multipurpose Projects of Ministry of Water Resources, RD & GR, in its 129th meeting held on 8th July, 2016 has accorded techno-economic clearance to the project subject to statutory clearances. Gujarat wants its share of water to be utilized in existing Madhuban reservoir across river Damanganga. Since, Par-Tapi-Narmada link and this link are twin adjacent planned NWDA links, the issue of sharing of water between Gujarat & Maharashtra for P-T-N link and Damanganga-Pinjal link is sought to be interlinked. For this Hon'ble Union Minister for Water Resources, RD & GR held meetings with Hon'ble Chief Minister of Maharashtra, the recent meeting was in May, 2016. The issue of water sharing of the two links has been discussed by SCILR

			in various meetings. It has been decided that the issue of water sharing is to be discussed first at Senior Officers level of Governments of Gujarat and Maharashtra and Ministry of Water Resources, RD &GR.
14.	Bedti - Varda link	Karnataka	No inter-State issue. Karnataka has to co-operate for preparation of FR.
15.	Netravati – Hemavati link	Karnatka	If any additional water is transferred to Cauvery at any point, the Cauvery basin States may ask for shares in the transferred water. It is understood that Karnataka is already planning an alternate project for diversion of Netravati water to Bengaluru.
16.	Pamba - Achankovil - Vaippar link	Tamilnadu and Kerala	Kerala is not in favour of any transfer of water through this link to Tamil Nadu, whereas Tamil Nadu seeks its early implementation. Kerala Assembly has passed resolution for non-implementation of this link

1.9.2 International and Inter-State issues in Himalayan Links

The ILR programme involves the transfer of water from the Ganga-Brahmaputra-Meghna basin to the Peninsular Indian basins, as also to the western parts of India which could be considered to be a part of the Indus basin area. Thus international aspects are involved in the Himalayan components.

A ILR Projects with International Aspects/Ramifications

Head-works and/or part of canal network of the following links lie in other countries such as Nepal and Bhutan, thus involving international aspects/ramifications:

(i) Manas-Sankosh-Teesta-Ganga (MSTG) Link
(ii) Kosi-Ghaghara link
(iii) Kosi-Mechi link
(iv) Gandak-Ganga link

(v) Ghaghara-Yamuna link
(vi) Sarda-Yamuna link

However, in order to understand international aspects/ international ramifications of other links or Inter Basin Water Transfer Links, it is essential to examine the interdependency of various links. Status of interdependency or otherwise is as under:

1) Links Dependent on MSTG (Series-I)

Manas-Sankosh-Teesta-Ganga (MSTG) link was conceived as the most important link under the Himalayan Component of National Perspective Plan (NPP) for inter basin diversion of 43 billion cubic meters (BCM) surplus water from Manas and Sankosh rivers (Tributaries of Brahmaputra river) with supplementation from four intermediate major streams i.e. Aie, Raidak, Torsa and Jaldhaka. The link project envisages construction of two dams on rivers Manas and Sankosh respectively in Bhutan territory besides a downstream reregulating structure to even out flows with a westward link canal for irrigation and diversion of substantial quantum of water to river Ganga upstream of Farakka barrage. These two dams proposed on Manas and Sankosh in Bhutan have good hydro power potential. Of the two dams proposed in this link, the Detailed Project Report (DPR) of Sankosh dam and the Hydro-Electric Project has already been prepared by Central Water Commission and its techno-economic appraisal in CWC/CEA is in advanced stage. On the other hand, the surveys and investigations of Manas dam are yet to be taken up. However, consultation with Bhutan regarding preparation of DPR for Kuri-Gongri project of 2250 MW capacity has been recently taken up by Ministry of External Affairs. Looking at the potential capacity of this reservoir and limitations of creation of another reservoir downstream, the volumetric availability will have to be properly incorporated in the designs of Kuri-Gongri HE Project as well as in the potential peak carrying capacity of the linking canals. As of now, the developments are focused more in terms of 10,000 MW hydropower bilateral initiative between the Governments of Indian and Bhutan. Also, Government of Bhutan has not yet been taken on board as to the ultimate usage patterns that will be desired out of the head reservoirs being planned.

Three link projects are dependent on the Manas- Sankosh-Teesta-Ganga (MSTG) Link. These links are:

(i) Farakka-Sunder bans link
(ii) Ganga-Damodar-Subernarekha Link
(iii) Subernarekha-Mahanadi Link

For all the aforesaid links, international aspects/implications are the same as that of the mother link MSTG.

2) Links Dependent on Kosi Dam (series-II)

Two links, namely, Kosi - Ghaghara and Kosi-Mechi links are dependent on planning of Kosi High Dam in Nepal for which JPO (Joint Project Office) of India and Nepal is working in Nepal. However it is important to mention that the aspect of inter basin water transfer of Kosi water to Ghaghara and Mechi river basin, as envisaged in NWDA pre-feasibility studies are not included in the bilateral agreement between India and Nepal, and as such while undertaking the planning of Kosi High dam, CWC (which is part of JPO) is not considering this aspect. Ministry's intervention in this respect is required to get this aspect of interlinking of rivers included.

3) Links Dependent on Gandak-Ganga, Ghaghara-Yamuna and Pancheshwar Project (Series-III)

Seven Himalayan links, such as Gandak-Ganga, Ghaghara-Yamuna, Sarda-Yamuna, Yamuna-Rajasthan, Rajasthan-Sabarmati, Chunar (Ganga)-Sone Barrage and Sone Dam-STG (Southern Tributary of Ganga) are inter-dependent. As such unless dams proposed in Nepal and the link portion lying in Nepal in respect of Gandak-Ganga, Ghaghara-Yamuna and Sarda-Yamuna links are constructed in Nepal, benefits from all the seven Himalayan links as envisaged in NWDA's Prefeasibility/Feasibility studies cannot accrue. However as per present status, bilateral agreement for Pancheshwar Hydro-Electric Project which forms part of Sarda-Yamuna link has been signed between India and Nepal recently. As a result only part benefit from Sarda-Yamuna link can be realized subject to U.P., Uttarakhand and Delhi agreeing to NWDA's proposal.

In fact, Gandak-Ganga and Ghaghara-Yamuna links are expected to take over the existing command of Sarda project and Sarda Sahayak Pariyojna, and as a result whatever saving of water will be there, the same would be taken forward to other links through Sarda-Yamuna, Yamuna-Rajasthan, Rajasthan-Sabarmati, Chunar (Ganga)-Sone Barrage and Sone Dam-STG (Southern Tributary of Ganga). Thus all these seven links can be considered as another system.

B Inter-State Issues of Himalayan Links

The details of Inter State Issues of Himalayan Links are described below:

Table 1.4

Details of inter-State/International Issues of Himalayan Links

S.N.	Name of link	Inter-State/international Issues	Type of inter-State issues and action taken thereof
1.	Manas-Sankosh-Teesta Ganga link (MSTG)	Assam, Bihar, West Bengal besides international implications involving Bhutan	Apart from international implications involving Bhutan where many works are located, and with Bangladesh, where the water would have flown in its natural course, this link also involves inter-State issues among Assam, Bihar and West Bengal. FR of this link is at finalization stage. This link delivers the Brahmaputra basin waters to the Ganga arm at Farakka. It is likely that Bangladesh would seek an augmentation of their share of Farakka waters in terms of the Article – VIII of the Treaty. The earlier Indian proposal for the Brahmaputra- Ganga link, through Bangladesh, had such a provision.
2.	Ganga-Damodar-Subernarekha link	West Bengal, Jharkhand and Orissa	This link is an extension of M-S-T-G link. Thus, this link is dependent on MSTG link and also has international implications, apart from inter-State issues. Earlier this link was off-taking just upstream of Farakka barrage, but it has now been proposed to start this link about 60 km upstream of Farakka Barrage. So there is likelihood of increase in command area.
3.	Subernarekha-Mahanadi link	West Bengal and Orissa	This link is an extension of G-D-S link. So this link –also has international implications, apart from inter-State issues. As such its FR may have to be modified in light of FR of MSTG and G-D-S links.
4.	Farakka-Sunder bans link	West Bengal	This link is extension of M-S-T-G link. Thus, this link also has international

			implications. However, this link does not have inter-State issues.
5..	Kosi-Mechi link	Bihar and Nepal	The Kosi – Mechi link as envisaged in the NPP is entirely in Nepal, but its branches are proposed to be through Nepal and Bihar, irrigating territories in both. The link depends upon planning of Kosi High Dam in Nepal for which JPO (Joint Project Office) of India and Nepal is working at Biratnagar in Nepal. Nepal's main interest in the link is that it may provide navigational access to Nepal with the ocean systems through the Gangatic delta and Mahananda. This proposal may involve international issues going beyond water resources development.
6..	Kosi-Ghaghara link	Bihar, Uttar Pradesh and Nepal	It has international implications as well as inter-State issues between Bihar and U.P as the link passes through both States. This link also depends upon planning of Kosi High Dam in Nepal for which JPO (Joint Project Office) of India and Nepal is working in Nepal.
7.	Gandak-Ganga link	Uttar Pradesh and Nepal	It has international implications because of its dams in Nepal and inter-State issues between UP and Bihar due to existing Gandak Barrage. FR of the link has not been completed as surveys and investigation of proposed dams and Canal in Nepal portion is yet to be completed.
8.	Ghaghara-Yamuna link	Uttar Pradesh and Nepal	It has international implications because of its dams in Nepal. Further, the sharing of the transferred waters among the States will have to be resolved.
9.	Sarda-Yamuna link	Uttar Pradesh, Uttarakhand,	It has international implications as well as inter-State issues between

		NCR of Delhi, and Nepal	Uttarakhand and U.P as link passes through both States. This link depends upon planning of Pancheshwar Dam on Indo-Nepal border for which PDA (Pancheshwar Development Authority) between India and Nepal is working. FR of the link has been prepared earlier but will have to be modified in light of DPR of Pancheshwar Project which is reported to have been completed by WAPCOS. Process of consensus building will have to be taken up after finalization of its FR. (This link is also dependent on Gandak-Ganga and Ghaghara-Yamuna links.). Further, the sharing of the transferred waters among the States will have to be resolved.
10.	Yamuna-Rajasthan link	Haryana and Rajasthan	This link is an extension of Sarda-Yamuna link. Accordingly, this link also has international implications, apart from inter-State issues. Its FR can be finalized after finalization of FR of Sarda-Yamuna link.
11.	Rajasthan-Sabarmati link	Rajasthan and Gujarat	This link is again, an extension of Yamuna-Rajasthan link. Thus this link also has international implications, apart from inter-State issues. Its FR can be finalized after finalization of FR of Yamuna-Rajasthan link.
12.	Chunar-Sone Barrage link	Bihar, UP	This link is also dependent on Gandak-Ganga and Ghaghara-Yamuna link. Accordingly, it has international implications as well as inter-State issues between Bihar and U.P. However if both States agree, they may plan the link for partial benefit.
13.	Sone Dam - Southern Tributaries of	Bihar, U.P. and Jharkhand	This link depends upon Kadwan dam whose submergence extends in U.P. area, thus having inter-State issues

	Ganga link		between Bihar and U.P. Due to non-resolution of this issue, Kadwan dam in Bihar has not been accorded even techno-economic clearance. Further as link passes through Bihar and Jharkhand, there will be issue of allocation of water benefits between the two States. Preparation of FR of this link is at an advanced Stage.
14.	Jogighopa-Teesta-Farakka link in India (Alternative to MSTG Link)	Assam, West Bengal and Bihar	This link has been planned as an alternative/ supplementation to MSTG link keeping entire project in India. The international implications involving Bangladesh in utilizing the Brahmaputra waters will continue. However the project may not be as cost effective as MSTG as it involves huge volume of transfer of water by pumping. For all practical purposes, NWDA studies have put this link on the back burner It might assume some significance if the MSTG with international cooperation is found to be difficult due to lack of consensus between the countries involved.

Keeping the above facts in view, there is need to expedite bilateral agreements between India and Nepal for proposed dams on Gandak and Ghaghara in Nepal for Gandak-Ganga and Ghaghara-Yamuna links.

2.0 Review of First Task Force Report on Finance Aspects:

2.1 Review of the Recommendations of National Council of Applied Economic Research (NCAER):

The Earlier Task Force on ILR (constituted in the 2002) had commissioned a study on the financing of the ILR Programme through National Council of Applied Economic Research (NCAER). A summary of their recommendations is as follows:

The estimated total cost of the ILR Programme in 2004 was Rs 5.6 lakh crores, spread over 12-15 years. The annual cost for a 12 year implementation period was estimated at c. Rs 46,500 crores. At an inflation rate of c. 6% pa, and current exchange rate of c.Rs 65 per US$, current estimated cost is c.US$ 183 billion, and annual cost is c. US$ 15 billion. The estimated incremental financial assets in the country in 2015 are Rs 13 lakh crores, or c.USD 200 billion a year. Prima-facie therefore, the annual funding requirement could be met from domestic sources. However, the NCAER emphasized that the *key to raising financial resources is cost recovery in an equitable manner.*

The NCAER Report also identified the following models of raising domestic finance:

(i) **Direct Private participation**: Private participation was anticipated primarily for the hydropower components (c.34,000 MW). The Debt: Equity ratio envisaged was 70:30. About 25-26% of total cost of the ILR programme may be raised from private participation in hydropower development.

(ii) **Public-Private Partnership (PPP)**: PPP was envisaged mainly for canal tributaries and command areas. Two Models were proposed:

(a) **Annuity Model**: A developer may be selected on the basis of competitive bids for annuity payments. In this model, Government pay annuity to the developer, and assumes market risks. The Developer bears financing, construction, and operations risks.

(b) **Viability Gap Model**: In this model, Government assigns rights for land development, fisheries, etc., and provides gap financing for viability determined by competitive bids. The release of gap financing is subject to the Developer meeting milestones defined in the bid documents.

(iii) **Public Participation**: This model would involve tapping the capital markets. Two specific approaches suggested are:

(a) Access to capital markets: “Green bonds” may be issued by Government with maturity of 20-25 years which may be purchased by institutional investors who may be incentivized through IT rebates under Secs. 54 EC and 54 ED of IT Act.

(b) Retail Investors: Involves tapping savings of households. There may be two approaches: One, incentives under Sections 80 and 88 of IT Act could be provided to household investors. Two, Bonds etc. issued by Government for

the ILR programme may be eligible for deduction in computation of total taxable income on recurring basis (c. 6 years). The Principal would be non-refundable.

(iv) **Banks/FIs**: The ILR programme may be declared a "priority sector" for lending by banks/FIs within the norm of 40% of total lending. Government may borrow from banks and other financial institutions through bonds and various debt instruments. However, care should be taken that the Public Debt: GDP target of public borrowing should not be breached.

(v) **Cess and Duties**: The NCAER Report also suggested that considering the positive impact of the ILR programme on agricultural output, a cess for funding the programme may be imposed on agricultural *mandis*.

The NCAER Report also made some recommendations on redirection of fiscal resources for the ILR programme. These included:

(vi) **Allocations from employment generation schemes**: Part of the allocation for labour employment under (rural) employment schemes (earlier, *Sampoorna Grameen Rozgar Yojana*, now MNREGA) may be allocated for meeting labour costs under ILR.

(vii) **Other Options**: Various other options that were suggested include:

(a) **IT Amnesty scheme**: A scheme of forbearance for unpaid income tax may be declared, with tax arrears and penalty thus recovered being earmarked for the ILR programme.

(b) A part of existing allocations on water programmes may be allocated to the ILR programme, and finally

(c) A part of Central allocations to beneficiary states may be allocated to the ILR programme.

Given the emphasis in the NCAER Report on cost recovery as the key to raising resources from capital markets, it suggested the following approaches to cost recovery:

(i) Among various options for water pricing, the NCAER Report suggested the following options:

(a) Volumetric basis of water pricing, in which irrigation and drinking water tariffs are payable by the users in direct proportion to the volume of water supplied.

(b) Non-volumetric pricing, whereby flat rates for use of irrigation water, perhaps based on area irrigated, may be levied.

(c) Quotas/rationing, by which a given quantity of water may be supplied for a specified price.

(d) Market based approaches would require assignment of property rights over water, for example a specified tradeable quota per season, following which market interactions between surplus holders (sellers) and deficit holders (buyers) may occur, without any further involvement by Government. The assignment of property rights over water may be on payment to Government of a fixed price per unit of water (royalty), or alternatively by auction of water rights.

(e) The land revenue may be enhanced on irrigated land above a certain size of holding.

(f) Cost recovery could also rely on auctions of rights for land development, especially along canal banks that are also used for inland water transport.

Overall, the proposals by NCAER are rather generic in nature, and do not amount to a clear, pragmatic financing and cost recovery plan. Further, International sources of finance are not considered, perhaps in the expectation that the entirety of the required resources could be met by fiscal sources, and non-fiscal sources from the Indian capital markets. These assumptions are explored in this Interim Report. The NCAER Report also does not discuss the requirements of due diligence for sourcing funds from different sources.

2.2 Recommendations of the Earlier Task Force (2002) on Financing Aspects:

The Earlier Task Force (2002) made the following recommendations with respect to funding the ILR programme:

The First Task Force made a preliminary estimate of the total cost of the ILR programme as Rs 5.6 lakh crore, and the period of implementation at 12-15 years. The average investment required would thus be about Rs 46, 500 crore per year.

2.2.1 Macroeconomic Perspective:

The Earlier Task Force (2002) noted that from past trends it may be observed that there is significant availability of funds in the financial sector. The growth in financial sector assets increased at 16% CAGR during 1990-2002/03. The then (2002-03) current level of financial assets with scheduled commercial banks of Rs 14 lakh crores was expected to increase to c. Rs 112 crores in 2015, assuming that historical trends of growth are maintained. The growth could be even higher if the observed trend of increasing savings rates in the economy continues, which may reach 31% of GDP in 12 years. Assuming a GDP growth rate of 7% and savings rate of 31% of GDP in 2015, the incremental additional financial assets that would be generated in that year would be Rs 13.0 lakh crores. Resources would thus be available domestically for funding the ILR programme.

The Earlier Task Force (2002)generally endorsed the recommendations on funding modalities made by NCAER, in Annex VII of the Action Plan II (March 2004) of the Earlier Task Force (2002). It also emphasized the importance of cost-recovery of the services provided by the ILR programme.

The Earlier Task Force also endorsed the specific funding options suggested by the NCAER.

3.0 Updating Capital Costs of the ILR Programme:

3.1 Links under Consideration

The main task assigned to the Group on Financial Aspects under Task Force for ILR is to consider the financial aspects of Interlinking of Rivers Project and to suggest a funding pattern for implementing the same. The first and foremost input required for this task is to find the total cost of ILR Projects. NWDA has identified altogether 30 links for preparation of Feasibility Report (FR)/ preparation of Detailed Project Report (DPR) out of which Jogighopa - Teesta-Farakka (JTF) link has been conceived as an alternate to Manas-Sankosh-Teesta-Ganga (MSTG) link. Now due to bilateral agreement between India and Bhutan on implementation of Sankosh dam H.E. Project and preparation of DPR of Kuri Gongri H.E. Project in Manas basin, implementation of MSTG has become a reality, JTF link (alternative link to MSTG) has been dropped by this Group and only 29 links have been taken into consideration for updating of Cost of ILR projects. Earlier Task Force (set up in the year 2002 by Government of India) headed by Shri Suresh Prabhu had estimated the cost of these ILR projects with MSTG link as Rs.4,44,331 crore and with JTF link as Rs.4,34,657 crore at 2003-04 price level.

3.2 Methodology

Out of the remaining 29 links, DPRs of only three links, namely, Ken-Betwa, Par-Tapi-Narmada and Damanganga-Pinjal links have been prepared by NWDA following consensus among the concerned States. Feasibility Report of 13 links have been prepared and the Feasibility Report of the remaining links are yet to be prepared by NWDA as they are still at pre-feasibility stage. Further Damanganga-Pinjal link is a Water Supply Project for Mumbai city. Thus, for working out updated cost of ILR projects, the Group has taken following approach:

(i) Instead of considering benefits as envisaged in NPP, the Group has considered the link-wise irrigation and power benefits, as worked out in DPR/FR/PFR by NWDA for realistic estimation of cost. As per NWDA studies, total irrigation benefits from identified links is 17.7 million hectare and total anticipated power generation is 32,288 MW **(Annex-3.2.1).**

(ii) All the costs have been worked out at 2015-16 Price Level as the cost of Ken-Betwa, Par-Tapi-Narmada and Damanganga-Pinjal link projects for which DPRs have been prepared are at 2015-16 P.L.

(iii) The cost of three projects viz. Ken-Betwa , Par-Tapi-Narmada and Damanganga-Pinjal link projects have been taken as per actuals worked out in their respective DPRs. However in case of other links for which DPRs are yet to be prepared, the total updated cost has been worked out by multiplying irrigation benefit with unit cost of irrigation development and power benefit with unit cost of power development.

(iv) Unit cost of irrigation development has been taken as weighted mean of three suggested links, namely, Ken-Betwa, Par-Tapi-Narmada and Mahanadi-Godavari links instead of arithmetic mean. The weighted mean of cost of irrigation development of aforesaid three suggested projects, was found to be Rs.3.59 lakh per hectare at 2015-16 P.L **(Annex-3.2.2).**

(v) Since the DPR of Mahanadi-Godavari link is yet to be prepared, it was decided that the cost of M-G link (as worked out in FR) excluding the cost of land component, should be brought to 2015-16 level using price index method while cost of land component should be increased by four times to arrive at final updated cost. Accordingly, the updated cost of Mahanadi-Godavari link was worked out and the same was considered for working out weighted mean of suggested three projects.

(vi) It was decided that irrigation benefits (in terms of hectares) from Brahmaputra water (about 10.787 BCM) being dropped into Mahanadi river through Manas-Sankosh-Teesta-Ganga, Ganga-Damodar-Subernarekha and Subernarekha-Mahanadi links should be reasonably assessed and added in total (irrigation) benefits of 29 links to work out total cost of irrigation development. Accordingly

irrigation benefit in terms of hectares was found to be 13.20 lakh ha. This was worked out on pro-rata basis, from the total water utilized and irrigation benefits of three links in continuity, i.e., MSTG, GDS and SM links.

(vii) The cost of water supply component has not been worked out separately for different links as the cost of this minor component is already included in irrigation component.

(viii) The Group decided that the Cost of power development for links generating less than 500 MW should be taken as Rs.8.0 crore per MW while that for links generating more than 500 MW should be taken as Rs.6.2 crore per MW as worked out in case of Sankosh H.E. Project in Bhutan and approved by CEA **(Annex-3.2.3)**.

3.3 Updated cost

Based on above, the total cost of ILR projects is worked out as Rs.8.44 lakh crore, the link-wise details of which are placed at **Annex-3.2.1**. Out of total cost of ILR projects of Rs 8.44 lakh crore, Rs.6.39 lakh crore is for irrigation development, Rs.2.02 lakh crore for power development, and Rs.0.03 lakh crore for the exclusive water supply project of Damanganga-Pinjal link. This figure of Rs.8.44 lakh crore, worked out as the total updated cost of ILR projects was frozen by the Group for working out the suggested funding pattern**.** *Additionally cost escalation due to technical uncertainties was uniformly assumed at 25%*.

The link-wise total irrigation and power benefits were assessed as 17.70 million hectare and 32,288 MW respectively. Out of 32,288 MW hydro power generation at the cost of 2.02 lakh crore, 31,497MW are being generated from 7 (seven) no. of links, each generating more than 500 MW. Most such projects are in Bhutan and Nepal. Accordingly, their cost has been worked out @ Rs. 6.2 crore/ MW (approved cost of power generation in Sankosh H.E. project in Bhutan and part of MSTG link) and the total cost comes out to Rs. 1.96 lakh crore. Remaining 792 MW hydro power generation is contributed from other 13(thirteen) no. of links, each generating less than 500 MW. Their cost has been worked out @ Rs. 8.0 crore/MW, and the total cost of such power generation works out to 0.06 lakh Crore.

4.0 Grouping and Phasing of ILR Components:

4.1 Grouping of projects

Out of 30 links identified by NWDA, most of the links are dependent on a particular dam or group of dams. Some of the links are however independent. Thus, based on dependency or otherwise, the links have been grouped as under:

Group- 1 Links Dependent on Manas and Sankosh dams of MSTG

Manas-Sankosh-Teesta-Ganga (MSTG) link was conceived as the most important link under the Himalayan Component of National Perspective Plan (NPP) for inter-basin diversion of 43 billion cubic meters (BCM) surplus water from Manas and Sankosh rivers (Tributaries of Brahmaputra river) with supplementation from four intermediate major streams i.e. Aie, Raidak, Torsa and Jaldhaka. The link project envisages construction of two dams on rivers Manas and Sankosh respectively inside Bhutan territory besides a downstream reregulating structure to even out flows with a westward link canal for irrigation and diversion of substantial quantum of water to river Ganga upstream of Farakka barrage. These two dams proposed on Manas and Sankosh Rivers in Bhutan have good hydro-power potential. The following three Himalayan link projects are dependent on these two dams of Manas- Sankosh-Teesta-Ganga (MSTG) Link:

(iv) Farakka-Sunder bans link
(v) Ganga-Damodar-Subernarekha Link
(vi) Subernarekha-Mahanadi Link

The above links along with MSTG link comprise Group-1.

Group-2 Links Dependent on Kosi Dam

Two links, namely, Kosi - Ghaghara and Kosi-Mechi links are dependent on planning of Kosi High Dam in Nepal for which JPO (Joint Project Office) of India and Nepal is working in Nepal. These two links have been kept together in Group-2.

Group-3 Links Dependent on Gandak-Ganga, Ghaghara-Yamuna and Pancheshwar dam of Sarda-Yamuna Link Project

Seven Himalayan links, such as Gandak-Ganga, Ghaghara - Yamuna, Sarda-Yamuna, Yamuna-Rajasthan, Rajasthan-Sabarmati, Chunar (Ganga)-Sone Barrage and Sone Dam-STG (Southern Tributary of Ganga) are inter-dependent. As such unless dams proposed in Nepal and portion of link lying in Nepal in respect of Gandak-Ganga, Ghaghara-Yamuna and Sarda-Yamuna links are constructed in Nepal, benefits from all the seven Himalayan links as envisaged in NWDA's Prefeasibility/ Feasibility studies cannot accrue. Thus, these 7 links have been kept under Group-3.

Group -4 Links Dependent on Dams on Mahanadi and Godavari rivers

Nine link system, as mentioned below and starting with Mahanadi-Godavari link, was originally planned on the surplus waters of Mahanadi and Godavari rivers. However since Odisha and Telangana have not agreed with the NWDA study on surplus water, its planning needs to be reviewed with available surplus Brahmaputra water in

consultation with beneficiary states. Feasibility of all these nine links have already been prepared. However their DPRs are yet to be prepared. These 9 links comprise Group 4.

(i) Mahanadi-Godavari
(ii) Godavari (Inchampalli) – Krishna (Pulichintala)
(iii) Godavari (Inchampalli) - Krishna(Nagarjunasagar)
(iv) Godavari(Polavaram)-Krishna(Vijayawada)
(v) Krishna(Almatti)-Pennar
(vi) Krishna(Srisailam)-Pennar
(vii) Krishna(Nagarjunasagar)-Pennar
(viii) Pennar-Cauvery (Grand Anicut)
(ix) Cauvery (Kattalai) -Vaigai - Gundar

Group-5 **Independent Link, i.e, Ken Betwa link -** DPR of this link has already been prepared.

Group-6 **Independent Link, i.e., Par-Tapi-Narmada link-** DPR of this link has already been prepared.

Group-7 **Independent Link, i.e, Damanganga-Pinjal Link -** DPR of this link has already been prepared.

Group-8 **Independent Link, i.e, Parbati-Kalisindh-Chambal link -** FR of this link has already been prepared.

Group-9 **Independent Link, i.e, Bedti-Varda link -** FR of this link is yet to be prepared.

Group-10 **Independent Link, i.e, Netravati - Hemavati link -** FR of this link is yet to be prepared.

Group-11 **Independent Link, i.e, Pamba-Achankovil-Vaipar link -** FR of this link has already been prepared. However, Kerala Assembly has passed resolution for non-implementation of this link

4.2 Five year phasing of group of projects

The 29 link projects of the ILR are proposed to be implemented over a period of 30 years, i.e., from 2020-21 to 2049-50. Tentative period of implementation of individual group of links have been given in the following Table 4.1:

Table 4.1
Details of implementation periods of different group of links

S. N.	Name of Group of Links	Total Cost Rs. In crore	Duration of DPR preparation	App. Duration of completion of projects	Remarks
1.	Group-1 (MSTG, GDS,SM,FS)	1,13,555	2020-2025	2025-2035	
2.	Group-2 (KG &KM)	75,039	2020-2025	2025-2035	
3.	Group-3 (GG,GY,SY,YR,RS, CSB & SSTG)	4,20,033	2020-2030	2025-2050	
4.	Group-4 (Nine link system starting with MG	1,25,398	2020-2025	2025-2035	An alternate to part of this has been proposed as Godavari -Cauvery link.
5.	Group-5 (Ken-Betwa)	34,925	Prepared	2020-2030	Priority
6.	Group-6 (PTN)	10,211	Prepared	2020-2030	Priority
7.	Group-7 (Damanganga-Pinjal)	3008	Prepared	20202030	Priority
8.	Group-8 (PKC)	3927	2020-25	2025-2035	
9.	Group-9 (Bedti-Varda)	2183	2026-2030	2031-2040	
10.	Group-10 (Netravati-Hemavati)	1221	2026-2030	2031-2040	
11.	Group-11(PAV)	7281	2030-2035	2035-2050	
12.	Equivalent irrigation from Brahmaputra water dropped in Mahanadi	47,388			It would be developed with Group-4 (Mahanadi-Godavari & others)

Note: The projections of finance requirements individually for the first 10 years of the ILR implementation, and thereafter at 5-year intervals over the 30 year period of implementation are given in Table 5.1.

4.3 Detailed phasing of four prioritsed projects

Out of 29 projects, three link projects of NPP, namely, Ken-Betwa, Par-Tapi-Narmada & Damanganga-Pinjal, and one new project, namely, Godavari (Akinepalli) -Cauvery (Grand Anicut) (as an alternate to part of Nine link system of Peninsular link, i.e., Group-4) have been prioritized and are proposed to be implemented over a period of ten years from the year 2020-21 to the year 2030-31. Year-wise funding requirement for these four prioritized projects is given below in following Table 4.2:

Table 4.2

Year wise funding requirements for priority link projects under ILR)

(Rupees in crore)

Project / Years	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**	**2027-28**	**2028-29**	**2029-30**	**Total Amount**
1. Ken-Betwa	1594.27	2901.15	5066.72	7560.08	6700.73	5263.80	3799.95	2038.54	-	-	**34925.24**
2.Par-Tapi-Narmada	878.16	867.95	1531.68	1531.68	1940.13	1940.13	1521.48	-	-	-	**10211.21**
3.Damanganga-Pinjal	42.99	348.70	751.72	681.74	568.15	427.01	188.18	-	-	-	**3008.49**
4.Godavari (Akinepalli) - Cauvery (Grand Anicut)	-	-	2252.45	3603.92	6442.01	9730.58	8649.41	6802.40	4955.39	2612.84	**45049.00**
Total	2515.42	4117.80	9602.57	13377.42	15651.02	17361.52	14159.02	8840.94	4955.39	2612.84	93193.94

5.0 Adjusting cost in nominal terms across detailed phasing of all projects

5.1 Detailed phasing

The detailed phasing of 4 prioritized projects on annual basis over 2020-30 along with rest of the projects on 5-year phasing from 2025-50 are combined together, on the basis of cost computed by the Group. Details of tentative period of implementation of individual group of links have been given in the following Table 5.1.

5.2 Technical adjustment to total cost basis detailed phasing

The total cost of project at Rs 8.44 lakh crore[2] as estimated by the Group, is escalated upwards by 25% on account of technical adjustment as discussed earlier (this is done both on a project-wise and year-wise basis). As such, the total cost of ILR projects over 2020-2050 rises to Rs 10.552 lakh crores (constant prices at 2015-16 level), as outlined in Table 5.1.

5.3 Conversion to current prices

In order to convert the above cost into nominal terms, the adjustment WPI inflation rate of 4.0% is assumed over the period 2020-2050. This is based on the assumptions, that:

(i) Broadly over a long period, WPI should track CPI inflation, which is now expected to remain close to mid-point of RBI's inflation target band

(ii) WPI food, which is a major component of WPI, is strongly correlated positively with labour wage rates, owing to the wage-price spiral. Since labour costs are a significant part of construction of such projects, the WPI was considered to be the appropriate price index.

Methodology: WPI inflation of 4.0% is applied to all annual cost projections to estimate cost at current prices of relevant years for 2020-30. For 5-year phasing over 2031-50, cost at current prices corresponding to the mid-point of the relevant 5-year period is estimated.

The total cost of the ILR program, is estimated at Rs 21.911 lakh crores over 2020-50, at current prices (adjusted for the years of implementation), as outlined in Table 5.1

[2] Project cost excludes pre-operative expenses, interest during construction etc., which would be specific to each of the sub-projects under the ILR programme

Table 5.1
Year wise funding requirements for priority link projects under ILR

(Rupees bn)

Name of Group/Link/FY	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031-35	2036-40	2041-45	2046-50	Total Cost	Cost (technical adj)
Ken – Betwa	16	29	51	76	67	53	38	20	0	0					349	437
Par-Tapi-Narmada	9	9	15	15	19	19	15	0	0	0					102	128
Damanganga-Pinjal	0	3	8	7	6	4	2	0	0	0					30	38
Godavari (Akinepalli) - Cauvery (Grand Anicut) (part of Group 4)	0	0	23	36	64	97	86	68	50	26					451	564
Rest of Group 4						35	35	35	35	35	627				803	1004
Group 1						114	114	114	114	114	568				1136	1419
Group 2						75	75	75	75	75	375				750	938
Group 3						168	168	168	168	168	840	840	840	840	4200	5250
Parbati-Kalisindh-Chambal						4	4	4	4	4	20				39	49
Bedti-Varda											11	11			22	27
Netravati–Hemavati											6	6			12	15
P.A.V Link												24	24	24	73	91
Equivalent irrigation from BP water dropped into Mahanadi											158	158	158		474	592
Total Cost, in real terms, 2015-16 prices	26	41	96	134	157	569	537	484	445	422	2605	1039	1022	864	**8441**	**10552**
Cost with technical adjustment @25%	32	51	120	167	196	712	672	605	557	527	3256	1299	1278	1080	**10552**	
Total Cost, in nominal terms	**39**	**65**	**158**	**229**	**278**	**1053**	**1034**	**969**	**927**	**913**	**6099**	**2960**	**3543**	**3644**	**21911**	

6.0 Projections of Flows of Funds:

6.1 Projections of Flows of Funds from Domestic SCBs:

From an economic perspective, the ability of banks to fund infrastructure financing, is a function of economic growth, prevailing rate of inflation, savings rate and deposit mobilization thereby and lastly, credit-off take to the infrastructure sector.

The estimated incremental flow of bank credit to the infrastructure sector in general, and ILR programme in particular, over 2021-2050, on the basis of the assumptions enumerated in Section 1.8, is estimated as:

(i) Under the *Pessimistic Case*: at Rs 5.273 lakh crores
(ii) Under the *Anticipated Case*: at Rs 9.693 lakh crores

6.2 Projections of requirements of Funds from Government (Central and State):

From the perspective of Government funding, the Sub-group was of the opinion that an acceptable level of Government financing would be one which requires *'Skin in the Game'* from the Government (Centre and states together) to the tune of at least 15% of the total cost of the project. This level of funding is considered essential to convince investors, whether domestic or external, to take Government's commitment and involvement seriously.

Further, in line with recommendation of the Special Committee on ILR project, the ratio of cost sharing between Centre and States was taken at 90:10

Basis this, the flow of funds from the Government is estimated as:

(i) Rs 3.287 lakh crores from the Central Government, i.e at 15% of total project cost
(ii) Rs 0.365 lakh crores from the State Governments, i.e at 2% of total project cost.

7.0 Prospects of Funding from Multilateral (MFIs) and Bilateral Financial Institutions (BFIs):

7.1 Projection of Availability of External Assistance (EA)

7.1.1 Official External Assistance to India (EA).

India receives Official External Assistance from foreign governments/agencies, mainly Multilateral Finance institutions (MFIs), such as the World Bank and Asian Development Bank (ADB), and Bilateral agencies, such as JAICA (Japan) and KfW (Germany). Currently, MFIs provide 2/3rd of total External Assistance and Bilaterals 1/3rd. Typically,

External Assistance is provided in foreign currencies, for longer periods and on softer-than-market terms.

Over the last three decades, External Assistance has grown 2.8% annually to reach $9.68bn in fiscal year 2016-17 (FY2016). Looking ahead, two new MFIs have commenced external assistance to India, the Asian Infrastructure Investment Bank (AIIB), and the New Development Bank (NDB). The Global Climate Fund (GCF) may also provide significant technical and financial support in the future to promote environmentally sustainable development.

7.1.2 Expected increase in External Assistance

Future flows of External Assistance will be subject to the following developments:

a. India will not be able to access more concessional International Development Agency (IDA) funds from the World Bank.
b. Flow of regular funds from the World Bank is also likely to be flat because India has reached the current "single borrower limit" of the World Bank.
c. On the other hand, ADB lending is likely to increase modestly in the future.
d. New entrants AIIB, NDB, and GCF will likely add significantly to MFI lending in the near future.

However, overall MFI support could only see a modest increase in the medium-term. Bilaterals may be expected to maintain 1/3rd share of External Assistance in the future. Based on optimistic assumptions, External Assistance could peak at a level of $18 billion (in nominal terms) in 5 years (FY2021), with a contribution of $12 billion from MFIs and $6 billion from Bilateral agencies. In real terms (at fiscal year 2016 prices), assuming an inflation rate of 2%, cumulative total External Assistance approval of $272 billion could be expected during FY2021 to FY2040.

7.1.3 Sector focus of External Assistance —Availability of Funds for ILR Projects

Sector allocation of External Assistance will depend on (i) priorities of the Government of India and the borrowing State Governments as articulated through the Department of Economic Affairs (DEA) of the Ministry of Finance, and (ii) strategic preferences of the agencies providing support. In recent years, about 69% of External Assistance was allocated to support infrastructure projects—energy (28%), transport (23%), and water and sanitation—including drinking water supply—(16%). If one assumes that ILR hydro-electric projects will receive one fourth of the allocation for energy sector of 28% in External Assistance, about $19 billion (at FY 2016 prices) will be available for ILR power component during FY2021—2040. Further, if one assumes that 5% of total External Assistance would be available for irrigation component of ILR, an allocation of $13.6 billion (at FY 2016 prices) could be expected during FY2021—2040. Therefore, on an

optimistic basis, the total availability of External Assistance for ILR projects could be $32.6 billion (at FY2016 prices) during FY2021--2040.

The total cost of ILR's 30 link projects is estimated at about $161.2 billion (Rs 10.55 lakh cores at FY2016 prices)[1], comprising about 3/4th ($120.9 billion) for water transfer & irrigation and 1/4th ($40.3 billion) for power generation. The estimated availability of External Assistance could meet 22.2% of total cost of ILR if sectoral allocations are done as in recent past.

8.0 Funding of the Priority ILR Projects

Four stand-alone ILR projects have been identified as priority projects for external funding (Table below). Detailed project reports are available for three of them. The total cost these projects is estimated at Rs 1,16,700 crore (about USD 17.84 billion) at 2015/16 prices (refer Table – 5.1).

Project	**Cost at 2015/16 prices (Rs Crore)**	**Cost at 2015/16 prices (USD Billion)@**
Par Tapi Narmada	12,000	1.96
Ken Betwa (Both phases)	43,700	6.68
Damanganga	3800	0.58
Godavari (Akinepalli) - Cauvery	56,400	8.62
Total	**1,16,700**	**17.84**

Note: Cost estimates are taken from the DPRs.
@ USD=Rs65.46 (Reserve Bank of India's annual average exchange rate)

If External Assistance covers 33% of their project cost and assuming an implementation period of 8 years, the requirement for external assistance would be about $ 736 million annually which could be could be secured with the support of the Ministry of Finance.

9.0 General Considerations for External Assistance Funding

9.1 Mandates of MFIs and Bilateral Agencies

In the past decade, MFIs and Bilateral agencies, besides private international sources such as pension funds, have largely withdrawn from funding storage irrigation projects. This is on account of the concerns raised by international NGOs and others on the environmental and social impacts of such projects, which have received much adverse media coverage. Similar adverse media coverage occurred in the case of the ILR programme in the past.

Accordingly, the key to engaging the MFIs and Bilaterals is to demonstrate that the ILR programme is consistent with their current mandates. Poverty alleviation is at the core of the mandates of MFIs and Bilateral agencies. Almost all of them see climate change to be the biggest threat to future poverty reduction and the sustainability of past gains in poverty alleviation. This realization has brought climate change considerations to the core of operational focus of both MFIs and Bilateral development agencies. Their strategies and action-plans cover both mitigation and adaptation aspects, while some of them have explicitly included water security as an important operational priority due to its significant impact on food security and poverty. Some agencies have enhanced their allocation for the water sector to strengthen climate resilience. Thus, the mandates of all agencies, except KfW's consider water security and food security to be important for building resilience to climate change to protect the poor.

9.2 Complexity of ILR Project

Nevertheless, it would be challenging to seek financial closure for ILR as a whole from international financial institutions, given its complexity and size. Such a venture would require comprehensive due diligence at a national, regional, state and linkage level covering all 30 links which would be unwieldy and impractical for the following reasons: (i) wide geographical spread; (ii) storage/diversion/transportation of large volumes of water; (iii) necessity for inter-state, as well as in case of several links, international political consensus, and legally binding agreement on sharing of costs and benefits over the long project life stretching over decades; (iv) need to significantly improve cost recovery for meeting operational/maintenance costs and servicing debt/equity; (v) upstream-downstream interdependencies requiring strict implementation to sequenced schedules; and (vi) wide range of stakeholders (beneficiaries/project-affected, federal and state governments, regulators, national/international financiers and civil society etc.) with diverse interests and concerns. The large cost gives rise to questions of fiscal affordability and crowding out of other development priorities. The long implementation period (30 years) could bring in uncertainties of its own. Aggregated impacts of 30 links could raise undue safeguard concerns of financiers, regulatory agencies, project-affected and civil society.

For all of these reasons and more, due diligence of ILR as a whole could be a daunting task. Hence, it may be prudent to slice ILR into discrete sub projects of smaller size and cost that are self-standing and phased out over the implementation period to enable a more deliverable due diligence with a subproject focus.

9.3 Advantages of Sliced Approach

Slicing could start with identification of independent linkages that can stand on their own, such as: Ken-Betwa, Damanganga-Pinjal, Par-Tapi-Narmada, Netravati-Hemavati, Pamba-Achankovil-Vaippar etc., These could be termed as Single Linkage Projects (SLPs). This could be followed by identifying from the remaining linkages those that need to be combined due to upstream and downstream requirements to form a self-standing subproject. These could be termed as Combined Linkage Projects (CLPs). Each of these subprojects should be self-contained and complete with clearly delineated costs-cum-benefits and adequate demonstration of "safeguards" compliance to enable due consideration by regulators and financiers.

10.0 Mandates of Development Finance Institutions for Climate Change

The adverse impact of extreme weather on the poor has brought climate change considerations to the core of strategic focus of development finance institutions—both multilateral finance institutions (MFIs) and Bilateral agencies. All of them address climate change impact holistically by imparting new knowledge, providing resources, and promoting partnerships. This sub-section covers the mandates for addressing climate change of five MFIs and two Bilateral agencies that provide significant External Assistance support to India.

10.1 Asian Development Bank (ADB)

To enhance the allocation for climate operations significantly, ADB's Climate Change Operational Framework 2017—2030 envisages: (i) supporting nationally determined contributions (NDCs) to mitigate climate change, (ii) enhancing support for low-carbon development, (iii) promoting climate change adaptation, (iv) Integrating climate change adaptation and disaster risk management, and (v) linking climate actions to wider sustainable development agenda.[1] The Framework proposes to increase annual climate change support to $6 billion by 2020 ($4 billion for mitigation and $2 billion for adaptation) and to much higher levels thereafter. In 2017 ADB provided $4.5 billion for climate change support (22.3% of total support).

ADB recognizes (i) the risk of water scarcity due to climate change as a major threat to food security, and (ii) the fundamental role of water in disaster risk management. To address these issues, ADB will enhance its support for the water sector to: ease scarcity, improve water capture and reuse, promote integrated river basin management and water saving, and improve management of existing reservoirs and build new ones.

10.2 Asian Infrastructure Investment Bank (AIIB)

AIIB is yet to develop its medium-term strategy. Its emerging thematic priorities are to promote (i) sustainable infrastructure to enable countries meet their environmentally sustainable goal, (ii) cross-country connectivity—focusing on roads, railways, pipelines, maritime routes, and ports; and (iii) leveraging private sector investment through innovative modalities and fostering partnerships. Though, AIIB has sector strategy only for the energy sector, its future pipeline of projects also has a sizable presence of seven water sector projects for $1.5 billion for processing in 2018 and 2019.During these years AIIB aims to increase its annual lending to $3.5 billion.

10.3 Green Climate Fund (GCF)

The GCF is the largest dedicated multilateral climate fund. The Fund supports countries to enhance their adaptive capacity and pursue a climate-resilient development path based on low greenhouse gas emissions to accomplish the objectives of the Paris Agreement. Fund's programming will be based on developing countries' Nationally Determined Contributions(NDCs) to the Paris Agreement. GCF provides project finance (own funds and co-financing), builds capacity, and promotes technology transfer. To maximize its impact GCF supports scalable and replicable projects/programs. The Fund maintains a balance between adaptation and mitigation investments and pays attention to country ownership, needs and priorities. GCF's work program for 2018 gives high priority for water sector by allocating $348 million (26.7%) out of the proposed support for public sector projects of about $1.3 billion. In addition, the Fund will provide $155 million as technical assistance for project readiness and preparation, and preparing national adaption plans.

The overall scale of operations of the GCF is too small for it to be a major source of funding for ILR. However, the GCFs resources are provided on concessional or grant terms, and the fact of GCF participation in a project serves as an assurance that it genuinely serves the stated climate change objectives. Its participation in ILR projects may thus help leverage large scale funding from Bilaterals as well as private IFIs.

10.4 Japan International Cooperation Agency (JICA)

Climate change is a major concern for JICA, which is strategically committed to counter it by supporting projects that prevent, mitigate and adapt for climate change. JICA's strategies for climate change focus on four priority areas to: (i) develop low-carbon and climate resilient infrastructure; (ii) prevent and reduce future climate-related risks by promoting comprehensive risk management across sectors including disaster risk management and food and water security; (iii) build capacities in developing countries to formulate policies to plan, implement, monitor and improve climate actions; and (iv) to

enhance conservation and improve management of forests and other ecosystems. To address growing concerns about the impact of climate change on water resources JICA will provide technical support for assessing climate change impacts and developing adaptation measures.

10.5 KfW (Reconstruction Credit Institute)

KfW's priority areas are social development, environmental and climate protection and the conservation of natural resources, and financial sector development. Its operational focus in India is mainly on two sectors—green energy and energy conservation, and financial sector development (these two sectors accounted for 78% of funding during 2007—2016); while water and sanitation is a low priority area with an allocation of 3.8%.

10.6 New Development Bank (NDB)

NDB's mandate is to promote infrastructure and sustainable development. Addressing climate change is therefore a strategic objective for the Bank. NDB seeks to accomplish this by allocating about 66% of its resources to develop sustainable infrastructure during 2017--2021. In doing so, NDB will tailor its programs to meet the needs of its members and their development priorities and strategies. *NDB does not prescribe any policy, regulatory and institutional reforms to borrowing countries, and relies on country systems for procurement and to manage environment and social impacts*. Water is a priority area for NDB and it will support: (i) irrigation infrastructure,(ii) clean drinking water supply and sanitation, and (iii) efficient use of water through adoption of latest technology.

10.7 World Bank

Ending extreme poverty by 2030 by promoting income growth for the bottom 40% is the World Bank's strategic goal. Promoting sustainable and inclusive growth, investing in human capital, and strengthening resilience are its priorities. The Bank considers climate change to be the biggest threat to future poverty reduction and the sustainability of past gains poverty alleviation. World Bank's *Climate Action Plan 2016—2020*supports six high-impact areas: (i) renewable energy and energy efficiency; (ii) sustainable mobility; (iii) sustainable and resilient cities; (iv) climate-smart land use, and water and food security; (v) green competitiveness; and (vi) leaving no one behind. Since climate-change and extreme weather is already affecting millions of people by putting food and water security at risk, the Bank envisages mounting operations in climate-sensitive locations using ecosystem-based adaptation (natural infrastructure), land restoration, integrated water management, and biodiversity conservation. In fiscal year 2017, climate financing (of about $12.8 billion) represented 22% of the Bank's new commitments; and the Bank aims to raise this share to 28% of its total support by 2020.

11.0 Enhanced Due Diligence Requirements (DDR) for External Assistance

11.1 Broader Due Diligence beyond the Subproject

Notwithstanding the subproject focus in a sliced approach, some broader due diligence beyond the subproject-level will still be required so as to provide the larger ILR context when seeking financing approvals for subprojects, in particular from MFIs and Bilaterals. Such broader due diligence may need to touch upon the following: (i) macroeconomic impacts—such as GDP growth, sectoral GDP growth, trade competitiveness, impacts on poverty and social equity, impacts on energy demand and supply, agricultural inputs demands, etc.; (ii) availability of fiscal space under the Fiscal Responsibility and Budgetary Management (FRBM) legislation; (iii) optimal cropping patterns—by region and state—with and without climate change, with and without ILR; (iv) national/regional environmental impacts and mitigation options; (v) hydrological impacts – surface, ground, river – taking all into account; (vi) regional climate change impacts – on precipitation, temperature, humidity, and winds; (vii) potential of ILR to address adaptation in respect of hydrology; (viii) social impacts -- income distribution across social classes, impact on employment at national level, impact on land values; and (ix) environmental impacts – cumulative environmental impact assessment.

11.2 Due Diligence of Subprojects

Due diligence requirements (DDRs) of MFIs, are in principle similar, but their application would vary across MFIs. The scope and depth of DDRs will be determined by the projects' complexity and their impact on environment and people (rehabilitation and resettlement). Most ILR projects would be classified as Category A which would require more extensive consultation processes that are different from national systems, particularly when a project affects the so called "indigenous" people (Scheduled Tribes). MFI's typically take into account differing perspectives of all stakeholders hence their DDRs may be adopted for ILR in relation to all Bilaterals, as well as international private funds, such as pension funds.

The key to External Assistance financing is likely to be demonstrating that ILR is a "*climate change adaptation*" project because their mandates typically include water security under "climate financing". This may need demonstrating (nationally, regionally and in the project areas):

a. current situation of supply, demand and the demand-supply gap/deficit for water

b. further worsening of the demand-supply gap/deficit for water due to climate change demonstrated by projecting supply of, and demand for, water resources with due consideration to climate change and changes in cropping patterns, one, *without ILR* and, two, *with ILR*

c. improved demand-supply balance/ reduced deficit and uncertainty through transfer of water from north to south

Demonstrating the climate change adaptation potential of individual (or Group of) links on the above basis will require detailed modeling studies as part of subproject due diligence.

The standard due diligence requirements of a typical MFI's appraisal will be applicable, such as: reforms to improve water sector governance and policy; statement of project rationale and justification; assessment of macro-economic impacts and fiscal affordability; clear articulation of technical and project implementation arrangements; reliable estimates of project cost with adequate physical and price contingencies; financing plan; analysis of development impacts and economic internal rate of return (should be higher than 10%); comprehensive environmental impact assessments; and, social acceptability, land acquisition and resettlement plans. A key requirement under project rationale/justification is the need to compare various alternatives for achieving the desired objectives and establish that the subproject as presented is the most economically feasible and least-cost option. Additionally, projects funded in partnership with the private sector will have to establish financial viability to ensure coverage of operating cost, maintenance and servicing of debt and equity. Finally, the scope, timing, staffing and financing (including through technical assistance) of the due diligence process need to be worked out to meet the phased implementation of ILR subprojects.

11.3 Due Diligence Status of the Four Priority Subprojects

The Detailed Project Reports (DPR) are available for three projects. The reports are quite comprehensive in their technical project design appraisal. They have detailed discussion on alternatives and have considered: (i) geotechnical evaluations done on alternative sites for the proposed dams, (ii) techno-economic evaluation of alternative types of dams for finalizing their design and location, and (iii) evaluation of different alternative alignments and design.

However, Social and Environmental impact assessments of the DPRs may require a careful review for their comprehensiveness and validity under the current circumstances. A careful reassessment of stakeholder consultation process followed and social impact assessment studies carried out will be needed for all projects.

Economic and financial appraisals of the projects also need to be revised because they are based on the methodology suggested by the Ministry of Water Resources which differs from that of MFIs. Further, one has to note that project benefits from Damanganga project would accrue only upon completion of the downstream Pinjal dam project to convey drinking water to Mumbai at a cost of about Rs14,106 crore.

In addition, seeking international funding for the subprojects on the consideration that climate change adaptation is among their major objectives, will require further due diligence, as set forth in Section 10.2 above.

11.4 Funding Modalities

Typically, External Assistance is provided in three broad modalities: (i) loans, (ii) technical assistance, and (iii) funding through partnership.

a. **Loans:** Loans are provided in a variety of forms: (i) a single project loan, (ii) flexibly as multiple loans (tranches) under a project framework facility (so called multi-tranche financing facility), (iii) based on project's progress/output/outcome, (iv) sector loans, and (v) local currency funding. Of these, the multi-tranche financing facility offered by some MFIs is most suited for long gestation ILR projects. Funding in local currency is ideal for irrigation projects because that would eliminate the exchange rate risk on public finances of borrowing governments.

b. **Technical assistance (TA):**MFIs and Bilateral agencies provide TA to help: (i) identify and formulate, implement, and operate projects/programs; (ii) promote innovation and transfer new knowledge/technology; (iii) encourage international cooperation to address regional issues; (iv) conduct studies to design good sector and thematic policies and reform programs; (v) promote partnerships including with international agencies, think tanks, and research institutions, and non-governmental organizations (NGOs) to generate new knowledge to promote sustainable development; and (vi) strengthen institutional capabilities of developing countries. TA is usually provided in the form of grant or on soft terms. ADB, GCF, JICA World Bank provide TA.

c. **Funding through partnerships:** Both MFIs and Bilateral agencies seek to use their resources to leverage additional funds through co-financing. This is usually done by pooling funds to finance a project or by financing two separate components of a project parallelly. MFI's administer Trust Funds to deliver development assistance of other External Assistance sources in a cost-effective manner. Usually special funds concentrate their attention on one or a few specific areas of development—such a climate change, governance, gender etc. MFI's also make "framework co-financing arrangements" with other agencies in overlapping areas of their mandates. Such standing arrangements support specific activities/sectors/programs in a focused area using streamlined procedures. This could be a useful arrangement for ILR to solicit External Assistance from a group of MFIs/Bilateral agencies. All MFIs have special funds to a varying degree—ADB and World Bank are major sources.

In general participation of MFIs in financing a project or programme is viewed very positively by Bilaterals, including sovereign wealth funds, as well as private IFIs such as pension funds. This is because of the perception that participation by a MFI ensures comprehensive due diligence on all relevant aspects, proper consultation with all stakeholders, reliable assessment of project risks, buy-in (including by way of sovereign guarantees) of the host Government, and a robust system of monitoring of project implementation, as well as safeguards against adverse project impacts.

11.5 Next Steps for International Funding:

The Department of Economic Affairs (DEA) is the nodal agency for managing External Assistance. All proposals for External Assistance will have to be channeled through DEA to MFIs and Bilateral agencies. DEA expects DPRs to be ready before proposing a project for external support. Other IFIs could also be approached for co-financing, once one or more MFIs express interest.

NWDA may send DPRs of three priority ILR projects to DEA to solicit External Assistance for they seem to fit in the current priorities of MFIs and JICA and could be taken up for funding. However, some initial analysis to establish their potential for climate change adaptation may be advisable before approaching MFIs.

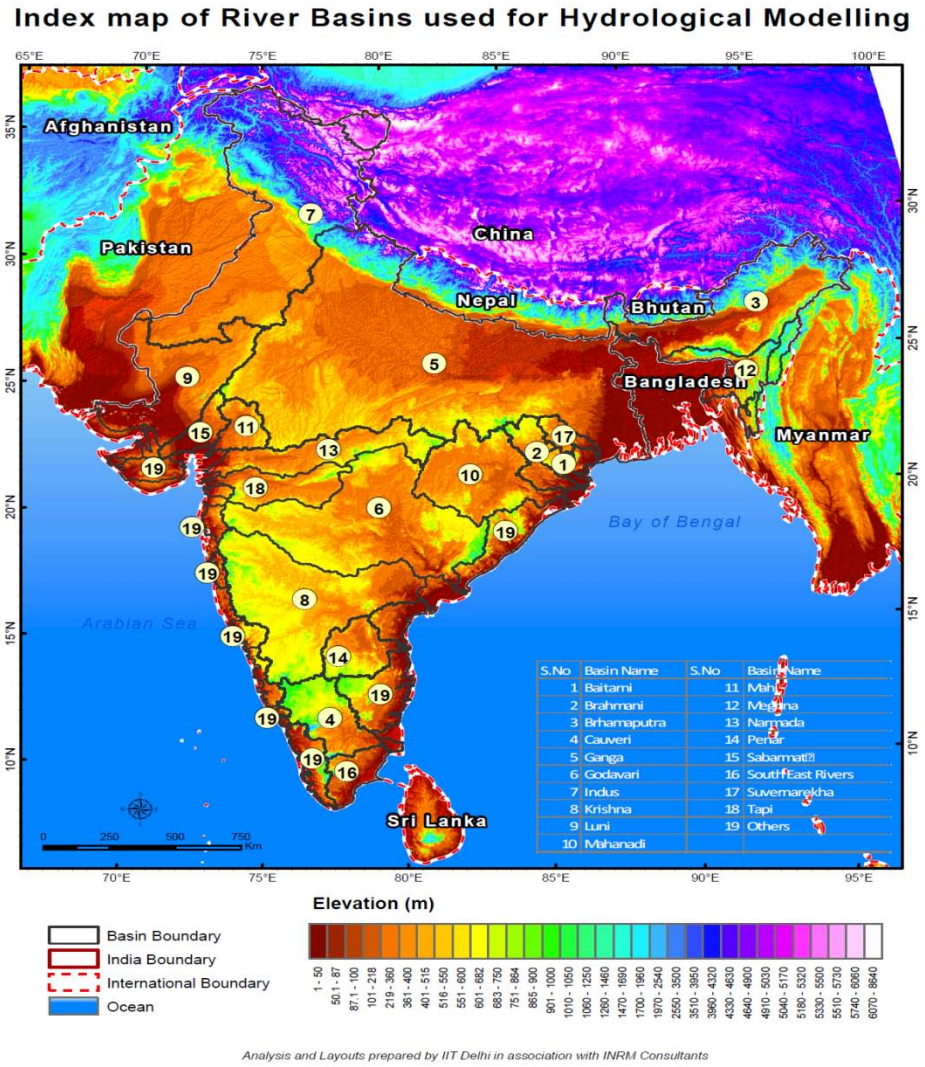
12.0 Potential of the ILR Programme to Address Climate Change Adaptation in India:

Studies have been carried out involving modeling of climate change impacts from the baseline (1961-1990) to mid-century (2021-2050) and furtherto end century (2071-2099), covering all major river basins in India, by a team lead by Prof. A.K. Gosain at IIT Delhi.[3] The team employed the SWAT Hydrological Model, with daily weather datasets provided by the Indian Institute of Tropical Meteorology (IITM) Pune. The climate change scenario assumed for the hydrological modeling exercise is the IPCCs SRES A1B scenario (Q14 QUMP Ensemble).

Figure 1 below depicts the river basins modeled:

[3] **Gosain, A. K.**, Sandhya Rao, and Anamika Arora (2011).Climate change impact assessment of Water Resources of India, Current Science, Vol. 101 (3), pp 356-371

Figure 1: Major River Basins Modeled

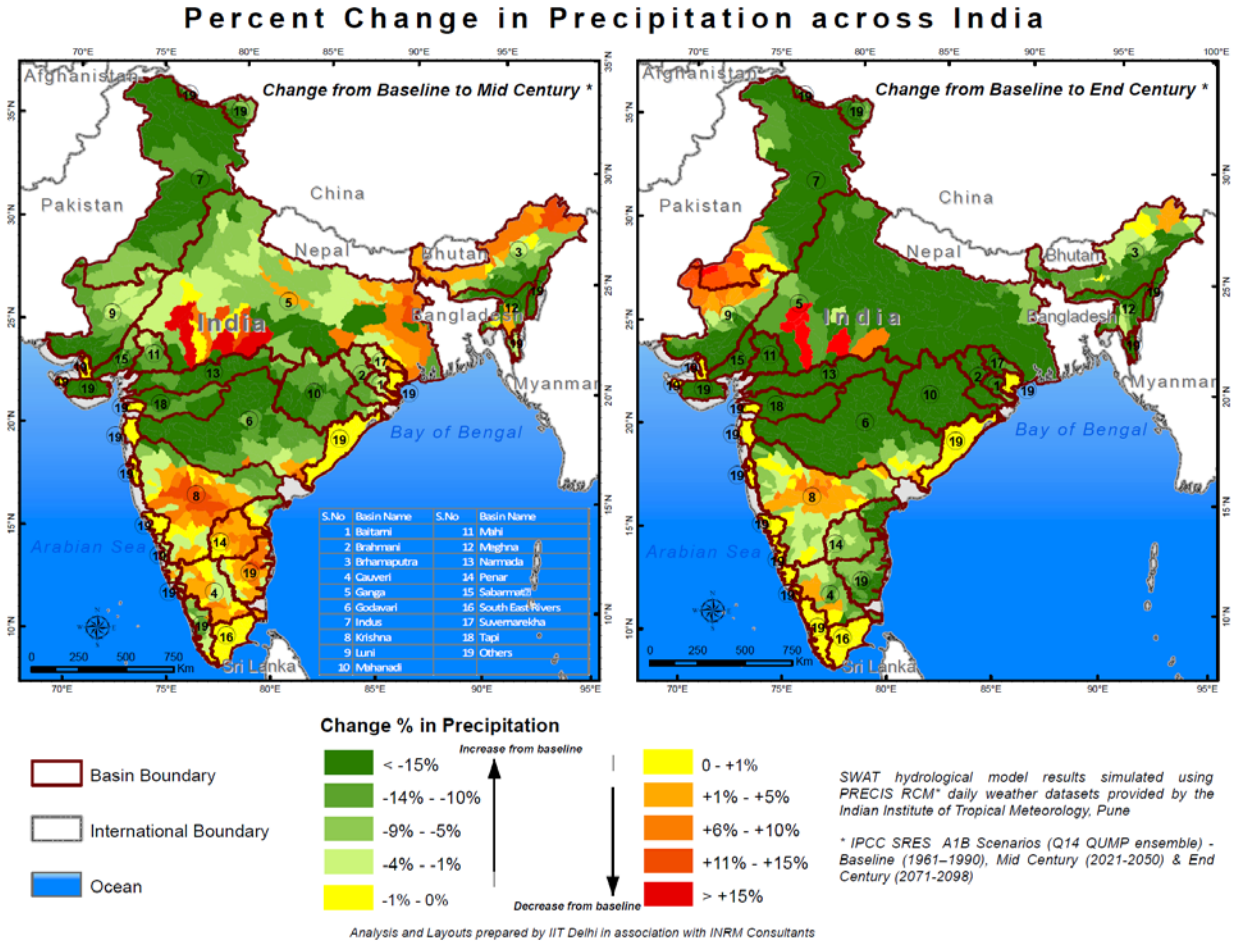


The detailed outputs of the modeling exercise include all the water balance components at spatial and temporal scales which are analyzed for:

(i) Changes in magnitude and frequency of flood peaks
(ii) Severity of droughts
(iii) Changes in flow patterns
(iv) Changes in Groundwater discharge

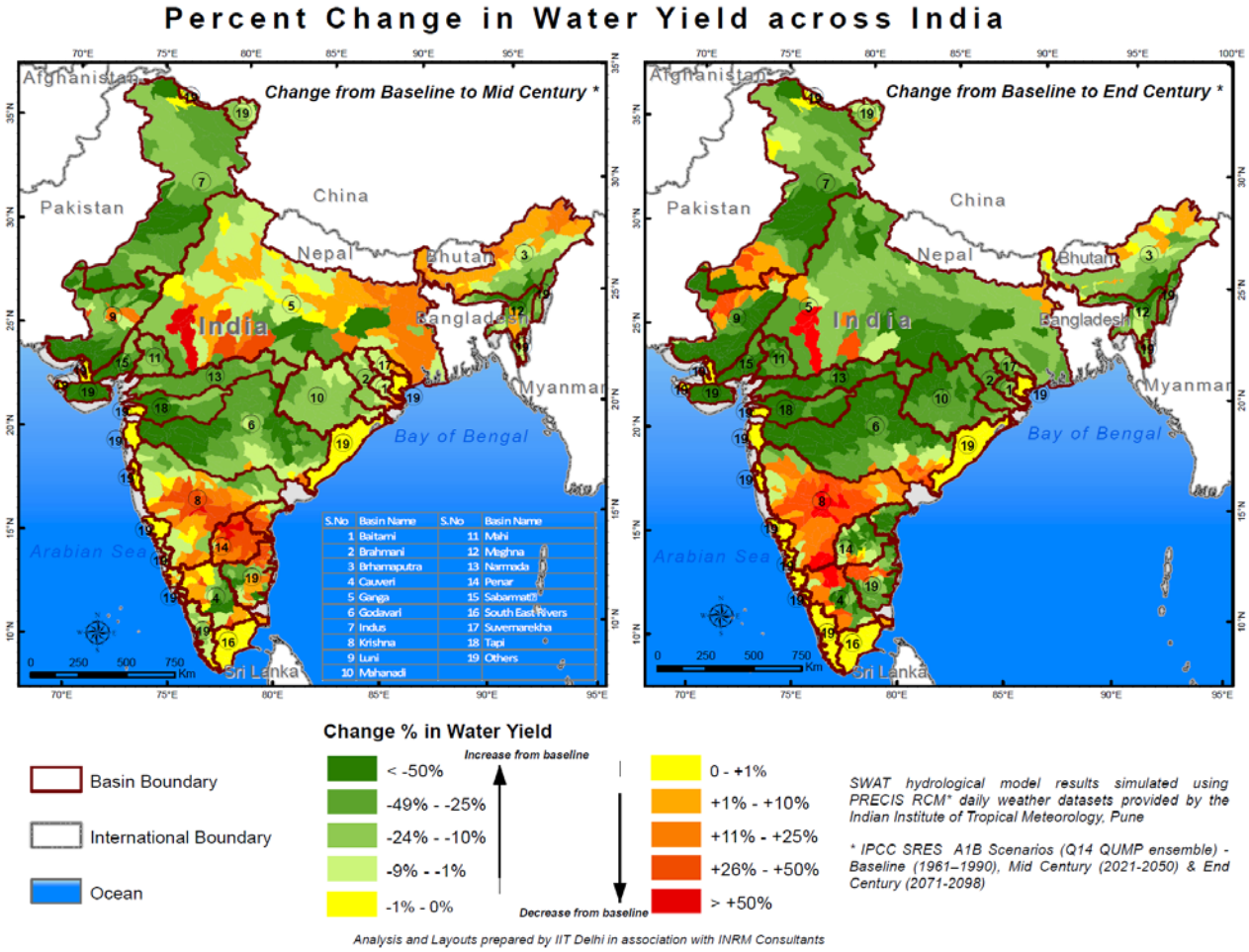
The percent changes in precipitation at mid-century and end-century are shown in Figure 2:

Figure 2: Percent Change in Precipitation across India:



At both mid-century and end-century, it is revealed that in general, there is increase in precipitation in the Indo-Gangatic Plain, and part of the Deccan Plateau, with certain regions in Central India experiencing large reductions in precipitation (upto 15%). However, over most of the region south of Godavari basin, there is appreciable reduction in precipitation at mid-century, which is only partly remedied by end-century. The changes in precipitation are broadly reflected in the water yields at the respective time slices (Figure 3):

Figure 3: Percent Change in water Yield across India

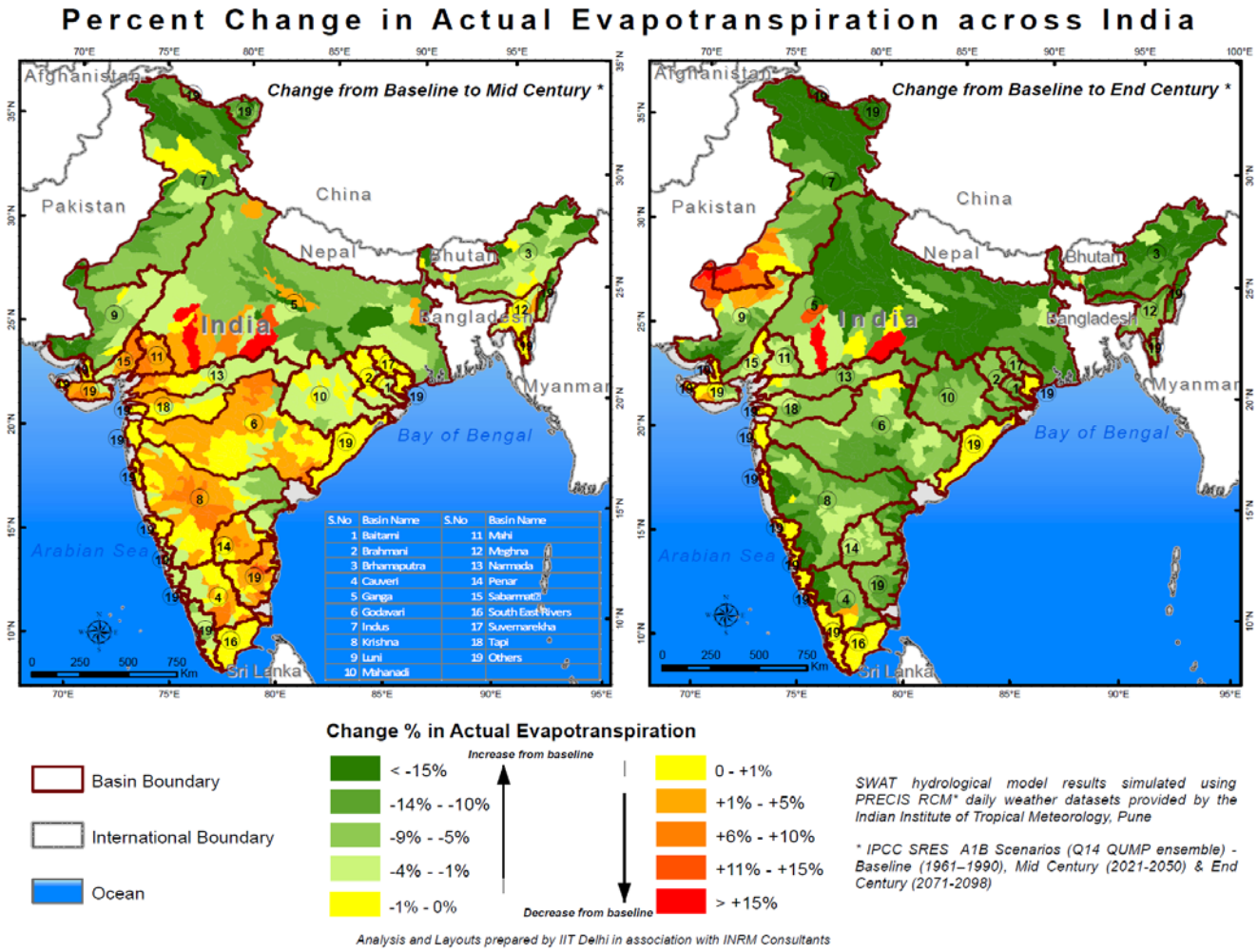


The modeling results reveal that the present imbalance in water resources between the Himalayan and Peninsular river basins will be accentuated due to climate change.

Similarly, changes in evapo-transpiration rates reveal that Peninsular India will be more adversely affected by mid-century than Northern India (till Godavari basin). This situation is somewhat alleviated by end-century. The North-Western region experiences sharp increase in evapo-transpiration rates in end-century.

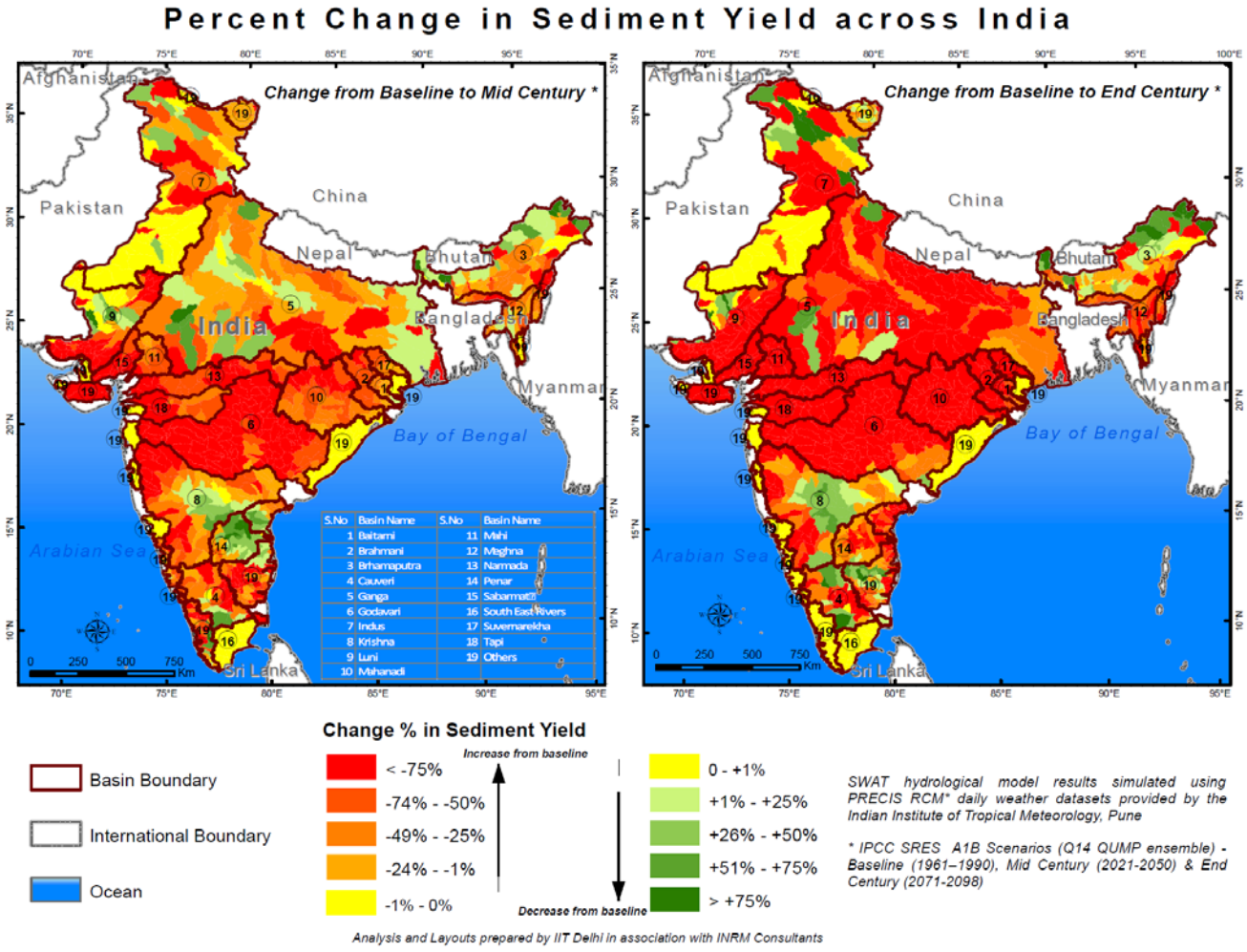
Figure 4 illustrates the model results:

Figure 4: Changes in Evapo-Transpiration Rates Across India:



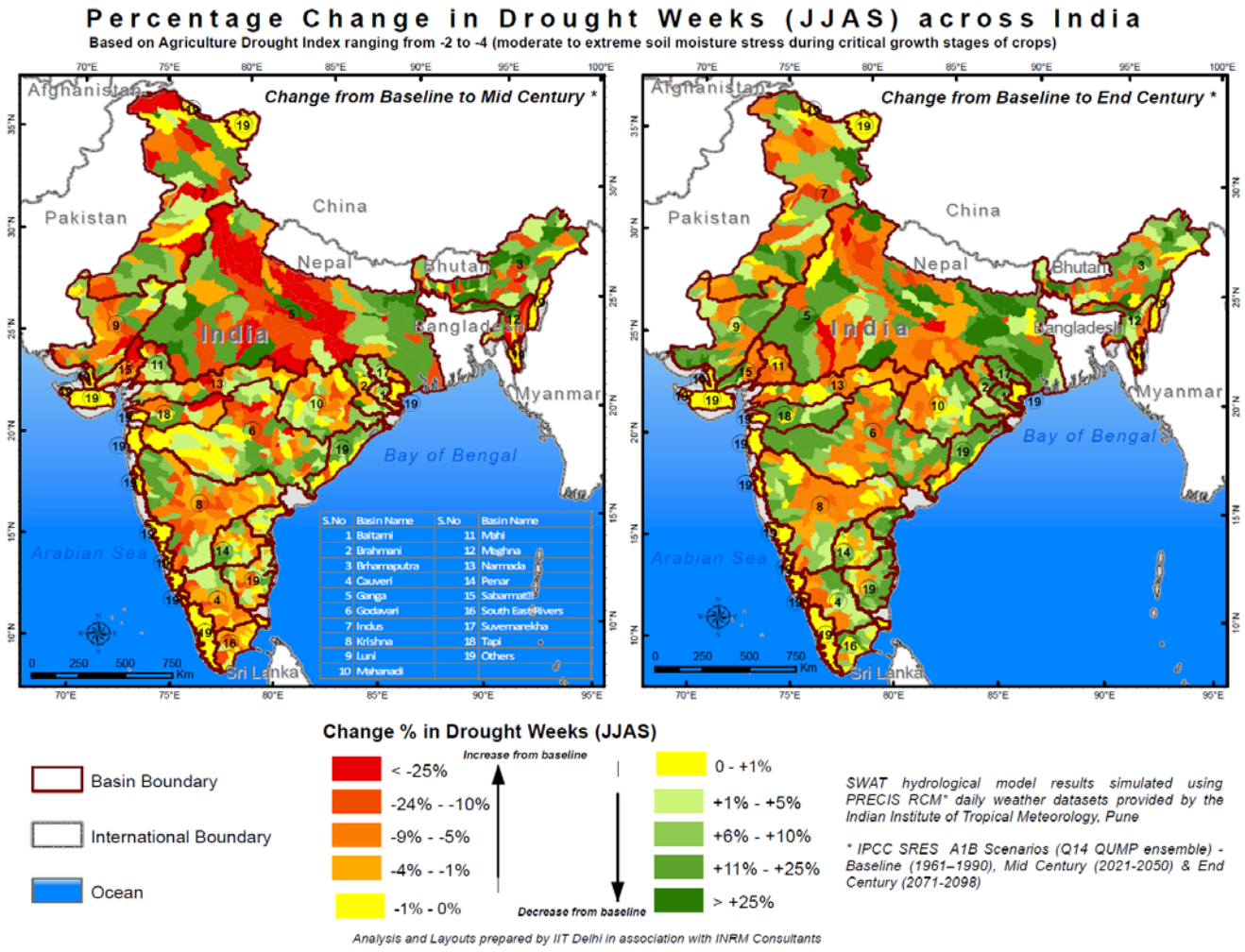
The changes in annual average precipitation and consequent river flows also account for changes in sediment yields. Accordingly, large volumes of sediment are transported throughout the country both in mid-century and in end-century. Increased sedimentation arises from increased soil erosion, which is a major risk factor in agriculture. Figure 5 illustrates the modeled changes in sediment yield:

Figure 5: Changes in Sediment Yield:



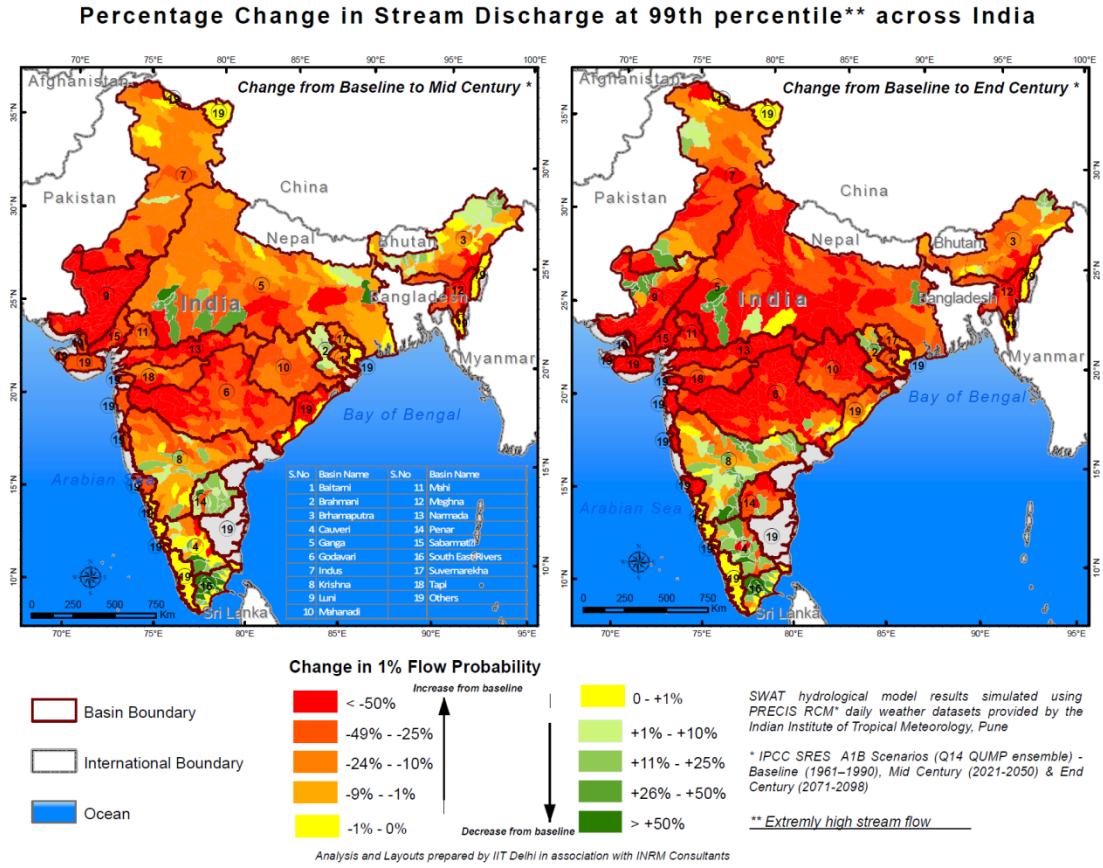
A critical consideration is changes in the number of drought weeks in the summer SW monsoon period June through September (JJAS). Despite overall increase in annual average precipitation, there is marked increase in drought weeks during the JJAS period, in particular in the Himalayan river basin regions in mid-century. This points to the imperative of construction of adequate storage to mitigate the increased incidence of drought. Figure 6 illustrates the modeling results in this regard:

Figure 6: Changes in Drought weeks in the JJAS (SW Monsoon) Period:



These hydrology changes are accompanied by changes in stream discharge. Figure 7 illustrates the model results which indicate significant reductions in stream discharge.

Figure 7: Changes in Stream Discharge in the 99th and 10th Percentiles:



The above model based analysis reveals that transfer of water across basins, from the Himalayan to the Peninsular basins is imperative to address the adverse impacts of climate change on India's water resources. The changes are sufficiently large that other measures, including greater water use efficiency, changes in cropping patterns, enhancing local storage infrastructure, while still necessary, are clearly not sufficient.

To summarize: the major adverse impacts of climate change on the Indian land-mass is reduction in the number of rainy days, in respect of which nearly 60% of the rain-fed area is under threat, to address which supplementary irrigation through storage structures is necessary. Despite the reduction in the number of rainy days, given that overall rainfall increases, there is marked increase in intensity of rain, on account of which there is significant increase in soil erosion leading to enhanced sedimentation, and greater frequency and intensity of floods.

The possible adaptation options to these impacts of climate change include: the creation and effective management of storage capacity, and real-time flood forecasting, besides transfer of water from overall surplus to overall deficit basins. These options will also address the increased incidence of droughts and floods due to climate change.

However, these options cannot be viewed in isolation, and must be part of a comprehensive plan to restore the hydrological and environmental health of the river basins for long-term sustainability.

13. Financing Plan for the ILR Programme

13.1 Projection of flow of funds: By source over 2020-50

Source	Pessimistic Case (INR bn)	% share of cost	Anticipated case (INR bn)	% share of cost
Domestic SCBs	**5273**	**24%**	**9693**	**44%**
GoI – *Skin in the Game*	**3287**	**15%**	**3287**	**15%**
States	**365**	**2%**	**365**	**2%**
Residual*	**12986**	**59%**	**8566**	**39%**

**Residual comprises of funding from multilateral and bilateral institutions, domestic financial institutions (ex SCBs)*

13.2 Projections of flow of funds: By source on a detailed phasing of projects

The detailed flow of funds in INR bn from Scheduled Commercial Banks (SCBs) and Government (both Centre and States) on a year-to-year basis over 2020-30 and 5 year phases over 2031-50 is summarized in Table 13.1

The detailed percentage share of flow of funds by broad sources on year-to-year basis over 2020-30 and 5 year phases over 2031-50 is summarized in Table 13.2

(i) The gap between total cost and combined funding from domestic SCBs and Government (both Centre and States) would need to be met from residual sources, which would comprise of Multilateral and Bilateral financial institutions, international private funds (such as pension funds), domestic financial institutions (excluding SCBs) among others.

(ii) The Group finds that funding from domestic SCBs gathers pace after a lag of initial 10 years. This is on anticipated lines as Banks would want to see success in projects in early stages of the ILR programme.

However, it may be noted that as percentage share of financing, share of domestic SCBs declines between 2021 and 2028 as increase in project cost outpaces increase in financing from domestic SCBs during this period

(iii) After 2040, the entire incremental cost of ILR can be financed from domestic SCBs standalone under the anticipated case[4]

[4] It is recommended that cost recoveries from such projects are clearly established to maintain interest of SCB in part financing ILR projects

Table 13.1
Year wise flow of funds for projects under ILR

(Rupees bn)

IFI funding (INR bn)	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031-35	2036-40	2041-45	2046-50	Total
Base case	7	8	8	9	10	11	12	14	15	16	655	508	1976	2023	**5273**
Anticipated Case	9	10	11	12	14	16	18	20	22	25	931	886	3494	4226	**9693**
Govt funding															
GoI - *Skin in the Game*	6	10	24	34	42	158	155	145	139	137	915	444	531	547	**3287**
State's share	1	1	3	4	5	18	17	16	15	15	102	49	59	61	**365**
Cost of ILR project															
Total cost	39	65	158	229	278	1053	1034	969	927	913	6099	2960	3543	3644	**21911**

Table 13.2
Year wise % financing of cost for projects under ILR

Scenario 1	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031-35	2036-40	2041-45	2046-50	Total
IFI - base case	18%	12%	5%	4%	4%	1%	1%	1%	2%	2%	11%	17%	56%	56%	**24%**
GoI - *Skin in the Game*	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	**15%**
State's share	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	**2%**
Residual*	65%	72%	78%	79%	80%	82%	82%	82%	82%	82%	73%	66%	28%	28%	**59%**
Scenario 2	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031-35**	**2036-40**	**2041-45**	**2046-50**	**Total**
IFI - Anticipated case	23%	15%	7%	5%	5%	1%	2%	2%	2%	3%	15%	30%	99%	116%	**44%**
GoI - *Skin in the Game*	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	**15%**
State's share	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	**2%**
Residual*	61%	68%	76%	78%	78%	82%	82%	81%	81%	81%	68%	53%	-15%	-33%	**39%**

*Residual comprises of funding from multilateral and bilateral financial institutions, domestic financial institutions (ex SCBs)

(iv) Residual sources of finance are critical especially in the initial period, to take up ~70% of financing need.[5]

14.0 Impact on Government's fiscal deficit and external debt

14.1 Impact on Central Government fiscal deficit

We assume that 15% of Government's share of cost financing is done via Gross Budgetary Support (or via equity infusion in a SPV), then we estimate the impact on fiscal deficit (as a % of GDP) as –

(i) At 42 Bps[6] for the cumulative period over 2021-50.

However, note that the impact is extremely small. The 15% cost share can be easily financed through Government's savings with no perceptible impact on fiscal deficit.

14.2 Impact on Government debt

We work with the worst case scenario, i.e. assuming that all cost of ILR program is raised as debt, on which the Government pays the cost of servicing the debt (assuming a 7% average rate of interest).

In that case, we estimate –

(i) Cumulative impact (over 2020-30) on Centre's General Debt at 2.8% (of GDP)
(ii) Additional cost owing to servicing the debt at only 4 bps, over 2020-50

15.0 Consideration of declaration ILR projects as National Projects

One of the TOR (Terms of reference) of the Group on Financial Aspects under Task Force on ILR is to identify the links which can be considered as National Projects. As mentioned earlier, NWDA identified 30 links (14 links under Himalayan Component and 16 links under Peninsular Component) over the country under National Perspective Plan and prepared its Prefeasibility/ Feasibility Reports/Detailed Project Reports. Out of these 30 links, one link project, namely Ken-Betwa link was declared as National Projects in the year 2008 when Government of India declared 14 Projects as "National Projects". No other inter-basin water transfer link project could find place in the

[5] It is recommended that Government frontloads its contribution to showcase commitment towards implementing projects
[6] Bps (basis points), 100 bps = 1% change

supplementary list of “National Projects”. The guidelines for inclusion of water resources project as national project are at Annexure- 15.1. In terms of these guidelines, all the Himalayan links that have international and inter-state implications and all the Peninsular links (except Bedti-Varda and Netravati - Hemavati) that have inter-state aspects and with irrigation benefits of more than one lakh hectare are entitled for declaration as national projects.

However, the Special Committee of Interlinking of Rivers in its14th meeting held on 17. 01. 2018 decided all the links of NWDA should be treated as national project. Accordingly, this aspect in respect of individual links was not examined by the Group. In the year 2008, the concept of national project came into picture, it was decided that funding pattern of the national projects would be 90 (Centre): 10 (State). Later in the year 2015, the funding pattern of the national projects was changed to 60 (Centre):40 (State) on the recommendation of the Group of the Chief Ministers (Annexure- 15.1). However, in case of Ken-Betwa link Project, the funding pattern is at an advanced stage of restoration to 90 (Centre):10 (State). As such, the same funding pattern was utilized by the Group for conducting financial analysis of the funding pattern.

16.0 Summary of recommendations:

(i) The Special Committee on Interlinking of Rivers in its 14th Meeting held on 17thJanuary, 2018, recommended that all the Interlinking of Rivers Projects under NPP be included in the list of National Projects. As such this Group has not deliberated much on this item of TOR. At present, Out of 29 identified links of the ILR Programme, only one link, namely Ken-Betwa has been declared as National Project by Government of India.

(ii) The Group recommends that at-least 15% funding should come from Government sources (Centre and States); otherwise it will be difficult to elicit the interest of domestic and international financial institutions. Accordingly, funding of ILR projects from Government, i.e., from Govt. of India and State Government has been kept as 15% of the total Estimated Cost.

(iii) Given the mandate of multilateral and bilateral financial institutions for funding climate change and adaptation and mitigation projects, funding for the ILR from these institutions may be sought on the basis of the climate change adaptation potential of ILR established through published research and the mandate in the action plan on water resources in NAPCC. It will be advisable in this context for the Govt. to include the ILR programme in India’s NationallyDeterminate Contribution (NDC) under the Paris Agreement.

(iv) Four projects: Ken – Betwa, Damanganga – Pinjal, Par – Tapi – Narmada and Godavari (Akinepalli) – Cauvery link projects have been prioritized and planned to be implemented during the first ten year period, 2020-2030.

(v) In order to secure external funding for the ILR projects from international financial institutions – MFIs, Bilaterals, and private funds such as pension funds, enhanced due diligence for each subproject in terms of due diligence requirements of MFIs would need to be undertaken. This would include establishing the climate change adaptation potential of each subproject/Group by detailed modeling exercises.

(vi) In order to advance understanding of the overall economic, environmental, and social benefits , including enhancing the sustainability of water resources management, as well as to establish the potential to address climate change adaptation of the entire ILR programme, it would be worthwhile to conduct a detailed macro-level modeling study by competent Indian institutions.

(vii) The key to eliciting and sustaining the interest of financial institutions, both domestic and external, in financing the ILR programme is to clearly identify the sources and means of cost-recovery. This aspect was also highlighted by the earlier Task Force on ILR headed by Shri Suresh Prabhu. However, in this Interim Report, this aspect has not been dealt with.

(viii) The institutional arrangements for implementation of the ILR, including the institutional modalities for financing have also not been dealt with in this Interim Report.

Annex-1.2.1

Present Status of Proposed Inter Basin Water Transfer Links

Sl. No	Name	States concerned	States benefitted	Present status
Peninsular Component				
1	Mahanadi (Manibhadra) - Godavari (Dowlaiswaram) link	Odisha, Maharashtra, AP,Karnataka, Chattisgarh& Telangana	Andhra Pradesh& Odisha	FR completed
2	Godavari (Inchampalli) - Krishna (Pulichintala) link	-do-	Telangana	FR completed
3	Godavari (Inchampalli) - Krishna (Nagarjunasagar) link	Odisha, Maharashtra, Madhya Pradesh, AP, Karnataka, Chattisgarh & Telangana	Telangana and Andhra Pradesh	FR completed
4	Godavari (Polavaram) - Krishna (Vijayawada) link	Odisha, Maharashtra, AP, Karnataka, Chattisgarh& Telangana	Andhra Pradesh	FR completed
5	Krishna (Almatti) – Pennar link	Maharashtra, Karnataka, Telangana and AP	Andhra Pradesh& Karnataka	FR completed
6	Krishna (Srisailam) – Pennar link	-do-	Andhra Pradesh	FR completed
7	Krishna (Nagarjunasagar) - Pennar (Somasila) link	Maharashtra, AP& Karnataka	-do-	FR completed
8	Pennar (Somasila) - Cauvery (Grand Anicut) link	AP, Karnataka, Tamil Nadu, Kerala & Puducherry	AP, Tamil Nadu & Puducherry	FR completed
9	Cauvery (Kattalai) - Vaigai -Gundar link	Karnataka, Tamil Nadu, Kerala & Puducherry	Tamil Nadu	FR completed
10	Ken-Betwa link a) Ken-Betwa Link Phase-I b) Ken-Betwa link Phase-II	Uttar Pradesh & Madhya Pradesh - do-	Uttar Pradesh &Madhya Pradesh Madhya Pradesh	FR&DPR (Ph-I&II) completed.
11	Parbati - Kalisindh- - Chambal link	MP, Rajasthan & UP(UP requested to be consulted during consensus building)	Madhya Pradesh& Rajasthan	FR completed.
12	Par-Tapi-Narmada link	Maharashtra & Gujarat	Gujarat	DPR completed.
13	Damanganga- Pinjal link	-do-	Maharashtra (only waterSupply project to Mumbai)	DPR completed.
14	Bedti- Varda link	Maharashtra, Andhra Pradesh & Karnataka	Karnataka	PFR completed. EIA studies taken up by Govt of Karnataka

15	Netravati– Hemavati link	Karnataka, Tamilnadu & Kerala	Karnataka	PFR completed.
16	Pamba- Achankovil-Vaippar link	Kerala & Tamil Nadu,	Tamilnadu and Kerala	FR completed
Sl. No	**Name**	**States concerned**	**States benefitted**	**Present status**
Himalayan Component				
1.	Manas-Sankosh-Tista-Ganga (M-S-T-G) link	Bhutan &Assam, West Bengal, Bihar	Assam, West Bengal & Bihar	FR taken up.
2.	Kosi-Ghaghara link	Bihar , Uttar Pradesh &Nepal	Bihar& Uttar Pradesh	FR in Indian portion started
3.	Gandak-Ganga link	-do-	Uttar Pradesh	Draft FR completed (Indian portion)
4.	Ghaghara-Yamuna link	-do-	Uttar Pradesh	FR completed. (Indian portion)
5.	Sarda-Yamuna link	Bihar, UP, Haryana, Rajasthan, Uttarakhand & Nepal	Uttar Pradesh & Uttarakhand	FR completed. (Indian portion)
6.	Yamuna-Rajasthan link	UP, Gujarat, Haryana & Rajasthan	Haryana & Rajasthan	Draft FR completed.
7.	Rajasthan-Sabarmati link	-do-	Rajasthan & Gujarat	Draft FR completed
8.	Chunar-Sone Barrage link	Bihar& UP	Bihar& Uttar Pradesh	Draft FR completed
9.	Sone Dam – Southern Tributaries of Ganga link	Bihar & Jharkhand	Bihar & Jharkhand	FR taken up
10.	Ganga(Farakka)-Damodar-Subernarekha link	West Bengal, Odisha & Jharkhand	West Bengal, Odisha & Jharkhand	Draft FR completed
11.	Subernarekha-Mahanadi link	West Bengal& Odisha	West Bengal& Odisha	Draft FR completed
12.	Kosi - Mechi link	Nepal & Bihar, West Bengal	Bihar	PFR completed. Entirely lies in Nepal.
13.	Farakka - Sunder bans link	West Bengal	West Bengal	Draft FR completed.
14.	Jogighopa-Teesta-Farakka link (Alternative to M-S-T-G)	Assam, West Bengal & Bihar	Assam, West Bengal &Bihar	Alternate to M-S-T-G link dropped.

PFR- Pre feasibility Report / FR- Feasibility Report / DPR-Detailed Project Report

Annex - 1.3.1

F.No.2/5/2005-BM /1033-48
Government of India
Ministry of Water Resources, River Development
and Ganga Rejuvenation
BM Section

Block No. 3, 2nd Floor, CGO Complex, Lodhi Road,
New Delhi.

Dated 12.9.2017

OFFICE MEMORANDUM

Subject: Constitution of a Group on Financial Aspects under Task Force for Interlinking of Rivers .

Minister of Water Resources, River Development and Ganga Rejuvenation (MoWR, RD&GR), hereby constitute a Group on Financial Aspects under Task Force for Interlinking of Rivers, with the approval of Competent Authority, to consider the financial aspects of Interlinking of Rivers Project and to suggest the funding pattern for implanting the same.

The composition and terms of reference (ToR) of the said Group is given below;

Composition:

1.	Dr. Prodipto Ghosh, Former Secretary to Govt. of India, and Member of Task Force for ILR		Chairman
2.	Shri A.B. Pandya, Former Chairman, CWC, New Delhi	-	Member
3.	Shri Rana Kapoor, Managing Director & CEO Yes Bank Ltd.9th Floor, Nehru Centre, Worli, Mumbai	-	Member
4.	Shri Dhiraj Nayyar, OSD (Economics, Finance & Commerce Cell), NITI Ayog, Parliament Street, New Delhi	-	Member
5.	Shri M.K. Mittal, Director (Finance) NHPC, NHPC Complex, Sector-33, Faridabad	-	Member
6.	Shri H. Satish Rao, Retried Director, ADB, Bangalore		Member
7.	Chief Engineer (IMO), CWC, Sewa Bhawan, R.K. Puram, New Delhi		Member
8.	Chief Engineer (HQ), NWDA, New Delhi		Member
9.	Shri K. P. Gupta, Director (Tech), NWDA, New Delhi	-	Member Secretary

Terms of Reference:

i. to study the documents related with funding of ILR projects prepared by the earlier Task Force on ILR set up by the Government of India in the year 2002;
ii. to suggest funding mechanism for each link project;
iii. to study the option(s) of declaring some of the IBWT links of NPP as 'National Project" on the pattern of Ken-Betwa link:

iv. to study Sharing of cost of link projects by respective beneficiary States and suggest the basis/formula to determine the cost sharing and

v. any other matter relevant to the above aspects.

Other terms and conditions:

I. the Group will meet as and when required and submit its report within a period of four months from the date of constitution of the committee. and

II. NWDA will provide Secretarial and other assistance to the Group

Sitting Fee TA/DA

i. Sitting fee @ Rs. 4000 per day of sitting to non-official members subject to in no case , the ceiling should exceed 10 meetings in a month as per M/o Finance's OM no. 19047/10/2016-E-IV dated 12.04.2017.

ii. Payment of Travelling Allowance at the same rates as were admissible to non-official Members at the time of retirement form Government Service, If they have retired from the Central Government. If otherwise, TA entitlement may be regulated as admissible to a Govt. official drawing Grade pay of Rs. 6600/- p.m. as per M/o Finance's OM no. 19030/3/2008-E-IV dated 23.09.2008

The expenditure of the said Groups will be met from the head of Special Cell/Committees on Interlinking of Rivers provided to NWDA under the scheme IWRDS (NWDA component) of River Basin Management Plan Scheme.

This issues with the approval of IFD vide its Dy. no. 143/IFD/2017 dated 08.09.2017.

M. J. Upadhyay 12/09/17

(Mannu Ji Upadhyay)
Dy. Commissioner (BM)
Tel: 011-24367129

To

Chairman & Members of the Sub-Committees (As per list attached).

Copy for information to:

1. PS to M (WR).
2. PPS to Secretary (WR, RD & GR)
3. PS to Joint Secretary (PP)/JS & FA, MoWR, RD & GR.
4. PS to Chairman, Task Force ILR, Room No. 428-B, SS Bhawan, New Delhi.
5. Director General, NWDA
6. PAO, MoWR, RD & GR.

List of Addressee

1. Dr. Prodipto Ghosh, Former Secretary to Govt of India, and Member of Task Force for ILR
2. Shri A.B. Pandya, Former Chairman, CWC, New Delhi
3. Shri Rana Kapoor, Managing Director & CEO, Yes Bank Ltd 9th Floor, Nehru Centre, Worli, Mumbai
4. Shri Dhiraj Nayyar, OSD (Economics, Finance & Commerce Cell), NITI Ayog, Parliament Street, New Delhi
5. Shri M.K. Mittal, Director (Finance) NHPC, NHPC Complex, Sector-33, Faridabad.
6. Shri H. Satish Rao, Retried Director, ADB, Bangalore.
7. Chief Engineer (IMO), CWC, Sewa Bhawan, R.K. Puram, New Delhi.
8. Chief Engineer (HQ), NWDA, New Delhi.
9. Shri K. P. Gupta, Director (Tech), NWDA & Member Secretary of Group, New Delhi.

F.No.2/5/2005-BM
Government of India
Ministry of Water Resources, River Development
and Ganga Rejuvenation
BM Section

Block No. 3, 2nd Floor, CGO Complex, Lodhi Road,
New Delhi.

Dated 24.4.2018

OFFICE MEMORANDUM

Subject: Extension of a Group on Financial Aspects under Task Force for Interlinking of Rivers .

The Minister of Water Resources, River Development and Ganga Rejuvenation (WR, RD&GR) had constituted a Group on Financial Aspects under Task Force for Interlinking of Rivers vide OM dated 12.09.2017 with the direction to submit the report with a period of four months from the date of constitution of the Group.

Considering that balance work still remain to be carried out by this Group, it was decided in the fourth meeting of the Group held on 9.1.2018 that the tenure of the Group may be extended by six months.

The tenure of Group on Financial Aspects under Task Force for Interlinking of Rivers is hereby extended for further period of four months beyond 25.2.2018 on the same terms and conditions with the approval of Hon'ble Minister (WR,RD&GR).

M. T. Upadhyay

(Mannu Ji Upadhyay)
Dy. Commissioner (BM)
Tel: 011-24367129

To

Chairman & Members of the Groups (As per list attached).

Copy for information to:

I. PS to M (WR,RD&GR).
II. PS to Secretary (WR, RD & GR)
III. PPS to Joint Secretary (PP), MoWR, RD & GR.
IV. PS to Chairman, Task Force ILR, Room No. 428-B, SS Bhawan, New Delhi.
V. Director General, NWDA
VI. PAO, MoWR, RD & GR.

List of Addressee

1. Dr. Prodipto Ghosh, Former Secretary to Govt. of India, and Member of Task Force for ILR
2. Shri A.B. Pandya, Former Chairman, CWC, New Delhi
3. Shri Rana Kapoor, Managing Director & CEO, Yes Bank Ltd.9th Floor, Nehru Centre, Worli, Mumbai
4. Shri Dhiraj Nayyar, OSD (Economics, Finance & Commerce Cell), NITI Ayog, Parliament Street, New Delhi
5. Shri M.K. Mittal, Director (Finance) NHPC, NHPC Complex, Sector-33, Faridabad.
6. Shri H. Satish Rao, Retried Director, ADB, Bangalore.
7. Chief Engineer (IMO), CWC, Sewa Bhawan, R.K. Puram, New Delhi.
8. Chief Engineer (HQ), NWDA, New Delhi.
9. Shri K. P. Gupta, Director (Tech), NWDA & Member Secretary of Group, New Delhi.

Annex - 1.3.3

F.No. 2/5/2005-BM 1409
Government of India
Ministry of Water Resources, River Development and Ganga Rejuvenation
BM Section

Block No. 3, 2nd Floor, CGO Complex, Lodhi Road, New Delhi.

Dated 29.5.2018

To

The Director (T),
NWDA, Saket,
New Delhi.

Sub: Nomination of the representative of the NITI Aayog as member of Group on Financial Aspects under Task Force for Interlinking of Rivers – reg.

Sir,

I have been directed to enclose copy of letter no. 13(2)/8/2015-WR dated 12.4.2018 received from Scientist (D) (WR&LR), NITI Aayog on the subject cited above for information and record please.

Yours faithfully,

Encl; as above

M. T. Upadhyay 29/05/18
(Mannu ji Upadhyay)
Dy. Commissioner (BM)

D/D (SCILA)

task force ilr matter

518684/2018/CL-S
18/4/2018

13(2)/8/2015-WR
Government of India
NITI Aayog
WR & LR Vertical

363, NITI Bhawan,
Sansad Marg, New Delhi
Date: 12.4.2018

Sub: Nomination of the representative of the NITI Aayog as member of Group on Financial Aspects under Task Force for Interlinking of Rivers.
Ref: Letter No. SCILR/Tech/400/12/2018 dated 27.2.2018.

Sir,

In reference to the above cited letter, I am directed to inform that Joint Adviser (WR&LR) has been nominated as representative of the NITI Aayog in the Group on Financial Aspects under the Task Force for Interlinking of Rivers replacing Shri Dhiraj Nayyar, OSD (Eco, Fin and Comm Cell), NITI Aayog with immediate effect. The correspondence address of the nominated officer in this regard is as under:

Shri Avinash Mishra,
Joint Adviser (WR&LR),
NITI Aayog, 209, NITI Bhawan,
Sansad Marg, New Delhi 110001.
Telefax: 011- 23096732 (Off)
Mob: 9810967655
Email: amishra-pc@gov.in

This nomination has the approval of CEO, NITI Aayog.

Yours faithfully,

12/4/18

(N Kumara Vel)
Scientist-D (WR&LR)
Phone 23096530

The Chairman,
Task Force for Interlinking of Rivers,
M/o Water Resources, RD & GR,
New Delhi – 110001

Annexure- 3.2.1

DETAILED STATEMENT OF LINKWISE COST OF ILR PROJECT AT 2015-16 PRICE LEVEL

S.N	Name of link (Status)	Irrigation benefit in lakh ha	Rate of irrigation development (Rupees in lakh per ha)	Cost of Irr. Develop. (Rupees in crore)	Hydro power benefits envisaged in MW	Rate of power develop. (Rupees in crore per MW)	Cost of power development (Rupees in crore)	Total cost (Rupees in crore)	Remarks
(1)	(2)	(3)	(4)	(5)=(3x4)	(6)	(7)	(8)=(6x7)	(9)=(5+8)	(10)
1.	Mahanadi-Godavari (FR)	4.43	3.59	15904	70	8.0	560	16464	
2	Godavari(I)-Krishna(P) (FR) with ALT	9.26	3.59	33243	167	8.0	1336	34579	
3.	Godavari(I)-Krishna(N) (FR)	2.87	3.59	10303	975	6.2	6045	16348	
4.	Godavari(P)-Krishna(V) (FR)	2.096	3.59	7525	720	6.2	4464	11989	
5.	Krishna (Almatti)-Pennar (FR)	2.58	3.59	9262	13.50	8.0	108	9370	
6.	Krishna (Srisailam)-Pennar (FR)	-	3.59	-	17	8.0	136	136	
7.	Krishna(Nagarjun.) - Pennar(FR)	1.68	3.59	6031	90	8.0	720	6751	
8.	Pennar-Cauvery(FR)	4.91	3.59	17627	0		-	17627	
9.	Cauvery-Vaigai(FR)	3.38	3.59	12134	0		-	12134	
10	Ken-Betwa, Ph-I&II (DPR)	8.98	3.775	33907.61	103	5.20	535.68	34443.29	Cost As per DPR 2017-18

11.	Parbati-Kalisindh-Chambal	1.094	3.59	3927	-		-	3927	
12.	Par-Tapi-Narmada (DPR)	2.32175	4.32	10030	20.70	8.74	180.91	10211.21	Cost as DPR 2015-16
13.	Damanganga-Pinjal (DPR)	Water Supply Project	3.59	-	5	8.0	40	3008	This is Water Supply Project.
14.	Bedti-Varda (PFR)	0.60	3.59	2154	3.60	8.0	28.80	2183	
15.	Netravati-Hemavati (PFR)	0.34	3.59	1221	-			1221	
16.	P.A.V.	0.914	3.59	3281	500	8.0	4000	7281	
17.	MSTG (FR)	6.53	3.59	23443	5287	6.2	32779.4	56222	
18.	Kosi-Ghaghra	10.58	3.59	37982	3000	6.2	18600	56582	
19.	Gandak-Ganga	35.38	3.59	127014	4555	6.2	28241	155255	
20.	Ghaghra-Yamuna	27.84	3.59	99946	10800	6.2	66960	166906	
21.	Sarda-Yamuna	3.56	3.59	12780	5600	6.2	34720	47500	
22.	Yamuna-Rajasthan	2.64	3.59	9478	-		-	9478	
23.	Rajasthan-Sabarmati	7.37	3.59	26458	-		-	26458	
24.	Chunar-Sone Barrage	0.66910	3.59	2402	-		-	2,402	
25.	Sone dam-STG	3.068	3.59	**11014**	127.50	8.0	1020	12034	
26.	Ganga-Damodar-Subernrekha	12.30	3.59	44157	-			44157	
27.	Subernrekha-Mahanadi	2.15	3.59	7719	9	8.0	72	7791	
28.	Kosi-Mechi	4.74	3.59	17017	180	8.0	1440	18457	
29.	Farakka-Sunderbans	1.50	3.59	5385	-		-	5385	

30.	Jogighopa-Teesta-Farakka (PFR)-Alternative to MSTG	-	-	-	-	-	-	-	DROPPED
31	Equivalent annual irrigation for 10,787 MCM of Brahamputra water dropped in to Maha nadi	13.20	3.59	47388				47388	
	TOTAL	**176.9829 lakh hactare**		638724.6 Crore **6.39 lakh Crore**	**32288.8 MW**		202310.7 Crore **2.02 lakh Crore**	**8.44 lakh Crore**	

Cost of Drinking Water Scheme=0.03 lakh Crores(Damanganga-pinjal link)

***Total cost all projects = (6.39+ 2.02+.03)= 8.44 lakh Crores**

Annexure –3.2.2

Weighted Mean Cost Calculation

Project	Irrigation (lakh ha)	Cost (Rs. Lakh/ha)	Year
Ken Betwa Phase - I	6.36 (IK)	2.74(CK)	2017-18
Par – Tapi - Narmada	2.32 (IP)	4.32(CP)	2015-16
Mahanadi- Godavari	4.43 (IM)	4.42(CM)	2015-16

Weighted Mean Cost

((IK*CK)+(IP*CP)+(IM*CM))/(IK+IP+IM) = Rs.3.59 lakh/ha

Approved Cost of Sankosh Hydel Project (By CWC)

Sankosh Hydro Electric Project (2560 MW)

Cost Estimate at April'16 PL

General abstract of cost

In Millions

S.N	DESCRIPTION	Main Dam	Regulating Dam	Amount at April'12 PL	Escalation	Amount after escalation
A	CIVIL AND HM WORKS					
I	DIRECT CHARGES					
	A- PRELIMINARY	936.00	104.00	1040.00	1.134	1178.97
	B- LAND	776.79	137.08	913.87	1.134	1035.98
	C- WORKS	45924.58	8184.07	54108.64	1.134	61338.78
	J- POWER PLANT	10732.84	1203.92	11936.76	1.134	13531.78
	K- BUILDING	2046.02	868.79	2914.81	1.134	3304.29
	M- PLANTATION	7.65	1.35	9.00	1.134	10.20
	O- MISC.	899.73	99.97	999.70	1.134	1133.28
	P- MAINTENANCE	613.44	105.50	718.94	1.134	815.00
	Q- SPL. T&P	50.73	5.64	56.37	1.134	63.90
	R- COMMUNICATION	2640.13	293.35	2933.48	1.134	3325.45
	X- ENV.& ECOLOGY	437.75	77.25	515.00	1.134	583.82
	LOSSES IN STOCK	153.36	26.38	179.73	1.134	203.75
	TOTAL (I- Works)	**65219.01**	**11107.29**	**76326.29**		**86526.21**
	I- ESTABLISHMENT (Civil)	1994.42	886.57	2880.99	1.134	3265.96
	TOTAL -EST.	**1994.42**	**886.57**	**2880.99**		**3265.96**
	T & P (Civil)	18.00	2.00	20.00	1.134	22.67
	III.Total(T & P)	**18.00**	**2.00**	**20.00**		**22.67**
	IV.R&R	-51.31	-5.70	-57.01	1.134	-64.63
	V.Suspense	0.00	0.00	0.00		
	Total(Direct Cost)	**67180.12**	**11990.16**	**79170.28**		**89749.21**
II	INDIRECT CHARGES					
	AUDIT & ACCOUNT (Civil)	163.05	27.77	190.82	1.134	216.31
	Total (Audit & Account)	**163.05**	**27.77**	**190.82**		**216.31**
	CAP. AB. FOR LAND	20.52	3.62	24.15	1.134	27.37
	Total (Indirect Cost)	**183.57**	**31.39**	**214.96**		**243.69**
	Total Cost(Direct & Indirect Cost)	**67363.69**	**12021.55**	**79385.24**		**89992.90**

Civil cost Approved by C.W.C.

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
सचिव का कार्यालय
Office of Secretary
परियोजना मूल्याङ्कन समन्वय निदेशालय
Project Appraisal Co-ordination Directorate

संख्या 2/Bhutan/1/के.वि.प्रा./96-पी.ए.सी/13-ई-0-1405 दिनांक: 6th June, 2017

OFFICE MEMORANDUM

Subject: Sankosh Hydro Electric Project (8x312.5 MW + 3x28.3 MW = 2585 MW) in Bhutan by M/s THDC India Ltd (THDCIL) at an Estimated Cost of Rs. 15709.60 Crores at April, 2016 PL including IDC of Rs. 3217.59 Crores & FC of Rs. 109.97 Crores. - Issue of Appraisal.

Based on MoU signed in January 1993 between Government of India and Royal Government of Bhutan for preparation of DPR, M/s THDC India Limited submitted the revised DPR of Sankosh HEP (2585 MW) to CEA on 27.08.2012. Sankosh HE Scheme Comprises of two projects i.e. Sankosh Reservoir HEP or Sankosh Main Dam project as storage scheme (2500 MW) and Sankosh Regulating Dam Project (85 MW) as RoR scheme. The Project is located on Sankosh river, near village Kerabari under Kalikhola Dzongkhang (Sub Division) of Sarpang Dzongkhang (District) in Southern Bhutan.

2. Power Potential Studies and Installed Capacity aspects envisaging 8 units of 312.5 MW each (total capacity of 2500 MW) with design energy 5949.05 MU in 90 % dependable year with 95% machine availability has been accepted for the Sankosh Main Dam project. Month-wise 10-daily energy generation in 90% dependable year with 95% machine availability is given at Annex-I(A).

कमरा सं. 322, सेवा भवन, आर.के. पुरम-1, नई दिल्ली-110066 टेलीफैक्स: 011-26109742h ई-मेल: directorpac@nic.in वेबसाइट: www.cea.nic.in
Room No. 322, Sewa Bhawan, R.K Puram-I, New Delhi-110066 Telefax: 011-26109742h Email:directorpac@nic.in Website:

Similarly, Power Potential Studies and Installed Capacity aspects envisaging 3 units of 28.3 MW each (total capacity of 85 MW) with design energy 416.34 MU in 90 % dependable year with 95% machine availability has been accepted for the Sankosh Regulating Dam Project. Month-wise 10-daily energy generation in 90% dependable year with 95% machine availability is given at Annex-I(B).

3. The Detailed Project Report (DPR) of Sankosh HEP (8x312.5 MW + 3x28.3 MW = 2585 MW) submitted by M/s THDC India Ltd (THDCIL) to Central Electricity Authority (CEA) vide letter No. THDC/DT/RKSH//3467 dated 27.08.2012 was discussed in the presentation meeting convened in CEA on 16.10.2012, attended by officers from GSI, CWC, CSMRS, THDCIL and CEA, wherein it was decided that the DPR may be accepted for detailed examination. Thereafter, the DPR was forwarded to various appraisal divisions of CEA, CWC, GSI and CSMRS for examination of their respective portions. After clearance of all appraisal divisions, the proposal was considered in the Appraisal Meeting held on 20th September 2016 based on the Agenda Note circulated vide CEA letter No. 2/Bhutan/1/CEA/96-PAC/1428-1462 dated 16th September, 2016 in CEA.

4. The Central Electricity Authority accords Appraisal to the aforesaid scheme at an Estimated Cost of Rs. 15709.60 Crores at April, 2016 PL including IDC of Rs. 3217.59 Crores & FC of Rs. 109.97 Crores with the following stipulations: -

a) The abstract of hard cost of Project as approved by CEA at April, 2016 PL is furnished at Annex-II, II(A), II(B) & II(C). The summary of tentative Financial Package, as submitted by M/s THDC India Ltd and considered by CEA is given at Annex-II(D). The salient features of the scheme are given in Annex- III.

b) **This Appraisal is subject to fulfillment of the following conditions:**

i. The following conditions/circumstances shall not be a re-opener of the project cost/Appraisal: -
   a) Non – acquisition of land
   b) Non – finalisation of Power Purchase Agreement

ii. Project Developer shall take necessary action to obtain all the required statutory clearances from Royal Government of Bhutan (RGoB) for execution of Project in Bhutan.

iii. Project Developer shall incorporate the suggestions/observations of Central Water Commission (CWC) on aspects of Hydrology, Dam

6/12/2012

Sankosh Hydro Electric Project (2585 MW)
Cost Estimate at April, 2016 PL
General abstract of Civil & HM Cost

(Amount in Rs. Crores)

S.N.	Description	Main Dam	Regulating Dam	Total
A	CIVIL AND HM WORKS			
1.	DIRECT CHARGES			
	A- PRELIMINARY	100.72	11.19	111.91
	B- LAND	77.68	13.71	91.39
	C- WORKS	4976.91	844.73	5821.64
	J- POWER PLANT	1072.76	123.58	1196.34
	K- BUILDING	230.01	97.67	327.68
	M- PLANTATION	0.76	0.14	0.90
	O- MISC.	80.68	8.97	89.65
	P- MAINTENANCE	58.5	9.78	68.28
	Q- SPL. T&P	3.29	0.37	3.66
	R- COMMUNICATION	296.80	32.98	329.78
	X- ENV. & ECOLOGY	43.78	7.72	51.50
	LOSSESS IN STOCK	14.63	2.44	17.07
	TOTAL (I-Works)	**6956.52**	**1153.28**	**8109.80**
	I- ESTABLISHMENT (Civil)	152.84	84.87	237.71
	TOTAL – EST	**152.84**	**84.87**	**237.71**
	T&P (Civil)	1.80	0.20	2.00
	Total (T&P)	1.80	0.20	2.00
	R&R	-3.89	-0.43	-4.32
	Suspense	0.00	0.00	0.00
	Total (Direct Cost)	**7107.27**	**1237.92**	**8345.19**
II	INDIRECT CHARGES			
	AUDIT & ACCOUNT (Civil)	15.58	2.58	18.16
	Total (Audit & Account)	15.58	2.58	18.16
	CAP. AB. FOR LAND	2.05	0.36	2.42
	Total (Indirect Cost)	17.63	2.94	20.57
	Total Cost (Direct & Indirect Cost)	**7124.9**	**1240.86**	**8365.76**

Note: Civil Cost estimate has been finalized after consideration of following taxes:

a. Excise Duty @ 14.42% - applied on price of purchase of equipment
Sales Tax @ 2%

b. Excise Duty @ 8.24%- applied on H-M works component

Annex-II (B)

Sankosh HE Project- Main Dam project (8x312.5= 2500 MW)
(Abstract of Cost Estimates of Electro Mechanical Works)
Price Level: April, 2016

(Amount in Rs. Lakhs)

Item No.	Item	Indian Component	Foreign Component (Equivalent in Rs. Lakhs)	Total
1.	Preliminary- Model Test	-	-	-
2.	Generating Plant and Equipment			
	a) Generator, turbine and accessories – (Accessories include cooling water system, Drainage and Dewatering system, Compressed Air system, Bus Ducts, SCADA, Protection system & Butterfly Valves)	210,310.20	-	210,310.20
	b) Auxiliary electrical equipment for power station (includes AC & DC supply system, DG set, Control and Power Cables, Grounding, Illumination & Electrical fab)	36,600.78	-	36,600.78
	c) Auxiliary mechanical equipment for power station (Includes EOT cranes, Elevator, Fire Fighting Equipment, HVAC, Filtered Water Supply, Oil Handling & Mechanical Workshop)	9,551.79	-	9,551.79
	d) Transportation and Insurance @ 6% of 2 (a), (b), & (c) excluding spares	15,387.77	-	15,387.77
	e) Erection and commissioning charges @ 8% of 2 (a), (b) & (c) excluding spares	19631.73	-	19631.73
	Sub-Total (Generating Plant and Equipment)	291,482.27	-	291,482.27
3.	Substation Equipment, Auxiliary Equipment and Service of Switchyard			
	a) Substation equipment & auxiliary equipment and service for Switchyard (includes pothead yard equipments and PLCC)	22,830.78	-	22,830.78
	b) Transportation and Insurance @ 6% of 3 (a)	1,369.85	-	1,369.85
	c) Erection and commissioning charges @ 8% of 3 a) excluding spares	1,774.43	-	1,774.43
	Sub-Total (Substation equipment, auxiliary equipment and services of switchyard and transmission lines)	25,975.06		25,975.06
4.	GIS and XLPE Cable			
	a) 400 KV GIS	-	35,423.53	35,423.53
	b) Custom Duty @22 %	-	7,793.18	7,793.18
	c) Central Sales Tax (2%) on 3(a)	-	-	-
	d) Freight & Insurance @ 3% (Marine) of item 4 (a)	-	1,062.71	1,062.71
	e) Freight & Insurance @ 6% (Inland) of item 4 (a), (b) & (c)	-	2,656.76	2,656.76
	f) Erection and commissioning charges @ 8% of 4 a) & b) excluding spares	-	3,374.79	3,374.79
	Sub-Total (GIS and XPLE Cable)	-	50,310.97	50,310.97
5.	Contingencies @1% on items 2,3 &4		3,677.68	
6.	Tools & Plant @0.5% of items 2,3 & 4		1,838.84	
7.	Sub-Total (item 1to 6)		373,284.82	
8.	Establishment (based on manpower to be deployed limited to 6% on item 7 (equipment cost only)		11,133.46	
9.	Sub-total (item 7 to 8)		384,418.27	
10.	Audit and account @ 0.25% of item 9		961.05	
11.	Service Tax @ 10.30% on erection and commissioning		2,552.44	
	GRAND TOTAL FOR ELECTRO-MECHANICAL WORKS		387,931.75	
	Total Cost (in Rs. Crores)		3,879.32	
	Cost/MW (in Rs. Crores)		1.552	

6/6/2017 12

Sankosh HE Project- Regulating Dam project (3x28.33MW= 85 MW)

(Abstract of Cost Estimates of Electro Mechanical Works)

Price Level: April, 2016

Item No.	ITEM	Total Amount (Rs. In Lakhs)
1.	Preliminary- Model Test	
2.	Generating Plant and Equipment	
	a) Generator, turbine and accessories (Accessories include cooling water system, Drainage and Dewatering system, Compressed Air system, Bus Ducts, SCADA, Protection system & Butterfly Valves)	7,446.03
	b) Auxiliary electrical equipment for power station- (includes AC & DC supply system, DG set, Control and Power Cables, Grounding, Illumination & Electrical lab)	2,019.31
	c) Auxiliary mechanical equipment for power station (includes EOT cranes, Elevator, Fire Fighting Equipment, HVAC, Filtered Water Supply, Oil Handling & Mechanical Workshop)	525.30
	d) Transportation and Insurance @ 6% of 2 (a), (b), & (c)	599.44
	e) Erection and commissioning charges @8% of 2 (a), (b) & (c) excluding spares	766.56
	Sub-Total (Generating Plant and Equipment)	**11,356.64**
3.	Substation Equipment, Auxiliary Equipment and Service of Switchyard	
	a) Substation equipment & auxiliary equipment and service for Switchyard – (includes pothead yard equipments and PLCC)	1,024.85
	b) Transportation and Insurance @ 6% of 3 (a)	61.49
	c) Erection and commissioning charges @ 8% of 3 (a) excluding spares	80.16
	Sub-Total (Substation equipment, auxiliary equipment and services of switchyard and transmission lines)	**1,166.51**
4.	GIS and XLPE Cable	
	a) 400 KV GIS	-
	b) Custom Duty @22 %	-
	c) Central Sales Tax (2%) on 3(a)	-
	d) Freight & Insurance @ 3% (Marine) of item 4 (a)	-
	e) Freight & Insurance @ 6% (Inland) of item 4 (a), (b) & (c)	-
	f) Erection and commissioning charges @ 8% of 4 (a) & (b) excluding spares	-
	Sub-Total (GIS and XPLE Cable)	-
5.	Contingencies @1% on items 2,3 & 4	125.23
6.	Tools & Plant @0.5% of items 2,3 & 4	62.62
7.	Sub-Total (item 1to 6)	2,710.99
8.	Establishment (based on manpower to be deployed limited to 6% on item 7 (equipment cost only)	762.66
9.	Sub-total (item 7 to 8)	13,473.65
10.	Audit and account @ 0.50% of item 9	67.37
11.	Service Tax @ 10.30% on erection and commissioning	155.29
	GRAND TOTAL FOR ELECTRO-MECHANICAL WORKS	**13,696.31**
	Total Cost (in Rs. Crores)	**136.96**
	Cost/MW (in Rs. Crores)	**1.611**

Annex-II(D)

Tentative Financial Package Summary

Debt Equity Ratio=70.30

Source of Financing	Rs. Crores
Equity i). Foreign Equity	0.0
ii). Domestic Equity (Internal Resources)	4712.88
Debt Domestic Loan	10996.72
Total (Equity + Debt)	15709.60

Annex-15.1

GUIDELINES FOR IMPLEMENTATION OF NATIONAL PROJECTS

Government of India has approved a scheme of National Projects to be implemented during XI Plan with a view to expedite completion of identified National Projects for the benefit of the people. Such projects will be provided financial assistance by the Government of India in the form of Central grant which will be 90% of the estimated cost of such projects for their completion in a time bound manner. Based on the criteria mentioned in Para-I below, the Government of India has already identified 14 projects as given in Annex-I as National Projects.

I CRITERIA FOR SELECTION OF NATIONAL PROJECTS

The criteria for selection of National Project will be as under:

(a) International projects where usage of water in India is required by a treaty or where planning and early completion of the project is necessary in the interest of the country.

(b) Inter-State projects which are dragging on due to non-resolution of Inter-State issues relating to sharing of costs, rehabilitation, aspects of power production etc., including river interlinking projects.

(c) Intra-State projects with additional potential of more than 2,00,000 hectare (ha) and with no dispute regarding sharing of water and where hydrology is established

II PROCEDURE FOR INCLUSION AS NATIONAL PROJECT

(a) New projects could be considered for inclusion as National Projects on receipt of proposals from the State Governments in the prescribed format (as per Annexure-II), clearance from Expenditure Finance Committee/Project Investment Board and on the recommendation thereupon of a high powered Steering Committee constituted for the purpose of overseeing the entire process of selection and implementation of National Projects and the approval by the Union Cabinet.

(b) State Governments may submit proposals in Form-1 given in Annex-II for inclusion of project as a National Projects. The proposals should be submitted through the Regional Office of Central Water Commission (CWC) with a copy each of the proposal to the CWC (HQ) and the Ministry of Water Resources.

(c) The projects proposed for inclusion as National Projects should fulfill all the eligibility criteria required for funding under Accelerated Irrigation Benefit Programme (AIBP), including the investment clearance of the Planning Commission.

(d) Only major irrigation/multi-purpose projects shall be eligible for inclusion as National Projects.

(e) On receipt of a proposal from the State Government for inclusion of a project as National Project, the Ministry of Water Resources may send a team of officers to the project site with a view to make assessment of the present status of the project and to firm up the plans for its completion in a specified time-frame.

III FUNDING OF THE NATIONAL PROJECTS

(a) The Project authority should conduct an internal audit and submit the actual expenditure incurred and the balance requirement of funds duly certified by the State Government. So far as the Central Government is concerned, the commitment to fund these National Projects would be from the date of its inclusion as National Project.

(b) The National Projects will receive central assistance in accordance with the approved guidelines for AIBP except for specific provision as mentioned in para III (c) and III (d).

(c) The National Projects shall be eligible for 90% grant of the balance project cost (cost of work) of irrigation and drinking water components of the project. For the purpose of Central funding, the cost for drinking water component shall not include the works related to transmission and distribution network required exclusively for drinking water component.

(d) The central assistance under the programme will be provided in two installments of 90% and 10% respectively of the annual grant requirement. The 2nd installment during the year will be released on production of utilization certificate of 80% grant released in the first installment along with State share. For the subsequent years, the first installment of grant will be released on utilization of 80% grant released till previous year along with the State share and submission of a report of physical achievements and the benefits from the project as stipulated in the MOU in proforma given in Annex-III.

(e) All establishment and administrative costs on a National Project shall be entirely borne by the State Government.

(f) The revised estimates for the projects funded as National Projects should be got approved from the Planning Commission at an interval of three years else, Ministry of Water Resources could stop funding to the project.

(g) The central grant released to the State Government will be transferred by the State Government to the project authorities within 15 days of its receipt from the Central Government.

(h) The State Government will submit audited statement of expenditure incurred on National Project within 18 months of release of Central Grant.

IV WORK PLAN AND TIME SCHEDULE FOR COMPLETION OF NATIONAL PROJECTS.

(a) The State Government will provide along with the proposal for inclusion of a project as National Project, detailed year wise physical and financial programme for completion of various activities along with PERT/CPM Chart for the timely completion of various activities. It will also indicate year wise target of the benefits from the project. A Memorandum of Understanding (MoU) in proforma given at Annex-IV will be signed by State Government with the Ministry of Water Resources.

(b) While submitting a proposal for techno-economical appraisal of the project to the Central Water Commission (CWC), the State Government will also indicate the programme for completion of the project in a time bound manner. The CWC will examine techno-economic viability of the project keeping in view the

time period proposed by the State Government for completion of the project and the same time frame will be adhered to in completion of the project.

(c) The State Government will ensure timely completion of the project and will adopt appropriate measures such as Turn-Key or fixed time and fixed price contracts for this purpose. The works should be awarded by the State Government in distinct packages so that works of any package are not affected by the progress of works of other packages.

(d) The State Government should consider incorporating provision of strong incentives/disincentives for the contracts for execution of the National Project to facilitate timely completion of the project.

(e) The Command Area Development Programme should get implemented pari passu with project implementation.

(f) Land records in the command of the proposed national projects should be updated, livelihood survey should be conducted and advance planning should be done along with dovetailing the various RD Programmes so that the agricultural produce could be marketed through communication networks in mandis and nearby markets.

(g) The job of soil testing and issue of soil health cards to the farmers of national projects command should be completed before the irrigation benefits starts.

V. MONITORING OF NATIONAL PROJECTS

(a) The progress of work in respect of National Projects shall be closely monitored by the Central Water Commission/Ministry of Water Resources. The monitoring of National Projects will be field based with GIS based project implementation units linked with management information systems.

(b) The State Government will keep close coordination with agricultural departments for the advanced crop planning and extension inputs to farmers of the command.

(c) Achievement of targets of the potential creation from the project may also be got assessed by the Ministry of Water Resources through independent agencies and other means such as remote sensing technique.

(d) The State Government shall send quarterly physical and financial progress reports in the proforma given in the Annex-V to the CWC/Ministry of Water Resources.

(e) The State Government shall establish independent quality control organization and adequate number of quality control laboratories in the project areas to maintain quality of works. The sampling and testing will be required to be carried out in accordance with relevant BIS Codes.

VI. REVIEW BY STEERING COMMITTEE

The implementation of National Projects will be reviewed from time to time by the High Powered Steering Committee constituted under chairpersonship of the Secretary (Water Resources). The

composition of the Steering Committee and its terms of references may be seen at Annexure-VI.

VI. EVALUATION AND IMPACT ASSESSMENT

A concurrent evaluation of the Project and impact assessment of the project on its completion will be conducted by the State Government through a reputed independent organization to find out whether the envisaged objectives, outcomes and targets of the project have been achieved. The Ministry of Water Resources may also get the evaluation and impact assessment done separately. Funding for the evaluation and impact assessment will be provided by the Ministry of Water Resources through its ongoing Plan scheme “Research & Development Programme for Water Sector”.

ANNEX-.I

List of projects declared as National Projects:

Sl. No.	Name of the Project	1) Irrigation (ha.) 2) Power (MW) 3) Storage (MAF)	State
1	Teesta Barrage	1) 9.23 lakh 2) 1000 MW 3) Barrage	West Bengal
2	Shahpur Kandi	1) 3.80 lakh 2) 300 MW 3) 0.016 MAF	Punjab
3	Bursar	1) 1 lakh (indirect) 2) 1230 MW 3) 1 MAF	J&K
4	2nd Ravi Vyas Link	Harness water flowing across border of about 3 MAF	Punjab
5.	Ujh multipurpose project	1) 0.32 lakh ha 2) 280 MW 3) 0.66 MAF	J&K
6.	Gyspa project	1) 0.50 lakh ha 2) 240 MW 3) 0.6 MAF	HP
7.	Lakhvar Vyasi	1) 0.49 lakh 2) 420 MW 3) 0.325 MAF	Uttranchal
8.	Kishau	1) 0.97 Lakh 2) 600 MW 3) 1.04 MAF	HP/Uttranchal
9.	Renuka	1) Drinking water 2) 40 MW 3) 0.44 MAF	HP
10.	Noa-Dehang Dam Project	1) 8000 ha. 2) 75 MW 3) 0.26 MAF	Arunanchal Pradesh
11.	Kulsi Dam Project	1) 23,900 ha. 2) 29 MW 3) 0.28 MAF	Assam
12.	Upper Siang	1) Indirect 2) 9500 MW 3) 17.50 MAF 4) Flood moderation	Arunanchal Pradesh
13	Gosikhurd	1) 2.50 lakh 2) 3 MW 3) 0.93 MAF	Maharashtra
14	Ken Betwa	1) 6.46 lakh 2) 72 MW 3) 2.25 MAF	Madhya Pradesh

ANNEX-II

Proforma for submission of proposal by State Government for inclusionasNationalProject

1. NAME OF THE STATE :

2. NAME OF THE PROJECT :

3. BRIEF DESCRIPTION OF THE PROJECT :

The project situated in ..... district of ..... state envisages construction of Head Works (give details) and Canal System (give details) to cover CCA of ..... ha. The project will provide irrigation benefits to ..... Ha Irrigable Command Area, the taluka and district wise break up of which is given in Annex. The ultimate irrigation potential of the project is ..... ha. The project has installed power generation capacity of .....MW of hydropower. The project is to provide drinking water benefits to the villages and towns as per details annexed herewith. The project was given investment clearance by Planning Commission in the year ..... for Rs..... crore. The latest estimated cost of the project is Rs..... crore at ..... price level (give status of approval of latest estimated cost) and expenditure incurred till (ending previous March) is Rs..... crore. The project was started during the year ..... and is proposed to be completed by .....

The physical progress (in percentage) of main components of the project as on (ending previous March) is as below:

S. No.	Component	% Progress
i)	Dam (H/Works)	%
ii)	Main & Branch Canals	%
iii)	Distributary system upto chuk outlets	%
iv)	Water Courses	%

The direct benefits achieved from project so far are.....

(Whether the project is receiving any external /domestic assistance? Only those components of the project which are not receiving any financial assistance from any other internal or external sources are to be considered for assistance as National Project. However, the State Government may raise State share from other sources.)

4. COMPONENTS PROPOSED FOR FUNDING OF A NATIONAL PROJECT

(a) Brief description of the components of the project proposed for Central grant:

Name of the component	Its present status	Target date of completion
1.		
2.		
3.		

Likely addition in irrigation potential/likely installed power generation capacity/likely drinking water benefits on completion of above mentioned components is ..... .

(b) Year-wise requirement of funds for works and likely direct benefits:

Year	Grant proposed	State Govt. share	Total	Likely direct benefits (Irrigation potential, installed power generation capacity etc.)
Total				

Provision made in the State Budget for the project : Rs. ..... crore.

Break-up : For Works Rs. ..... crores

For Establishment Rs.....crores.

(c) Programme of works for items to be covered :

Sl. No	Description of components	Unit	Total estimated Quantity	Quantity executed upto (March)	Quantity proposed for next year
1	**2**	**3**	**4**	**5**	**6**
I	**Unit-I/Head Works**				

1		Dam/Barrage				
	i)	Land acquisition	Ha.			
	ii)	Earth work				
		a) Excavation	Th.cum			
		b) Embankment	Th.cum			
	iii)	Masonry work	Th.cum			
	iv)	Concrete work	Th.cum			
	v)	Gates	Nos.			
	vi)	Misc (pl. specify)				
II		**Unit-II**				
1		Main Canal, Branch Canal	Km			
	i)	Land acquisition	Ha.			
	ii)	Earth work	Th.cum			
	iii)	Lining	Th.sqm			
	iv)	Structures	Nos.			
	v)	Misc.(pl.specify)				
2		Distributaries & Minors				
	i)	Land acquisition				
	ii)	Earth work				
	iii)	Lining				
	iv)	Structures				
	v)	Misc.(pl.specify)				
3		Water Courses				
	i)	Land acquisition				
	ii)	Earth work				
	iii)	Lining				
	iv)	Misc.(Pl specify)				

(Salient Features of the project and Index Map showing National Project components to be appended).

Prevailing constraints/bottlenecks, if any, and remedial measures being taken to implement the project may please be mentioned.

ADDITIONAL INFORMATION TO BE PROVIDED:

1. Year wise physical and financial programme till completion of project in the following proforma:

PHYSICAL PROGRAMME & PROGRESS

Item of work (only important items of works to be given)
Total estimated quantity
Quantity executed so far
Balance quantity
Year wise break up for execution of balance quantity till completion of project
Year wise break up of the direct benefits from project

FINANCIAL PROGRAMME & PROGRESS

Item of work (only important items of works to be given)
Total estimated cost
Expenditure incurred so far
Balance cost
Year wise break up for execution of balance cost till completion of project

2. District and Taluka wise break up of Irrigable Command area along with district and taluka wise area covered so far may be given.
3. Other direct benefits from the project stipulated and achieved so far.
4. Status of all mandatory clearances along with copies of the clearances may be given.
5. Total land required to be acquired for the project with break up of Revenue, forest and private land and land acquired so far. Land required for reservoir and canal system may be given separately.
6. Status of Resettlement & Rehabilitation of project affected persons may be given covering number of villages likely to be affected with village wise numbers of project affected families (PAF), village wise number of families rehabilitated so far.
7. Details of ongoing contracts stating works covered, year of contract, year of completion of contract as per agreement, present status may be given along with reasons for delay in completion of contracted works.
8. Number of packages proposed for balance work with details of works to be covered, likely contract cost and time period of each package.

ANNEX-III

PHYSICALACHIEVEMENTCERTIFICATE

Certified that as per MOU signed by the State Government of…….. with the Government of India for funding of …… project as a National Project, the following were physical target/achievements of quantity and indirect and direct benefits of the project for the period ending …….

Sl. No.	Name of component of work	Total quantity of work of the component		Target for period ending……	Actual achievement for period ending…..
	1. Headworks 2. Main and Branch Canal 3. Distribution System 4. Irrigation Potential				

The physical achievements for the corresponding period are shown against targets which have actually been achieved.

Sd-

Principal Secretary/Secretary

Water Resources/Irrigation Department

Dated:

ANNEXXURE-IV

Memorandum of Understanding between the Ministry of Water Resources, Government of India and Government of ……oncompletionofNationalProject.

1. This memorandum of understanding is signed between the Ministry of Water Resources, Government of India and the Government of ……. for the completion of the ……. project in…….years under the central assistance programme for National Projects of the Government of India.

2. The ……. project was approved by the Planning Commission in…….. for Rs. …….. crore to irrigate ……. ha., to generate hydropower of ……units and to provide ……MCM of drinking water annually. Other benefits proposed from the project are…..

3. According to the State Government, the latest estimated cost of the project is Rs…….. crore (……price level), and the expenditure incurred till …….. is Rs……. crore. The benefits realized from project so far are……...

4. The balance cost for completion of the project is thus Rs……. crore with balance benefits to be realized as…….. The physical and financial details of the components to be covered under this programme are annexed along with annual physical and financial programme till completion of project with annual targets of the benefits to be realized from the project which will be part of this Memorandum of Understanding.

5. The Ministry of Water Resources, Government of India agrees to extend Central Assistance to cover the 90% balance cost of irrigation and drinking water components of the project of Rs…….. crore for the completion of the project in……..years subject to the following conditions:

i) The project will be completed by the Government of …… by …….. . Its completion will be informed immediately thereafter to the CWC, Ministry of Water Resources and the Planning Commission for deleting the project from the list of on-going projects.

ii) The Central Assistance will be provided on year to year basis. The assistance for a year will be provided in two installments of 90% and 10% respectively.

iii) The 2nd installment during 1st year will be released on production of utilization certificate of 80% grant released in the 1st installment along with State share signed by the Secretary (WR/Irrigation of the State Government.

iv) The 1st installment of Central Assistance during 2nd and subsequent years will be released on production of utilization certificate of 80% grant released till previous year with State share duly signed by the Secretary (WR/Irrigation) of the State with a certificate incorporating physical achievements and the benefits from the project as stipulated in the MOU.

v) If the State Government fails to achieve physical targets in stipulated time limit, the central government may consider converting grant

released to the project into loan which will be required to be repaid by the State Government along with applicable rate of interest.

vi) The project will be closely monitored by the Central Water Commission and the release of the CA will be based on the recommendation of the Central Water Commission.

vii) The State Government shall establish independent quality control organization and adequate number of quality control laboratories in the project area to maintain quality of works. The sampling and testing will be carried out in accordance with relevant BIS Codes.

viii) The State Government will provide Annual audited Statement of expenditure for the expenditure incurred on National Project corresponding to the Central Grant released under AIBP within 18 months of release of grant for the project.

ix) The State Government shall transfer central grant released to the project to the project authorities within 15 days of its receipt from the Government of India

In case of violation of any of the conditions of guidelines of National Project and this MOU, the central Government may consider withdrawing the project from the list of National Project. In such cases, the entire grant released to the project will be treated as loan which will be required to be repaid by the State Government to the Central Government along with applicable interest thereupon as prescribed by the Ministry of Finance from time to time.

Signed on the day …….. 200 , at New Delhi.

For and on behalf of the Govt.	For and on behalf of
Of …….	Government of India
Secretary (WR/Irrigation)	Commissioner (PR)
Government of ……..	Ministry of Water Resources

ANNEX-VI

No.27/1/2005-PR-PART-III
Government of India
Ministry of Water Resources
(Project Section)

631-Shrmam Shakti Bhavan
New Delhi 110001 Dated 9th April,2008

Subject:- Constitution of Steering Committee for implementation of National Projects

The Union Cabinet in its meeting held on 7th February 2008 has approved the scheme for implementation of National projects proposed by the Ministry of Water Resources which inter-alia contains selection criteria for National Projects, implementation strategy, funding arrangement etc. The proposal also contains constitution of a high powered Committee for implementation of the proposals of National Projects. Accordingly, a high powered Steering Committee for the implementation of National Projects as given below is constituted:

1	Secretary (Water Resources)	Chairperson
2	Secretary (Expenditure), Ministry of Finance	Member
3	Secretary, Ministry of Environment & Forest	Member
4	Principal Advisor (Water Resources), Planning Commission	Member
5	Secretary, Ministry of Power	Member
6	Secretary, Ministry of Rural Development	Member
7	Chairman, Central Water Commission	Member

Chief Engineer, Project Preparation Organization, CWC will function as Secretary to the High Powered Steering Committee for implementation of the National Projects.

The meetings of the Committee will be convened as and when considered necessary but at-least once in three months to review the implementation of the National Projects. The terms of reference of the Committee are as under:

1. To recommend implementation strategies for National Projects.

2. To monitor implementation of National Projects.
3. To examine the proposal(if any) for inclusion of new projects as National Project and make appropriate recommendation to the Government.

A copy of Extract of Cabinet Note on National Projects and Scheme of National Projects is enclosed along with brief details of the 14 projects approved by the Central Government as National Projects.

Encl:- As above

(INDRA RAJ)
Commissioner (PR)

Copy to:

1. Secretary(Expenditure), Ministry of Finance, North Block, New Delhi.
2. Secretary, Ministry of Environment & Forest, CGO Complex, Lodhi Road, New Delhi.
3. Principal Advisor(Water Resources), Planning Commission, Yojana Bhavan, New Delhi.
4. Secretary, Ministry of Power, Shram Shakti Bhavan, New Delhi.
5. Secretary, Ministry of Rural Development, New Delhi
6. Chairman, Central Water Commission, Sewa Bhavan, R.K. Puram, New Delhi.

Copy forwarded for information to:

PS to Secretary(WR), Shram Shakti Bhavan, New Delhi.

ANNEX-V

Profroma for Quarterly Physical and Financial Progress
(For period ending……)

a) **Name of the Project**
b) **Name of the State**
c) **Total grant released till date**
d) **Corresponding State Share**
e) **Corresponding expenditure actually incurred.**
f) **Direct benefits proposed as per MOU**
g) **Corresponding achievement**
h) **Indirect benefits proposed as per MOU**
i) **Corresponding achievement**

Sr.No.	Item of Work	Total Quantity as per MOU	Quantity proposed up to the period……	Quantity actually executed	Estimated cost as per MOU corresponding to (4)	Actual expenditure incurred for quantity executed	Reasons for shortfall for physical & financial achievements.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

No.27/13/2009-PR/A
GOVERNMENT OF INDIA
MINISTRY OF WATER RESOURCES
Projects Section

631, Shram Shakti Bhawan,
Rafi Marg, New Delhi-110 001
New Delhi 28th September 2012

Subject:- Modification in the Guidelines of the scheme of National Projects.

The Guidelines for implementation of the scheme of National Projects were circulated vide this Ministry's letter No. 27/1/2005-PR dated 26th Feb., 2009. It has now been decided to make the following modifications in the guidelines:

Extension, Renovation and Modernisation (ERM) projects, envisaging restoration of lost irrigation potential of 2.0 lakh ha or more would now be eligible for inclusion as a National project subject to:

a) The Command Area Development and Water Management (CAD&WM) works shall be ensured in the entire command area of the ERM project.
b) The CAD&WM works shall be taken up simultaneously with the ERM works so as to facilitate achievement of the benchmark efficiency for water use.
c) The management of command area system by Water User's Association (WUA's) after the ERM works will be necessary. The WUA's may be entrusted with the responsibility for collection of irrigation service fees and for undertaking annual repairs by retaining a part of the fee collected.
d) Independent evaluation of the project will be carried out after project implementation and the project should achieve the benchmark water use efficiency in practice as prescribed by Central Water Commission.
e) An ERM Project of a State may be included in the scheme of National Projects only on completion of one ERM Project already being funded in the State under the category of National Projects.

(T.D. Sharma)
Senior Joint Commissioner (PR)
Telefax- 011-23710131

To:

1. The Chief Secretaries of all the States and Union Territories.
2. The Principal Secretaries/Secretaries [illegible] (Irrigation) of all the States and UTs.
3. The Secretary, Planning Commission, Yojana Bhawan, New Delhi
4. The Secretary (Expenditure), Ministry of Finance, New Delhi
5. The [illegible] [illegible] [illegible] [illegible] New Delhi. The [illegible] application of guidelines [illegible] [illegible] n.c[illegible]rn[illegible]n.GWf
6. The Commissioner (PG), (PP), (Ganga), (Indus), (B&B), (BA.CADWM), MoWR, New Delh
7. The Joint Secretary (A), Ministry of Water Resources, New Delhi
8. The Joint Secretary & Financial Advisor, Ministry of Water Resources New Delhi
9. The PS to the Minister (WR), New Delhi
10. The PS to the Minister of State (WR), New Delhi
11. The PPS to Secretary(WR), New Delhi
12. The PS to Additional Secretary (WR), New Delhi

रतन पी. वातल
वित्त सचिव
Ratan P. Watal
Finance Secretary

D.O.No. 32/PSO/FS/2015

भारत सरकार
वित्त मंत्रालय
व्यय विभाग
GOVERNMENT OF INDIA
MINISTRY OF FINANCE
DEPARTMENT OF EXPENDITURE

5316
30/10/2015

28th October, 2015

Sub: Funding Pattern of Centrally Sponsored Schemes.

Dear Secretary,

The Report of the Sub-Group of Chief Ministers on Rationalization of Centrally Sponsored Schemes constituted by the NITI Aayog has been considered and it has been decided that:

1. The funding pattern of following schemes will remain unchanged:
   i. Mahatma Gandhi National Rural Employment Guarantee Scheme
   ii. National Social Assistance Program
   iii. Umbrella Program for Development of Scheduled Castes
   iv. Umbrella Program for Development of Scheduled Tribes
   v. Umbrella Program for Development of Differently Abled Persons
   vi. Umbrella Program for Development of Minorities
      a. Multi-sectoral Development Program for Minorities
      b. Education Scheme for Madarsas/Minorities
   vii. Umbrella Program for Development of Backward Classes and other vulnerable groups

2. The funding of the following *core schemes*, which form part of the National Development Agenda, will be shared 60:40 between the Centre and the States (90:10 for the 8 North-Eastern and 3 Himalayan States):
   i. Krishi Unnati Yojna
   ii. Rashtriya Krishi Vikas Yojna
   iii. Pradhan Mantri Krishi Sinchai Yojna
   iv. Rashtriya Pashudhan Vikas Yojna (Livestock Mission, Veterinary Services and Dairy Development)

कमरा न. 129-A नॉर्थ ब्लाक नई दिल्ली-110001
Room No. 129-A, North Block, New Delhi-110001
Tel. 23092929, 23092665 Fax 23092545

v. Swach Bharat Abhiyan (Rural and Urban)
vi. National Rural Drinking Water Program
vii. National Health Mission (including AYUSH, Medical Education and RSBY/RSSY)
viii. National Education Mission (including SSA, RMSA, RUSA, Teachers Training and Adult Education)
ix. Integrated Child Development Services (including nutrition mission, maternity benefits and program for adolescent girls)
x. Integrated Child Protection Scheme
xi. Mid-Day Meal Program
xii. Housing for All (Rural and Urban)
xiii. National Livelihood Mission (Rural and Urban)
xiv. Forestry and Wildlife (including Green India Mission, Project Tiger and Integrated Development of Wildlife Habitats)
xv. Urban Rejuvenation (AMRUT) and Smart Cities Mission
xvi. Modernisation of Police Forces
xvii. Infrastructure Facilities for Judiciary

In case a scheme/sub-scheme in the above mentioned list has a central funding pattern less than the level mentioned at the beginning of para 2, the existing funding pattern will continue.

For Pradhan Mantri Gram Sadak Yojna instructions will be issued separately. For the ICDS Program, provision of additional funds for the current financial year will also be made at the supplementary stage.

3. All other schemes (not listed in para 1 and 2 above) will be *optional* for the State Governments and their fund sharing pattern will be 50:50 between the Centre and the States (80:20 for the 8 North East and 3 Himalayan States).

4. The following schemes may be run as Central Sector Schemes from the Financial Year 2016-17 onwards (in accordance with the budget provision as far as FY 2015-16 is concerned):
   (i) National AIDS and STD Control Program which is externally aided and implemented through special purpose vehicles and the voluntary sector.
   (ii) National Skill Initiatives/Skill Development Mission under the umbrella of recently launched Pradhan Mantri Kaushal Vikas Yojana.
   (iii) Programs with network externalities like National Disease Surveillance Systems and the Crime and Criminal Control Network.

(iv) To ensure economies of scale in the implementation of centrally sponsored schemes small programs like Modernisation of Land Records, National Service Scheme, Yuva Krida and Khel Abhiyan, Social Security Cards, etc. may also be suitably restructured as Central Sector Schemes.

5. For Union Territories, the Centrally Sponsored Schemes will be funded 100 percent by the Central Government. However, schemes that will be implemented in a particular Union Territory will be decided by the Central Government in consultation with the administration of the Union Territory concerned.

6. Expenditure on all schemes in the financial year 2015-16 will be limited to the budgetary resources made available through the Budgetary Estimate and the Supplementary Budgets during the course of the year.

With regards.

Yours sincerely,

Ratan P. Watal

Finance Secretary

All Secretaries to the Government of India