

NATIONAL HYDROLOGY PROJECT Appraisal Mission, August 1- 5, 2016

I. Introduction

1. A World Bank project appraisal mission¹ was conducted from August 1 to 5, 2016 for the National Hydrology Project (NHP). The mission objectives were to appraise the project and assess the readiness of project for negotiation. The Aide Memoire summarizes mission findings and the status of project preparation.

2. Detailed discussions were held with central and state agencies grouped according to major river basins in Delhi. The discussion focused on readiness, MoA, detailed implementation arrangements for various components of the project. Finally, the wrap-up meeting was concluded under the chairmanship of Dr. Amarjit Singh, Officer on Special Duty, MoWR, RD&GR on August 5. The wrap-up was attended by senior management including the Additional Secretary, and central organizations and north eastern states.

II. Key Project Data

Table 1: Tentative Features of Project

Nodal Implementing Agency	National Project management Unit (NPMU), MoWR, RD&GR
Implementing Agencies (IAs)	National project with 27 states and 2 UTs, two river basin organizations and eight Central Agencies (MoWR, RD&GR; CWC; CGWB; NIH; CPCB; SoI; NRSC and CWPRS)
Project Negotiation expected by	September 2016
Bank funding	USD 350 Million (IBRD=USD 175 Million; GoI= USD 175 Million; (Total cost of project approved by CCEA is INR 3640 crore)
MoWR Scheme	Central Sector Scheme with 100% grant in aid for States.

III. Project Status and Readiness

¹ Mission Members Mmes/Messrs: Anju Gaur (Senior Water Resources Specialist and Task Team Leader); Chabungbam Rajagopal Singh (Co-TTL Water Resources Management Specialist); Satya Priya (Senior Water Resources Specialist); Tapas Paul and Pyush Dogra (Senior Environment Specialists); S. Krishnamurthy (Senior Financial Management Specialist); Arun Kolsur (Senior Procurement Specialist); Jorge Luis Alva-Luperdi (Senior Counsel, LEGES); and Jai Mansukhani (Program Assistant); World Bank Consultants: Anish Kumar Bansal, Samuel Thangaraj; and Hitesh Thakur.

3. The appraisal mission for the project was completed. Overall, the project has made substantial progress towards readiness. The key actions to be undertaken in advance of negotiations are summarized in the following table and comprise those actions which will ensure a timely implementation of the project.

Table 2: Key Actions Leading up to Negotiations

Actions to be completed by Implementing Agencies	Lead Agency	By when
1. MoA signed between the Ministry and implementing agencies	MoWR, RD&GR	October 15, 2016
2. Opening of Bank accounts	All IAs	Immediately
3. All PMUs for IAs are staffed with core staff	All IAs	Immediately
4. Project Operations Manual finalized	MoWR, RD&GR	Immediately
5. Key procurements are at advance stage:		
a. Issuance of RFPs for Technical and management Consultancy	MoWR, RD&GR	Immediately
b. Tender for empanelment of Hydromet equipment is floated	MoWR, RD&GR	Immediately

IV. Project Overview

4. MoWR, RD&GR and DEA have proposed to extend the innovative practices in flood mitigation and IWRM practices developed under the prior two phases of Hydrology project to the Ganga and Brahmaputra River basins. **The project development objective (PDO) is to improve the extent, quality, and accessibility of water resources information and to strengthen the capacity of selected water resources management institutions in India.** The cabinet committee for economic clearance has been obtained for INR 3,640 Crore (~USD 600 Million) as central sector scheme with 100% grant in aids to states. GoI is committed to the project through establishment of permanent National Water informatics center and plans to continue as program after the project. In order not to commit large amount, the proposed World Bank project would be USD 350 Million (IBRD=USD 175 Million and GoI=USD 175 million). Based on the performance of project and need during MTR/s, the opportunities for additional financing will be explored.

5. The project will be national in scope covering all the states/territories across India with eight participating central agencies and two river basin organizations. It was encouraging to note that both Ministry and states are adopting river basin approach to water resources management. The project will facilitate the approach by developing national standardization of water information systems, development and implementation of modelling tools and decision support platform for basin-scale flood forecasting, dynamic basin-scale water resource assessments and river basin planning. The Bank is fully committed to supporting this through facilitating access to global expertise.

6. The project is designed to minimize duplication in information generation and database management, which will reduce the financial burden on states and ensure sustainability beyond the life of the project. MoWR is working on establishing data integration and accessibility protocols for

IndiaWRIS² and centralized database management which would enable real-time data exchange among river basin entities. Major products from MoWR, RD&GR: DTM at 3 m resolution, Remote sensing products, Weather forecast, streamflow forecast and river basin water planning platform. Control system would at central server and state. The state would have access to their river basin information system.

7. The mission was pleased to note that majority (74%) of agencies are complying with the readiness of project including establishment of Project Management Units and preparation of key project documents (for details, refer to the project website <http://www.indiawrm.org/ProjectStatusDetails.aspx>).

8. The mission was also pleased to note that most agencies (excepting Tripura and Delhi) have submitted key documents including PIPs, Annual Work Plans and Procurement Plans. Further, it is noteworthy that 74 percent of state agencies have a core team in place for their Project Management Units and have been trained in proposed core project activities, including procurement and hydro-met systems³. Over the last two years, the Bank and Ministry have supported 12 training events (with a total of around 505 unique participants) to prepare project teams. More importantly, the exchange among old and new agencies within the project has assisted new states tremendously in project preparation.

V. PDO Level Results Indicators

9. The Project key results indicators are the following: a) Improving the extent, quality, and accessibility of water resources data: Number of new or upgraded water resources monitoring stations operated by implementing agencies providing validated data online; b) **Improving the accessibility of water resources information:** Number of information products produced under the project made available to the stakeholders; and c) **Strengthening capacity:** Number of water resources institutions achieving benchmark performance levels.

VI. Project Components

10. The project has four components and the details are provided in the draft Project Appraisal Document and Table 3. The component-wise allocation to each agency is provided on the project website (www.indiawrm.org). The lending instrument will be Investment Project Financing. Table 1 shows the project costs and financing share by component. The total project cost for stage 1 would be US\$350 million, evenly divided between the World Bank and the GOI.

Table 3. Project Cost and Financing (US\$, millions)

Component	Description	Project Cost	Financing Share
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² IndiaWRIS is a web enabled portal with geo-spatial and temporal information system. It is maintained by CWC (MOWR, RD&GR) with non-classified data available to public.

³ Hydromet system refers to the monitoring network of climate, surface water and groundwater and the associated management of data generated

			GOI	World Bank
A: Water Resources Monitoring Systems	Expand and upgrade water resources monitoring and data acquisition systems (including Real time systems) and data centers	150	75	75
B: Water Resources Information Systems	Develop and support National centralized database management and information systems, water resource data sets, including remotely sensed information; and strengthen state-WRIS.	50	25	25
C: Water Resources Operations and Planning Systems	Develop River basin platform in selected river basins for flood forecasting and reservoir operations, water resources planning and management etc.	66	33	33
D: Institutional Capacity Enhancement	Capacity building through establishing and supporting water resources data centers, trainings, and centers of excellence	84	42	42
Total		350	175	175

VII. Implementing Agencies

11. The project will cover all major river basins of India (Figure 1) and will require strong collaboration among central and state levels of government. As shown in Table 4, a total of 49 IAs have participated in preparation of which 21 agencies are new from 15 new states / UTs and two central agencies.

Table 4: Summary of implementing agencies

Implementing Agency – Type	Number		
	Continuing from HP II	New	Total
States	20	17	37
Union Territories	1	1	2
Central Agencies	6	2	8
River Basin Organizations	1	1	2
Total	28	21	49

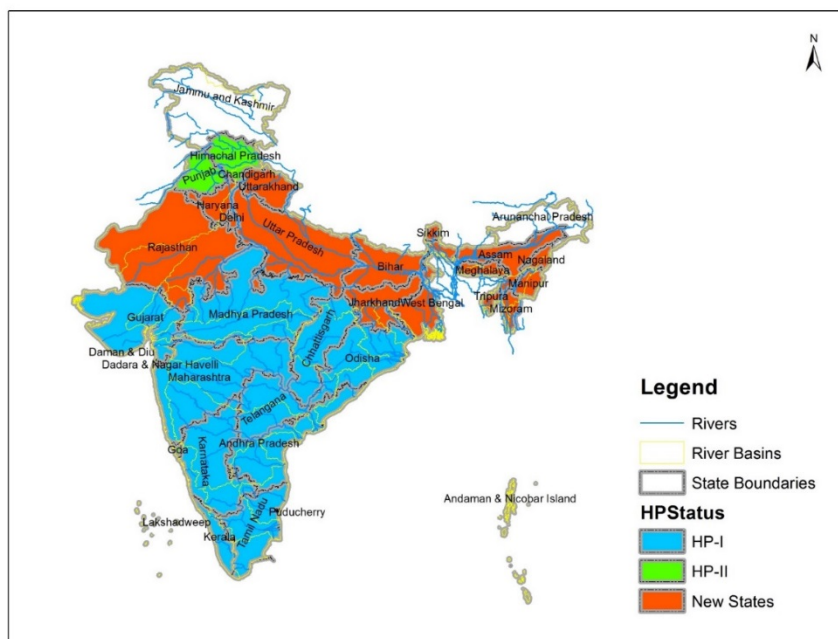


Figure 1: Implementing agencies and major river basins. (Map not to scale)

VIII. Implementation Arrangements

12. Implementation arrangements are based on the implementation model and lessons learned from HP-I and HP-II, where each state had one to two IAs. With the central-level IAs, this resulted in a total of 29 IAs under HP-II. The large number of IAs for the NHP is inevitable given (a) the GOI's decision to expand the geographical reach of earlier projects to cover virtually the entire nation; (b) the current institutional make-up described above (that is, with separate surface water and groundwater departments in some states); and (c) the federated structure of the GOI, where states have constitutional rights to manage water within their jurisdictions, while the central government's mandate is limited to a regulatory role and provision of technical support.

13. Consistent with the NHP's conceptualization as a national project covering the entire country, the MoWR, RD&GR is introducing the NHP as a 'central sector scheme', where funds will be allocated to the IAs as a grant from the central government. This is distinct from HP-I and HP-II, which were multistate loans and demonstrates the GOI's strong commitment to the objectives of the project.

14. Implementation responsibilities are distributed across the central and subnational IAs to maintain the balance and risk between centralized and state-based activities and minimize interdependence between the center and states while ensuring the integration and standardization of systems. All central and subnational IAs will be required to have project management units (PMUs), with a multidisciplinary team required to implement project activities. Each IA will be accountable for technical, fiduciary, safeguards, and monitoring and evaluation (M&E) aspects and will have designated trained experts to perform these functions. The eligibility to participate in the

project as an IA requires the establishment of a PMU, submission of detailed project implementation plans (PIPs) and signing of MoA.

15. The implementation setup and responsibilities are summarized below and detailed in annex 3. Figure 2 provides a schematic of the implementation arrangements.

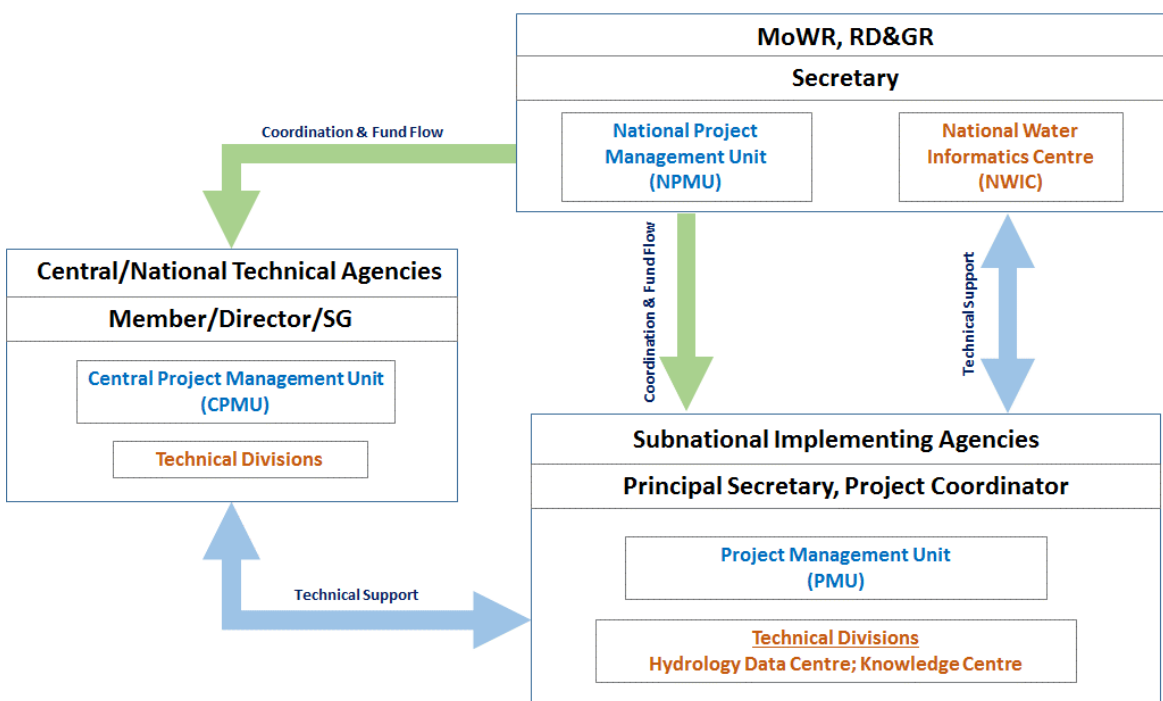


Figure 2. Project Implementation Arrangements

16. Majority of IAs have formed the PMUs who would be responsible for coordination with Ministry World Bank and compile the plans of various divisions. The agencies are also advised to work out the execution arrangements with concerned division/centers. Some sample models of AP and West Bengal for implementation arrangements at state levels have been shared on project website.

IX. Institutional Capacity Assessment

17. Of the total 39 state/UT IAs, 31 already have established hydrological monitoring; the six northeastern states (excepting Nagaland) are yet to establish hydrology divisions. The 21 HP2 IAs have appropriate institutional arrangements established but can further improve these and streamline implementation arrangements, particularly for irrigation/reservoir management. Amongst the 21 new agencies, 10 are familiar with World Bank procurement while 11 (primarily northeastern) will require familiarization. Nonetheless, the mission was highly impressed with the dedication of the northeastern states to the project – they have already nominated dedicated teams and have actively participated in project implementation training.

Table 5: Assessment of implementing agencies

Type of Agencies	Number	Agencies with existing Hydrological monitoring divisions*	Agencies familiar with Bank procurement	PMUs strengthened with core team
States	37	31	27	32
UT	2	1	1	1
Central agencies	8	5	8	6
RBO	2	2	2	2
Total	49	39	38	41
Percent of total		83* [34/41]	78	84

*Percent represent with respect to total state/UT/RBO agencies

18. Using World Bank technical assistance support, various learning and sharing workshops have been organized to familiarize IAs with global best practices and innovative tools through various workshops and trainings in particular on hydromet, groundwater surface and sub-surface geophysics, hydrological modelling and procurement. Since September 2014, 14 training events have been organized, with around 642 participants. Details on training events and participation are on the project website and are summarized in Table 6. Now MoWR, RD&GR has also organized two training recently.

Table 6: Type of training and number of participants

S. No.	Event Type	Category	Number of trainings	Number of participants
1	Training/workshop	Hydromet system	4	226
2	Training/workshop	Hydrological modeling	3	180
3	Training	Groundwater geophysics	4	112
4	Training	Procurement	3	124
Grand Total			14	642

19. The implementing agencies have initiated discussions with participating states and central agencies on project design and operation. Project consultations have evolved as a technology-driven platform (WhatsApp and email) for information exchange, coordination and consultation. New project states have been linked with prior HP states to provide project preparation advice, provide 'peer to peer' technical assistance and support exchange meetings. The cooperation of HP2 states and West Bengal is particularly appreciated for hosting trainings and visits and providing guidance during visits to new states. The mission encourages IAs to continue these exchanges.

X. Status of project readiness

20. Table 7 below and Annexures 2 summarize the status of readiness (using DEA criteria) in terms of strengthening of PMU and key procurements. More than 80 percent sub-national agencies have already constituted the PMU strengthened with core team and have shown their capacity to be “satisfactory” based on the assessment of mission considering: (i) PIP preparation, (ii) capacity of staff working on the project, (iii) status of PMU, and (iv) procurement capacity.

Table 7: The assessment of agencies for implementation readiness

Type of Agencies	Number	PMUs strengthened with core team	Institutions who have capacity to implement the project	18 Months AWP & PP	PIP in completion Stage
States	37	32	30	32	35
UT	2	1	1	1	1
Central agencies	8	6	5	5	6
RBO	2	2	2	2	2
Total	49	41	38	40	44
Percent of total		84	78	82	90

21. A total of more than 84 percent sub-national IAs have demonstrated preparation with the creation of PMU by deploying their core team. Several agencies have submitted their Annual Work Plan and Procurement Plan and also have bid documents ready for processing. If the retroactive financing will be allowed by MoWR, RD&GR, they could start tendering.

22. Majority of the procurements in states are small and there are only three major procurements at central level. Therefore procurement needed for readiness is the responsibility of central agencies – including empanelment of hydromet equipment and procurement of technical and management consultancy. HP II agencies have prepared bid documents for hydromet/SCADA equipment, while others, particularly new agencies, have prepared for buildings such as the data center. It is estimated that bid documents for around INR 30 Crore have been prepared for hydromet equipment (Table 8). The IT equipment would be primarily procured through DGS&D.

Table 8: Major procurement required for DEA readiness of project prior to negotiation of project

Agency	Type	Value (Crore)	Status
MoWR/ CWC	Empanelment of Hydromet equipment	600	Tender to be issued by Aug 10 and ready with the recommendation by Oct 15, 2016.
States	Hydromet and SCADA	66	50 % of bids document are almost ready.
States (6)	Data centers (Bldg)	200	Some states have identified the government land and started

			preparing building plan.
Total		866	
Consultancies			
MoWR	Technical and management consultancy	100	RFP to be issued to shortlisted firms by Aug 20, 2016
CWC	River basin Planning and management	100	TOR in draft stage and will take time. As it requires consultation with the states.
Total		200	

XI. MIS and Monitoring and Learning

23. Building on systems and experiences under HP-I and HP-II, a results-based M&E system will be set up before the start of project implementation. The system will do the following:

- Track implementation progress against the PIP and the agreed annual work programs.
- Track results against the agreed project results framework to measure overall results at the national level for the project as a whole and disaggregated at the level of each IA and state.
- Track the performance of each IA and state, based on progress toward the agreed results and on implementation progress.
- Carry out three major assessments of project performance, results, and emerging impacts, as inputs to the two proposed midterm reviews (MTRs) (year 3 and year 5) and to the Implementation Completion and Results Report at the end of the project implementation period (year 8).

24. The result framework is attached in Annexure 2 and the rating criteria for Institution benchmarking and water data center are further developed in excel and are shared on website for trial.

25. The MIS system for physical monitoring the preparation and physical progress is already developed. It has been highly useful to compile the PIP and monitor readiness of project (www.indiawrm.org). Similarly the monitoring tools are being developed for various indicators which has introduced healthy competition.

XII. Financial management

26. The FM arrangements were confirmed with the client. This would be a Central sector scheme funded 100% by the central government. A budget head along with allocation has been done by the Central Government. The fund flow issue was discussed in detail and the option of transferring to the nodal agency bank account was agreed by the client. Project funds would be transferred as grants to the state implementing agencies. To facilitate this transfer, the implementing agencies would be required to open a bank account in the name of the nodal officer/SPMU head⁴ so that these amounts could be received and expended. The states/UTs are required to open bank

⁴ The person who will operate the bank account would be designated by the state.

accounts by negotiation, and this needs to be authorized by their finance department. MoWR, RD&GR has issued an overall Government Order/s (GO) outlining the mechanism and detailed guidelines are outlined in the FM manual. The FM Manual has been discussed and agreed during appraisal. The IUFRR formats has been designed and discussed during appraisal. The audit arrangements have been discussed and firmed up during appraisal. The external audit TOR has been developed and would be agreed during negotiations, while the internal audit TOR would be developed during the first year of project to have flexibility in designing the TOR as per the needs of the project. Disbursements will be based on interim unaudited financial reports (IUFRRs). The MoWR, RD&GR will submit one consolidated IUFRR within 60 days from the end of each half year, which will form the basis of disbursement from the World Bank. There will be a single disbursement category with 50 percent disbursement for all expenditures. The key action to be completed by negotiations from FM view point is the opening of bank accounts by States/UTs and agreeing to the fund flow mechanism suggested by MOWR.

XIII. Procurement

27. **Procurement Arrangements:** All 49 IAs would be responsible for carrying out procurement under the project. There are 20 IAs which are new entities and were not part of the earlier hydrology project, and most of them have no prior experience of carrying out procurement under Bank funded projects.

28. **Procurement Capacity Assessment:** The procurement capacity assessment on a sample of the IAs has been carried out. The mission interacted with central and state level implementing agencies. The large number of agencies with varying procurement capacities poses a huge challenge, and there is a need to come up with a good and workable procurement strategy for the project. The list of equipment and systems to be procured by the states / IAs were reviewed. The Procurement arrangements and strategy developed for the project was discussed with the IAs.

29. It was agreed that due to the weak procurement capacity, a number of procurement workshops would be conducted to provide a detailed overview of the Bank's procurement guidelines and policies, standard bidding documents and the provisions etc that would have to be followed under the Bank funded project. It was agreed, that the Bank team would organize procurement workshops for the officials of the north eastern states on a priority basis followed by workshops in other regions.

30. **E-procurement system:** Procurement under the project would need to be carried out using e-procurement systems which have been assessed by the Bank and approved for use under Bank funded projects. Most of the IAs's e-procurement systems have been assessed and approved for use. However, there are a few IAs whose e-procurement system assessment has not been carried out, the IA were requested to submit the details of the system/ platform and service provider, so that the process of assessment can be initiated and completed at the earliest. .

31. **Procurement Plan and Readiness:** During the mission detailed discussions and deliberations were held with officials of MoWR and the IAs on the draft procurement plans. The IAs need to finalize the procurement plans of at least the first 18 months, and these need to be shared with the Bank for review at the earliest and prior to negotiations. This would also assist the Bank team to gauge the readiness of the project with regards to procurement, and how much it meets the DEA readiness filter.

32. The Technical and Management Consultant (TAMC) to be hired by MOWR, has been initiated with the issue of the Expression of interest. The Bank team requested that priority be given to this large and critical procurement, by preparing the short list and the Draft RFP. The above need to be shared with the Bank for review at the earliest. The TAMC selection is a critical for project implementation and hence this selection and ready to be awarded at the earliest, but prior to negotiations.
33. The procurement of Hydromet equipment (empanelment) has been initiated and it was agreed that needs to be completed by October / November 2016.
34. **Procurement Manual:** The guidelines, examples and standard bid documents are available on project websites. The MoWR needs to compile it and finalize the procurement manual (part of Operation Manual) and this should be submitted to the Bank at the earliest and approved by the Bank prior to negotiations.
35. The mission discussed and identified the critical procurements such as empanelment of hydro met equipment, TAMC etc need to be completed for meeting the DEA readiness filter.

XIV. Social (including Safeguards)

36. The project is not expected to have adverse impacts, and it does not trigger social safeguard policies on Indigenous Peoples and Involuntary Resettlement. The project will cover modernization of existing and expansion of hydrology monitoring stations, laboratories in existing buildings, or on government-owned land, free of any encumbrances. New hydromet stations would be predominantly installed in the northeastern states while other states would largely upgrade the existing ones. Hydromet sensors for river flow measurement will be located very close to the river bed, on public land that is free from any use. For each installation in the project where land is required (even if public), a formal and transparent screening will be undertaken to determine and certify that such land is free from encroachment and private use. In very rare and exceptional cases, where government-owned sites are not available, small (approximately, 5 m²) equipment rooms could be built on private land after leasing from landowner for a mutually agreed lease rent. The terms and conditions for lease will be clearly explained to landowners before signing of mutually agreed lease. If required, a family member of the landowner could be appointed as a watchperson to take care of the facility. The process of agreement of landowners for such a lease will be clearly and fully documented before installation of any equipment. At the end of the first year of implementation, the process of installation of equipment on public (and the exceptional cases of private) land will be evaluated. In the unlikely event of issues noticed during this evaluation, appropriate mitigation plans will be prepared, including if required, relocation of the installed monitoring equipment.

XV. Environment (including Safeguards)

37. The project triggers OP/BP 4.01 as it might cause minor potential environmental impacts arising from implementation of Components A and C. Component A, which will set up monitoring stations, data centers, and associated facilities and infrastructure, may have minor construction-related environmental impacts.

38. The borrower has prepared an Environmental Assessment (EA) which identifies multiple enhancement opportunities in the project and proposes ways of mitigating small negative impacts. Construction-related impacts will be managed by application of National Building Codes in designing and construction of the small buildings and careful in situ disposal of all construction wastes. The EA, including its Executive Summary, was disclosed in-country on June 16, 2016 and in the World Bank InfoShop on June 29, 2016, and can be accessed from the website of the ministry (www.mowr.nic.in) and www.indiawrm.org.

39. Overall, the project will contribute to sustainable environmental management in India and will build capacity in environmental management. Greater use of hydrological models and analytical tools based on improved data will help incorporate mainstream environmental concerns into water resources planning and management. Project investments will make it easier to collect information on environmental impacts, identify issues, and implement measures aimed at diminishing adverse effects and enhancing positive ones.

List of Annexures

S. No.	Annexure
1.	Simplified Result Framework
2.	Readiness of Implementing agencies

Annexure 1 a: Simplified Result Framework

S. No.	Indicator Name	Baseline	End Target
1	Water resources monitoring stations operated by implementing agencies providing validated data online (Number)	1,500	7,500
1.a	-Surface water stations (Number - Sub-Type: Breakdown)	100	1,000
1.b	-Groundwater station (Number - Sub-Type: Breakdown)	1,000	5,000
1.c	-Meteorology stations (Number - Sub-Type: Breakdown)	500	1,500
2	Information products produced under the project made available to the stakeholders (Number)	5	50
3	Water resources institutions achieving benchmark performance levels (Number)	10	25
Intermediate indicators			
1	Beneficiaries that feel project investments provided services satisfactorily (Percentage)	0	50
2	Water data centers functioning satisfactorily (Number)	10	20
3	Annual increase in number of page views (Percentage)	5	10
4	River sub-basins publishing water availability report regularly (Number)	3	30
5	Critical streamflow forecasting stations with improved lead time (Number)	200	400
6	Flood risk area benefited from advanced flood forecasting and management (square kilometer)	40,000	100,000
7	Targeted professionals trained (Number)	0	2,000

Annexure 1b: Scoring criteria for Institutional Benchmarking

					Maks Obtained=	75.3		
	Indicator			Maximum Marks	Description	Scoring Criteria		
A. Institutional Setup (25)								
1	Divisions							
	a	Do you have Dedicated Hydrology Division?		Yes <input type="checkbox"/>	4	Hydrology division / monitoring cell etc	Full marks for yes, zero for no	
	b	Do you have access to Modern Training facilities?		Yes <input type="checkbox"/>	3	Either inhouse or regular collaboration with training institute / academic institutes etc	Full marks for yes, zero for no	
	c	Do you have cell for Water Resources Modelling		Yes <input type="checkbox"/>	3	Flood center, knowledge center or design centers will qualify	Full marks for yes, zero for no	
	d	State's own annual investment for project related activities			5	Measures the commitment of state towards O&M and continuation of project	Ratio of allocated Vs average annual allocation under NHP *5.	
2	Staff in Place							
	a	Percent of required staff in place			5	Percentage of staff (regular or contractual) in place w.r.t. minimum required	Marks obtained = Percentage multiplied with maximum marks	
			Current	Minimum required				
		Number of Officials assigned to Hydro-meteorological monitoring	2	4		Minimum required would be based on size of state / number of sub basins in state		
		Number of officials practicing Surface Water Modelling	3	6		Minimum required would be based on size of state / number of sub basins in state		
		Number of officials practicing Groundwater Modelling	2	5		Minimum required would be based on size of state / number of sub basins in state		
		Number of officials practicing inflow forecasting	2	5		Minimum required would be based on size of state / number of sub basins in state		
		Total	9	20				
	b	Percentage of staff "devoted" to project			5			
		No of above staff not transferred during last three years	4			To make sure continuity of the system, staff should stay with project for atleast three years	Marks obtained = Percentage multiplied with maximum marks	
B. Training (25)								
1	Training Courses				10	The target is decided based on size of state and number of sub-basins in state	Ratio of training courses Vs Target, multiplied by full marks	
	a	[tentative list, can be added / deleted]	Number of Courses	Target				
		Climate Forecast	2	3				
		IWRM and planning	1	4				
		Database management	1	5				
		Irrigation planning	1	3				
		Hydrological and hydraulic modelling	1	2				
		Geo-physical mapping	1	2				
		Groundwater modelling	1	2				
		Total	8	21				
	b	Do you have web learning system / online training modules?			Yes <input type="checkbox"/>	5	Availability of / accessibility to online training modules / web learning courses	Full marks for yes, zero for no
2	Staff Trained							
	a	Percentage of staff trained			10	The target is decided based on size of state and number of sub-basins in state	Ratio of Staff trained Vs minimum required, multiplied by full marks	
			Number of People	Minimum Required				
		Surface water management and modelling	1	4				
		Groundwater management and modelling	2	4				
		Hydro-meteorological monitoring	1	3				
		Total	4	11				

C. Outcomes (50)						
1	Products (25)					
	a	Do you provide Reservoir Storage report on regular basis?	Yes	5	Storage report at required time interval say monthly or weekly	Full marks for yes, zero for no
	b	Do you publish periodic groundwater assessment?	Yes	5	Groundwater availability report at required time interval say monthly	Full marks for yes, zero for no
	c	Do you publish River Basin Atlas for your basins?	Yes	5	Online or Print Atlas, updated at required interval say five years	Full marks for yes, zero for no
	d	Any products Developed for specific purpose?	Yes	5	Specific products (atleast 2)like Irrigation schedule, crop water requirement etc.	Full marks for yes, zero for no
	e	Any Products Upscaled for National system?	Yes	5	If any product is developed for state but upgraded to national scale	Full marks for yes, zero for no
2	Services (25)					
	a	River Basin Assessment system		10	Regular river basin assessment including water balance updated atleast after 2 years	Ratio of number of sub basins where system is developed vs total sub basins multiplied by full marks
		Number of sub-basins where river basin assessment system is setup	2			
		Total number of sub-basins in the state	6			
	b	Inflow / Flood forecasting system		15		
		Do you have flood forecasting system?	Yes	1	1	Functional forecasting system during flood
		Is the forecasting based on Modelling?	Yes	1	1	Based on Hydraulic / Hydrologic modelling or travel time from gauge to gauge correlation
		Do you use Climate forecast for Flood forecasting?	Yes	1	1	Use of Quantitative Precipitation forecast along with hydrological modelling
		Do you use dissemination tools like sms email for flood warning?	Yes	1	1	Automatic system for dissemination of flood information / inundation area
		Are you providing flood warning to Distt /disaster Authorities etc?	Yes	1	1	Automatic connectivity of information dissemination with response authorities
Grand Total				100		

Annexure 2: Summary of agency wise readiness

Percent of agencies with satisfactory progress		80	82	80	41	94	84	82	82	16	80	69
Code	Implementing Agency	Over All Readiness	Office Order for PMU	PMU staff on board	Bid Document	PIP Cost Table	PIP Writeup	Procurement Plan	Annual Work Plan	Bank Account Opened	Fin.Assessment Form	Training Need Assessment
1011	Andhra Pradesh (GW)	90	10	10	20	10	10	10	10	0	5	5
1012	Andhra Pradesh (SW)	70	10	10	0	10	10	10	10	0	5	5
1023	Assam	27	0	2	0	10	0	0	10	0	5	0
1031	Bihar (GW)	35	10	10	0	10	0	0	0	0	0	5
1032	Bihar (SW)	100	10	10	20	10	10	10	10	10	5	5
1041	Chattisgarh (GW)	80	0	10	20	10	10	10	10	0	5	5
1042	Chattisgarh (SW)	80	0	10	20	10	10	10	10	0	5	5
1053	Goa	61	10	6	0	10	10	10	10	0	5	0
1061	Gujarat (GW)	70	10	10	0	10	10	10	10	0	5	5
1062	Gujarat (SW)	70	10	10	0	10	10	10	10	0	5	5
1072	Haryana	66	10	6	0	10	10	10	10	0	5	5
1083	Himachal Pradesh	70	10	10	0	10	10	10	10	0	5	5
1093	Jharkhand	40	0	0	0	10	10	10	10	0	0	0
1102	Karnataka	90	10	10	20	10	10	10	10	0	5	5
1111	Kerala (GW)	90	10	10	20	10	10	10	10	0	5	5
1112	Kerala (SW)	90	10	10	20	10	10	10	10	0	5	5
1123	Madhya Pradesh	70	10	10	0	10	10	10	10	0	5	5
1131	Maharashtra (GW)	55	0	10	0	10	10	10	10	0	5	0
1132	Maharashtra (SW)	90	10	10	20	10	10	10	10	0	5	5
1143	Manipur	70	10	10	0	10	10	10	10	0	5	5
1153	Meghalaya	65	10	10	0	10	10	10	10	0	5	0
1163	Mizoram	70	10	10	0	10	10	10	10	0	5	5
1173	Nagaland	70	10	10	0	10	10	10	10	0	5	5
1181	Odisha (GW)	70	10	10	0	10	10	10	10	0	5	5

Percent of agencies with satisfactory progress		80	82	80	41	94	84	82	82	16	80	69
Code	Implementing Agency	Over All Readiness	Office Order for PMU	PMU staff on board	Bid Document	PIP Cost Table	PIP Writeup	Procurement Plan	Annual Work Plan	Bank Account Opened	Fin.Asessment Form	Training Need Assessment
1182	Odisha (SW)	90	10	10	20	10	10	10	10	0	5	5
1193	Punjab	90	10	10	20	10	10	10	10	0	5	5
1203	Rajasthan	90	10	10	20	10	10	10	10	0	5	5
1213	Sikkim	80	10	10	0	10	10	10	10	10	5	5
1223	Tamil Nadu	60	10	10	0	10	10	10	0	0	5	5
1231	Telangana (GW)	90	10	10	20	10	10	10	10	0	5	5
1232	Telangana (SW)	70	10	10	0	10	10	10	10	0	5	5
1241	Tripura	0	0	0	0	0	0	0	0	0	0	0
1251	Uttar Pradesh(GW)	50	10	10	0	10	0	10	10	0	0	0
1252	Uttar Pradesh (SW)	76	10	6	20	10	10	10	10	0	0	0
1263	Uttarakhand	90	10	10	20	10	10	10	10	0	5	5
1271	West Bengal (GW)	30	10	10	0	10	0	0	0	0	0	0
1272	West Bengal (SW)	90	10	10	20	10	10	10	10	0	5	5
2053	Delhi	0	0	0	0	0	0	0	0	0	0	0
2073	Puducherry	65	10	10	0	10	10	10	10	0	5	0
3013	MOWR	70	10	10	20	0	10	0	0	10	5	5
3023	CWC	100	10	10	20	10	10	10	10	10	5	5
3033	CGWB	75	10	10	0	10	10	10	10	10	5	0
3043	NIH	80	10	10	0	10	10	10	10	10	5	5
3053	CWPRS	100	10	10	20	10	10	10	10	10	5	5
3063	CPCB	22	10	2	0	10	0	0	0	0	0	0
3093	SOI	16	0	6	0	10	0	0	0	0	0	0
3103	NRSC	20	0	0	0	10	10	0	0	0	0	0
4013	BBMB	100	10	10	20	10	10	10	10	10	5	5
4023	DVC	90	10	10	20	10	10	10	10	0	5	5