

GOVERNMENT OF INDIA
MINISTRY OF WATER RESOURCES,
RIVER DEVELOPMENT & GANGA REJUVENATION
LOK SABHA
UNSTARRED QUESTION NO. †1750
ANSWERED ON 28.12.2017

DEVELOPMENT OF WATER CIRCUITS

†1750. SHRI VINAYAK BHAURAO RAUT DR. PRITAM GOPINATH MUNDE
DR. SHRIKANT EKNATH SHINDE SHRI DHARMENDRA YADAV
SHRI ADHALRAO PATIL SHIVAJIRAO

Will the Minister of WATER RESOURCES, RIVER DEVELOPMENT AND GANGA REJUVENATION be pleased to state:

- (a) whether interlinking of rivers, construction of barrage, dams/rubber dams, drip and piped irrigation are required for cost efficient irrigation and if so, the details thereof;
- (b) whether the Government is considering for interlinking of rivers, construction of barrage, dams/rubber dams, drip and piped irrigation in the country and if so, the details in this regard;
- (c) whether the Government proposes to develop water circuits on the lines of power circuits for better water conservation and if so, the details in this regard along with the manner in which the said circuits are likely to be useful;
- (d) whether the Government is aware that as per a survey conducted under the National Aquifer Mapping Programme, the ground water level has gone down drastically in several areas and per capita availability of water is also declining; and
- (e) if so, the details thereof along with the steps taken to address the said problem?

ANSWER

THE MINISTER OF STATE FOR WATER RESOURCES, RIVER DEVELOPMENT AND GANGA REJUVENATION & PARLIAMENTARY AFFAIRS

(SHRI ARJUN RAM MEGHWAL)

(a) & (b) The National Perspective Plan (NPP) was prepared by the then Ministry of Irrigation, now Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR, RD & GR) in August 1980 for water resources development through inter basin transfer of water, for transferring water from water surplus basins to water-deficit basins. Under the NPP, the National Water Development Agency (NWDA) has identified 30 links (16 under Peninsular Component & 14 under Himalayan Component) for preparation of Feasibility Reports. The Pre-Feasibility Report of the all 30 links have been prepared and circulated to the concerned State Governments by the NWDA. After survey and investigations, Feasibility Reports of 14 links under Peninsular Component and Feasibility Reports of 2 links and draft Feasibility Reports of 7 links (Indian portion) under Himalayan Component have been completed. Present status, States concerned with Inter Basin Water Transfer Links are given in **Annexure-I**.

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Four priority links under Peninsular Rivers Component have been identified for preparation of Detailed Project Reports (DPR) viz; Ken-Betwa link project (KBLP) Phase –I & II, Damanganga-Pinjal link project, Par-Tapi-Narmada link project and Mahanadi-Godavari link project. The preparation of DPR of a project is taken up only after consent of concerned State Governments. Based on the concurrence of the concerned States, DPRs of KBLP Phase-I & Phase-II, Damanganga-Pinjal link project and Par-Tapi-Narmada link project have been completed. The techno-economic clearance and various statutory clearances of the KBLP Phase-I have been accorded. The techno-economic clearance of the Damanganga-Pinjal link project has also been accorded subject to statutory clearances. The DPR of Par-Tapi-Narmada link project has been submitted for technical appraisal in Central Water Commission. The DPR of the Mahanadi – Godavari link could not be taken up as the Government of Odisha was not agreeable for Mahanadi – Godavari link, a mother link of 9 link system viz., Mahanadi – Godavari – Krishna – Pennar – Palar – Cauvery – Vaigai – Gundar linkage due to large submergence involved in Manibhadra Dam. Based on the suggestions of WRD, Govt. of Odisha, NWDA has prepared a preliminary revised proposal of Mahanadi- Godavari Link Project with reduced submergence and submitted to the State Govt. of Odisha for consideration.

Water being a subject in the State List at entry 17 of List II in 7th Schedule of the Constitution (Article 246 refers), the development of water resources by constructing dams & barrages etc. thus falls in the ambit of respective State Governments and as such the planning, execution, operation and maintenance of water resources projects are to be carried out by the States from their own resources as per their priorities.

Central Water Commission (CWC) is providing technical assistance to the States for planning & execution of the schemes. Schemes proposed by the States Governments for inclusion in their state plan are also appraised in CWC for their techno economic viability.

Further, in respect of drip and piped irrigation, “Guidelines for Preparation of Detailed Project Report of Irrigation & Multipurpose Projects, 2010” a publication of MoWR, RD & GR promotes introduction of modern technology like sprinkler, drip irrigation etc. while preparing the Detailed Project Reports (DPRs) by the concerned State Governments. Further, CWC/ MoWR, RD & GR has also brought out the publication named “Guidelines for Planning and Design of Piped Irrigation Network” in July, 2017 with the aim of improving the irrigation efficiency and addressing the land acquisition issues. Both reports are accessible at the CWC website.

Use of pressurised pipe system and micro irrigation in the command is envisaged to achieve maximum efficiency in water applications, which will result in coverage of larger areas bridging the gap between Irrigation Potential Created and Irrigation Potential Utilized. Use of underground pressurised pipe systems with outlets in place of field channels to obviate wastage of farm land and efficient use of water is one of the mission objectives of Pradhan Mantri Krishi Sinchayee Yojna.

(c) There is no proposal for development of water circuits on the lines of power circuits under consideration of this Ministry.

(d) & (e) National Aquifer Mapping and Management Programme has been taken up as a part of the ‘Ground Water Management and Regulation’ scheme with an overall objective of proper assessment

and management to ensure sustainability of ground water resources. Under Ground Water Management and Regulation Scheme, Central Ground Water Board (CGWB) carries out ground water monitoring, four times a year, on regional scale through a network of about 23000 observation wells in the Country. In order to assess the decline in water level on a long term basis, pre-monsoon water level data collected by CGWB during pre-monsoon 2017 has been compared with the decadal average (2007-2016). The tabular statement of state wise details is given in **Annexure-II**. The analysis of water level data indicates that about 61% of the wells monitored have registered decline in ground water levels, mostly in the range of 0 – 2 m. Decline of more than 4 m has also been observed in pockets of most of the States/ UTs except Arunachal Pradesh, Goa, Meghalaya, and Tripura.

Ground water resource assessment of the country is periodically carried out jointly by CGWB and State Governments. As per latest assessment (2013), the annual replenishable ground water resource of the country is 447 billion cubic meter (BCM) and the net annual ground water availability is 411 BCM. The annual ground water draft (utilization) is 253 BCM. The stage of ground water development which is the ratio of annual ground water draft and net ground water availability is 62%. The ground water utilization pattern is variable across the country. Out of 6584 assessment units in the country, 1034 assessment units are categorized as “Over-exploited”, where stage of ground water development is more than 100% and there is significant decline in water level and 253 are “Critical”, where stage of ground water development is between 90% and 100% and there is significant decline in water level.

Government is taking several measures to address the issue of declining water levels in the country, mainly through efforts to regulate overexploitation and to promote water conservation, rainwater harvesting and artificial recharge to ground water in the States. Steps taken to control the decline in ground water level include-

- Government had constituted the Central Ground Water Authority (CGWA) vide Notification No. S.O. 38(E) dated 14.1.1997 under the Environment (Protection) Act, 1986, to regulate and control, management and development of ground water in the country and to issue necessary regulatory directions. CGWA has so far ‘Notified’ 162 areas for ground water regulation and management.
- CGWA has issued advisories to States and UTs to take measures to promote/adopt artificial recharge to ground water/rain water harvesting. 30 States/UTs have made roof-top rain water harvesting mandatory by enacting laws or by formulating rules & regulations or by including provisions in Building bye-laws or through suitable Government Orders.
- The National Water Policy (2012) has been formulated by MoWR, RD & GR which, inter-alia, advocates rain water harvesting and conservation of water and highlights the need for augmenting the availability of water through direct use of rainfall. The National Water Policy also advocates recycling of canal seepage water through conjunctive ground water use. The National Water Policy has been circulated to all States and UTs for facilitating the formulation of similar policies in respective States/ UTs.

- Water being a State subject, MoWR, RD & GR has circulated a Model Bill to all the States/UTs to enable them to enact suitable ground water legislation for its regulation and development, which includes provision of rain water harvesting. So far, 15 States/UTs have adopted and implemented the ground water legislation on the lines of Model bill.
- CGWB has prepared a conceptual document titled “Master Plan for Artificial Recharge to Ground Water” - 2013 which provides information about area specific artificial recharge techniques including roof-top rainwater harvesting in urban areas to augment the ground water resources based on the availability of source water and capability of subsurface formations to accommodate it. This Master Plan has been placed on the website of CGWB. Copies of this Master plan have been circulated to the State Governments for its implementation.
- CGWB is carrying out training programs and information, education and communication (IEC) activities for capacity building and to awareness creation among stakeholders on the importance of water conservation and rainwater harvesting in augmenting the ground water resources.
- Ministry of Urban Development has circulated its Model Building Bye-Laws (2016) to all State Governments which, inter-alia, incorporates provisions for rain water harvesting. Atal Mission for Rejuvenation and Urban Transformation (AMRUT) mandates the States to formulate a policy and action plan for having rain water harvesting structures in all commercial, public and new buildings on plots of 300 sq.m and above.
- Water conservation and water harvesting are among the prime focus areas of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). Department of Land Resources and Ministry of Drinking Water and Sanitation also take up water conservation and rain water harvesting as part of their schemes. CGWB has shared the list of over-exploited and critical assessment units with MGNREGS so as to enable focusing of water harvesting components of the schemes in these areas. Designs of artificial recharge structures which can be implemented under MGNREGS have been provided to the Ministry of Rural Development. CGWB has carried out Training Need Analysis (TNA) of MGNREGS personnel with regard to studies required for site selection for rainwater harvesting / water conservation structures.

ANNEXURE-I

Annexure referred to in reply to part (a) & (b) of Unstarred Question No. †1750 to be answered in Lok Sabha on 28.12.2017 regarding “Development of Water Circuits”.

Present status of Inter Basin Water Transfer Links, the States involved, name of rivers and status of Feasibility Reports/Detailed Project Report

Sl. No	Name	Rivers	States concerned	Status
Peninsular Component				
1	Mahanadi (Manibhadra) - Godavari (Dowlaiswaram) link	Mahanadi & Godavari	Odisha, Maharashtra, Andhra Pradesh, Karnataka, & Chattisgarh	FR Completed
2	Godavari (Inchampalli) - Krishna (Pulichintala) link	Godavari & Krishna	-do-	FR Completed
3	Godavari (Inchampalli) - Krishna (Nagarjunasagar) link	Godavari & Krishna	Odisha, Maharashtra, Madhya Pradesh, Andhra Pradesh, Karnataka & Chattisgarh,	FR Completed
4	Godavari (Polavaram) - Krishna (Vijayawada) link	Godavari & Krishna	Odisha, Maharashtra, Andhra Pradesh, Karnataka, & Chattisgarh	FR Completed
5	Krishna (Almatti) – Pennar link	Krishna & Pennar	-do-	FR Completed
6	Krishna (Srisailem) – Pennar link	Krishna & Pennar	-do-	FR Completed
7	Krishna (Nagarjunasagar) - Pennar (Somasila) link	Krishna & Pennar	Maharashtra, Andhra Pradesh & Karnataka,	FR Completed
8	Pennar (Somasila) - Cauvery (Grand Anicut) link	Pennar & Cauvery	Andhra Pradesh, Karnataka, Tamil Nadu, Kerala & Puducherry	FR Completed
9	Cauvery (Kattalai) - Vaigai -Gundar link	Cauvery, Vaigai & Gundar	Karnataka, Tamil Nadu, Kerala & Puducherry	FR Completed
10	Ken-Betwa link	Ken & Betwa	Uttar Pradesh & Madhya Pradesh	FR & DPR (Ph-I&II) Completed
11	Parbati -Kalisindh-Chambal link	Parbati, Kalisindh & Chambal	Madhya Pradesh, Rajasthan & Uttar Pradesh (UP requested to be consulted during consensus building)	FR Completed
12	Par-Tapi-Narmada link	Par, Tapi & Narmada	Maharashtra & Gujarat	FR & DPR Completed
13	Damanganga - Pinjal link	Damanganga & Pinjal	Maharashtra & Gujarat	FR & DPR Completed
14	Bedti - Varda link	Bedti & Varda	Maharashtra, Andhra Pradesh & Karnataka	PFR Completed
15	Netravati – Hemavati link	Netravati & Hemavati	Karnataka, Tamil Nadu & Kerala	PFR Completed
16	Pamba - Achankovil - Vaippar link	Pamba, Achankovil & Vaippar	Kerala & Tamil Nadu,	FR Completed
Himalayan Component				
1.	Manas-Sankosh-Tista-Ganga (M-S-T-G) link	Manas-Sankosh-Tista-Ganga	Assam, West Bengal, Bihar& Bhutan	PFR completed
2.	Kosi-Ghaghra link	Kosi &	Bihar , Uttar Pradesh &	PFR completed

Sl. No	Name	Rivers	States concerned	Status
		Ghaghra	Nepal	
3.	Gandak-Ganga link	Gandak & Ganga	-do-	Draft FR completed (Indian portion)
4.	Ghaghra-Yamuna link	Ghaghra & Yamuna	-do-	FR completed (Indian portion)
5.	Sarda-Yamuna link	Sarda & Yamuna	Bihar, Uttar Pradesh, Haryana, Rajasthan, Uttarakhand & Nepal	FR completed (Indian portion)
6.	Yamuna-Rajasthan link	Yamuna & Sukri	Uttar Pradesh, Gujarat, Haryana & Rajasthan	Draft FR completed
7.	Rajasthan-Sabarmati link	Sabarmati	-do-	Draft FR completed
8.	Chunar-Sone Barrage link	Ganga & Sone	Bihar & Uttar Pradesh	Draft FR completed
9.	Sone Dam – Southern Tributaries of Ganga link	Sone & Badua	Bihar & Jharkhand	PFR completed
10.	Ganga(Farakka)-Damodar-Subernarekha link	Ganga, Damodar & Subernarekha	West Bengal, Odisha & Jharkhand	Draft FR completed
11.	Subernarekha-Mahanadi link	Subernarekha & Mahanadi	West Bengal & Odisha	Draft FR Completed
12.	Kosi-Mechi link	Kosi & Mechi	Bihar , West Bengal & Nepal	PFR completed Entirely lies in Nepal
13.	Ganga (Farakka)-Sunderbans link	Ganga & Ichhamati	West Bengal	Draft FR completed
14.	Jogighopa-Tista-Farakka link (Alternative to M-S-T-G)	Manas, Tista & Ganga	-do-	(Alternative to M-S-T-G Link) dropped

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

Annexure referred to in reply to part (d) & (e) of Unstarred Question No. †1750 to be answered in Lok Sabha on 28.12.2017 regarding Development of Water Circuits.

State-wise Decadal Water Level Fluctuation with Mean [Pre-monsoon (2007 to 2016)] and Pre-monsoon 2017

S. No.	Name of State	No. of wells Analy-sed	Range in m				Rise						Fall						Rise		Fall		Wells showing no change	
			Rise		Fall		0-2 m		2-4 m		>4 m		0-2 m		2-4 m		>4 m		No	%	No	%	No	%
			Min	Max	Min	Max	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
1	Andhra Pradesh	751	0.01	11.25	0.02	10.79	153	20.4	19	2.5	12	1.6	399	53.1	104	13.8	60	8.0	184	25	563	75	4	0.5
2	Arunachal Pradesh	12	0.32	11.28	0.68	1.2	7	58.3	1	8.3	1	8.3	3	25.0	0	0.0	0	0.0	9	75	3	25	0	0.0
3	Assam	164	0.02	7.64	0.02	5.2	63	38.4	6	3.7	2	1.2	84	51.2	7	4.3	1	0.6	71	43	92	56	1	0.6
4	Bihar	625	0.01	5.25	0.01	6.32	315	50.4	38	6.1	9	1.4	218	34.9	36	5.8	4	0.6	362	58	258	41	5	0.8
5	Chandigarh	10	0.16	0.16	0.26	23.05	1	10.0	0	0.0	0	0.0	6	60.0	2	20.0	1	10.0	1	10	9	90	0	0.0
6	Chhattisgarh	566	0.01	18.68	0.01	18.4	153	27.0	41	7.2	25	4.4	252	44.5	55	9.7	39	6.9	219	39	346	61	1	0.2
7	Dadra & Nagar Haveli	16	0.27	8.25	0.02	4.62	3	18.8	1	6.3	2	12.5	7	43.8	2	12.5	1	6.3	6	38	10	63	0	0.0
8	Daman & Diu	11	0.01	1.48	0.19	4.64	7	63.6	0	0.0	0	0.0	2	18.2	1	9.1	1	9.1	7	64	4	36	0	0.0
9	Delhi	94	0.05	8	0	8.81	23	24.5	7	7.4	3	3.2	27	28.7	16	17.0	18	19.1	33	35	61	65	0	0.0
10	Goa	65	0	9.05	0.03	1.56	33	50.8	14	21.5	3	4.6	15	23.1	0	0.0	0	0.0	50	77	15	23	0	0.0
11	Gujarat	799	0	16.72	0.01	18.31	220	27.5	61	7.6	20	2.5	282	35.3	98	12.3	93	11.6	301	38	473	59	25	3.1
12	Haryana	302	0.01	5.52	0.01	13.14	85	28.1	6	2.0	4	1.3	113	37.4	50	16.6	44	14.6	95	31	207	69	0	0.0
13	Himachal Pradesh	90	0.01	8.85	0.02	5.02	27	30.0	3	3.3	3	3.3	44	48.9	11	12.2	2	2.2	33	37	57	63	0	0.0
14	Jammu & Kashmir	226	0.01	6.37	0	7.52	67	29.6	4	1.8	4	1.8	131	58.0	16	7.1	4	1.8	75	33	151	67	0	0.0
15	Jharkhand	218	0.02	5.26	0.01	6.71	72	33.0	16	7.3	2	0.9	103	47.2	18	8.3	7	3.2	90	41	128	59	0	0.0
16	Karnataka	1421	0.01	12.62	0.0	16.87	315	22.2	66	4.6	42	3.0	605	42.6	220	15.5	160	11.3	423	30	985	69	13	0.9
17	Kerala	1366	0.0	7.8	0.0	9.41	374	27.4	26	1.9	5	0.4	838	61.3	95	7.0	24	1.8	405	30	957	70	4	0.3
18	Madhya Pradesh	1318	0.01	13.01	0.01	18.06	485	36.8	116	8.8	59	4.5	509	38.6	93	7.1	56	4.2	660	50	658	50	0	0.0
19	Maharashtra	1562	0.0	13.94	0.0	14.85	474	30.3	119	7.6	74	4.7	604	38.7	191	12.2	92	5.9	667	43	887	57	8	0.5
20	Meghalaya	20	0.24	2.07	0.06	1.8	5	25.0	1	5.0	0	0.0	14	70.0	0	0.0	0	0.0	6	30	14	70	0	0.0
21	Odisha	1283	0.01	7.8	0.01	10.77	460	35.9	43	3.4	3	0.2	683	53.2	77	6.0	13	1.0	506	39	773	60	4	0.3
22	Pondicherry	5			0.07	4.34	0	0.0	0	0.0	0	0.0	4	80.0	0	0.0	1	20.0	0	0	5	100	0	0.0
23	Punjab	234	0.0	6.53	0.01	17.32	33	14.1	2	0.9	1	0.4	115	49.1	42	17.9	41	17.5	36	15	198	85	0	0.0
24	Rajasthan	859	0.0	17.42	0.01	17.6	236	27.5	100	11.6	95	11.1	226	26.3	72	8.4	130	15.1	431	50	428	50	0	0.0
25	Tamil Nadu	536	0.0	15.77	0.03	16.71	47	8.8	10	1.9	14	2.6	187	34.9	127	23.7	151	28.2	71	13	465	87	0	0.0
26	Telangana	586	0.01	16.88	0	19.3	202	34.5	74	12.6	39	6.7	175	29.9	48	8.2	44	7.5	315	54	267	46	4	0.7
27	Tripura	26	0.05	2.71	0.09	3.49	16	61.5	2	7.7	0	0.0	6	23.1	2	7.7	0	0.0	18	69	8	31	0	0.0
28	Uttar Pradesh	637	0.01	7.54	0	11.03	158	24.8	20	3.1	9	1.4	365	57.3	65	10.2	20	3.1	187	29	450	71	0	0.0
29	Uttarakhand	46	0.02	7.8	0.01	7.77	13	28.3	6	13.0	2	4.3	16	34.8	7	15.2	1	2.2	21	46	24	52	1	2.2
30	West Bengal	617	0.01	13.53	0.01	17	247	40.0	45	7.3	35	5.7	221	35.8	46	7.5	22	3.6	327	53	289	47	1	0.2
Total		14465					4294	29.7	847	5.9	468	3.2	6254	43.2	1501	10.4	1030	7.1	5609	38.8	8785	60.7	71	0.5

