

**GOVERNMENT OF INDIA
MINISTRY OF PLANNING**

**LOK SABHA
UNSTARRED QUESTION NO. 1521
TO BE ANSWERED ON 04.03.2016**

SURVEY ON HYDRO POWER PROJECTS

1521. SHRI VIJAY KUMAR HANSDAK:

Will the **Minister of PLANNING** be pleased to state:

- (a) whether the National Institute for Transforming India (NITI) Aayog has recently conducted a survey on help up hydro-power projects across the country in which a large amount have been invested;
- (b) if so, the details and findings thereof;
- (c) whether the country is lagging behind in generation of additional hydro power as set target during the 12th Five Year Plan;
- (d) whether the policy measures chalked out the Government have failed to streamline the hydro power sector; if so, the reasons therefor; and
- (e) the action plan prepared by the Government to energize the sector?

ANSWER

**MINISTER OF STATE (INDEPENDENT CHARGE) FOR MINISTRY OF PLANNING
AND MINISTER OF STATE FOR DEFENCE
(RAO INDERJIT SINGH)**

- a) No, Madam.
- b) Does not arise;
- c) A hydro capacity addition of **10,897 MW** (**6004 MW** in Central Sector, **1608 MW** in State Sector and **3285 MW** in Private Sector) is programmed for the 12th Plan (2012-17).

Out of this, hydro projects with aggregate installed capacity of **3731 MW** have been commissioned and **7166 MW** is under various stages of construction for benefits during remaining period of 12th Plan and beyond. Sector wise details are as under:

Sector	Commissioned (MW)	Under Execution (MW)	Total (MW)
Central Sector	2464	3540	6004
State Sector	672	936	1608
Private Sector	595	2690	3285
Total:	3731	7166	10897

Based on the current status of works, out of the 12th Plan hydro capacity addition target of 10897 MW, capacity aggregating to 4371 MW is slipping from 12th Plan and 930 MW capacity is critical for commissioning during 12th Plan. Further, hydro capacity of 229 MW is likely to advance

from outside the 12th Plan Programme. Thus, based on the current status of the projects, the likely capacity addition during 12th Plan is 6755 MW (6526 MW from Plan & 229 MW from outside Plan). The details are enclosed at **Annex-I**.

The major reasons of slippages for the projects slipping from 12th Plan is enclosed at **Annex-II**.

d) & e) The Government has taken a number of policy measures to give a boost to the development of hydro power in the country. The details are given below:

1. National Electricity Policy, 2005:

The policy lays maximum emphasis on full development of the feasible hydro potential in the country which will facilitate economical development of States, particularly North Eastern States, Uttarakhand, Himachal Pradesh and Jammu & Kashmir. Since the hydel projects call for comparatively larger capital investment, debt financing of longer tenure has been recommended. The State Governments have been advised to review procedure for land acquisition and other approvals / clearances for speedy implementation of hydro projects. Full support of Central Government has been extended for hydel development by offering the services of CPSUs like NHPC, NEEPCO, SJVNL, THDC etc.

2. Hydro Power Policy, 2008 - Salient Features (including subsequent changes):

Hydro Power Policy, 2008 has been notified by Government of India on 31.3.2008. The salient features of the policy are given below:

- Transparent selection criteria for awarding sites to private developers.
- As notified in Revised Tariff Policy, 2016, Cost plus Tariff regime (in which tariff is to be determined by the regulator under section 62 of Electricity Act, 2003) has been extended for public & private sector hydro power projects up to 15.08.2022.
- Enables developer to recover his additional costs through merchant sale of upto a maximum of 40% of the saleable energy.
- Developer to provide 100 units of electricity per month to each Project Affected Family in cash or kind or a combination of both for 10 years from the date of commissioning.
- Developer to assist in implementing rural electrification in the vicinity of the project area & contribute 10% share of the State Government under the Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) scheme.
- Additional 1% free power from the project (over and above 12% free power earmarked for the host State) for Local Area Development Fund - regular revenue stream for welfare schemes, creation of additional infrastructure and common facilities.
- The State Governments to contribute a matching 1% from their share of 12% free power.

3. Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013:

Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 has been notified by the Government of India on 27.09.2013 which have more participation of local people in terms of Land acquisition and Rehabilitation & Resettlement. The main objectives of the Act are given below:

- To ensure a humane, participative, informed and transparent process for land acquisition with the least disturbance to the owners of the land and other affected families.
- Provide just and fair compensation to the affected families whose land has been acquired or proposed to be acquired or are affected by such acquisition.

- Make adequate provisions for such affected persons for their rehabilitation and resettlement.
- Ensure that affected persons become partners in development leading to an improvement in their post-acquisition social and economic status.

4. Revised Tariff Policy, 2016:

Revised Tariff Policy has been notified by the Government of India on 28.01.2016. The following provisions including others in respect of hydro power have been made:

- Promote Hydro Electric Power generation including Pumped Storage Projects to provide adequate peaking reserves, reliable grid operation and integration of variable renewable energy sources.
- The developer of hydroelectric project including Pumped Storage Project would have the option of getting the tariff determined by the Appropriate Commission for the power to be sold through long term Power Purchase Agreements (PPAs) on the basis of performance based cost of service regulation if concurrence of Central Electricity Authority (if required under section 8 of the Act), financial closure, award of work and long term PPA (of the duration of 35 years or more) with distribution licensees are completed by 15.08.2022.
- The Appropriate Commission shall provide for suitable regulatory framework for incentivizing the developers of Hydro Electric Projects (HEPs) including Pumped Storage Projects for using long term financial instruments in order to reduce the tariff burden in initial years.

5. A number of other measures have also been taken for increasing the hydro capacity:

- A Consultation Process has been evolved for fast tracking of Survey & Investigation activities and preparation of Quality Detailed Project Reports (DPRs) wherein appraising agencies advise Developer in carrying out various investigations and firming up the project layout etc.
- Time bound appraisal norms have been evolved in Central Electricity Authority for examination of DPRs.
- A number of projects have been prioritized which are being monitored regularly at highest levels by the Government of India for their expeditious implementation.
- CEA is monitoring the progress of each project regularly through frequent site visits, interaction with the developers and critical study of monthly progress reports.
- A Power Project Monitoring Panel (PPMP) has been set up by the Ministry of Power to independently follow up and monitor the progress of the hydro projects.
- Regular review meetings are taken by Ministry of Power/ CEA with equipment manufacturers, State Utilities/ CPSUs/ Project developers, etc. to sort out the critical issues.
- Review meetings are taken by Ministry of Power/ CEA with Border Road Organization, Ministry of Road Transport and Highways etc. to sort out the infrastructure issues.

As a result of the initiatives taken by Government, a large of number entrepreneur have come forward and invested in hydroelectric projects allotted to them by various State Governments. The pace of hydro development in the country is however slow due to various issues involved in hydro development which include 1) Environmental and forest clearances, 2) rehabilitation and resettlement issues, 3) land acquisition, 4) law and order problems and local issues, 5) geological surprises, 6) long gestation period, 7) inter-State issues, 8) natural calamities etc.

Hydro Electric Projects for Benefits During 12th Plan- Plan Progress

As on 29.02.2016

S. No.	Project Name	State	Developer	I. C. (No. x MW)	Year wise Cap. Addition					Slippi ng	Total
					2012 -13	2013- 14	2014 -15	2015- 16	2016- 17		
A.	Commissioned										
	Central Sector										
1	Chamera-III	HP	NHPC	3x77	231					231	
2	Chutak	J&K	NHPC	4x11	44					44	
3	Teesta Low Dam-III	WB	NHPC	4x33	99	33				132	
4	Uri-II	J&K	NHPC	4x60		240				240	
5	Nimoo Bazgo	J&K	NHPC	3x15		45				45	
6	Parabati- III	HP	NHPC	4x130		390	130			520	
7	Rampur HEP	H.P.	SJVNL	6x68.67		206	206			412	
8	Kol Dam HEP	H.P.	NTPC	4x200			400	400		800	
9a	Teesta Low Dam-IV	WB	NHPC	4x40				40		40	
	Sub Total: Central Sector				374	914	736	440		2464	
	State Sector										
9	Bhawani Barrage-II	Tamil Nadu	TANGED CO	2x15		30				30	
10	Bhawani Barrage-III	Tamil Nadu	TANGED CO	2x15	15	15				30	
11	Myntdu-1 addl. Unit	Meghalaya	MePGCL	1x42	42					42	
12	Baglihar-II	J&K	JKPDC	3x150				450		450	
13a	Lower Jurala	Telengana	TSGENCO	6x40				120		120	
	Sub Total: State Sector				57	45		570		672	
	Private Sector										
14	Budhil	HP	LANCO	2x35	70					70	
15	Chujachen	SIKKIM	GATI	2x49.5		99				99	
16	Srinagar	Uttarakhand	AHPCo. Ltd.	4x82.5				330		330	
17	Jorethang Loop	Sikkim	DANS Pvt. Ltd	2x48				96		96	
	Sub Total: Private Sector				70	99		426		595	
	Sub Total 'A': Commissioned				501	1058	736	1436		3731	
B.	Under Construction										
	Central Sector										
18	Pare HEP	Ar. P	NEEPCO	2x55				110		110	
19	Kameng HEP (Critical)	Ar. P	NEEPCO	4x150				600		600	
20	Subansiri Lower HEP	Ar. P	NHPC	8x250					1000	1000	
21	Parbati-II HEP	H.P.	NHPC	4x200					800	800	
22	Kishan Ganga (Critical)	J&K	NHPC	3x110				330		330	
23	Tuirial	Mizoram	NEEPCO	2x30					60	60	
24	Tapovan Vishnugad	Uttarakhand	NTPC	4x130					520	520	
9b	Teesta Low Dam-IV	WB	NHPC	4x40				40	80	120	

	Sub Total: Central Sector						0	0	40	1120	2380	3540
	State Sector											
13b	Lower Jurala	Telengana	TSGENCO	6x40						120		120
26	Pulichintala	Telengana	TSGENCO	4x30						60	60	120
27	Nagarjuna Sagar TR	AP	APGENCO	2x25						50		50
28	Kashang - I	H.P.	HPPCL	1x65				65				65
29	Uhl-III	H.P.	BVPC	3x33.33							100	100
30	Sawra Kuddu	H.P.	HPPCL	3x37							111	111
31	Kashang II & III	H.P.	HPPCL	2x65							130	130
32	Sainj	H.P.	HPPCL	2x50						100		100
33	Thottiar	Kerala	KSEB	1x30 + 1x10							40	40
34	Pallivasal	Kerala	KSEB	2x30							60	60
35	New Umtru	Meghalaya	MePGCL	2x20						40		40
	Sub Total: State Sector						0	0	65	370	501	936
	Private Sector											
36	Tidong-I	H.P.	N S L Tidong Power Gen. Ltd	2x50							100	100
37	Sorang	H.P.	Himachal Sorang Power Pvt. Ltd	2x50							100	100
38	Tangnu Romai-I	H.P.	Tangnu Romai Power Gen. Ltd	2x22							44	44
39	Maheshwar	MP	SMHPCL	10x40				0			400	400
40	Bhasmey	Sikkim	GATI	2x25.5							51	51
41	Rangit-IV	Sikkim	Jal Power	3x40							120	120
42	Teesta-VI	Sikkim	LANCO	4x125							500	500
43	Teesta-III	Sikkim	Teesta Urja(*)	6x200				0	1200			1200
44	Singoli Bhatwari	Uttarakhand	L & T	3x33							99	99
45	Phata Byung	Uttarakhand	LANCO	2x38							76	76
	Sub Total: Private Sector						0	0	0	1200	1490	2690
	Sub Total 'B': Under Construction						0	0	105	2690	4371	7166
	Total- 12th Plan (A + B)				501	1058	736	1541	2690	4371	10897	
	Likely in 12th Plan				6526							
(*) w.e.f. 6-8-15, Teesta Urja Ltd. is a Govt. Of Sikkim Enterprise												
Note: Critical projects aggregate to 930 MW.												
229 MW Capacity likely to advance (Out side the 12th Plan)												
Chanju - I (3x12= 36 MW) + Dikchu (3x32=96 MW) + Tashiding (2x48.5=97 MW)=229 MW												
Total capacity likely in 12th Plan = 6915 MW)												

Reasons of Slippages of Hydro Electric Projects Slipping from 12th Plan

Sl. No	Project Name/(I.C.)/ Executing Agency	State	Reasons for time and cost over run
CENTRAL SECTOR			
1	Subansiri Lower (8x250 = 2000 MW) NHPC	Arunachal Pradesh/ Assam	<ul style="list-style-type: none"> ➤ Disruption of works by locals in Ar. Pradesh side. ➤ Slope failure in Power House in Jan, 2008. ➤ Damage to bridge on Ranganadi river. ➤ Change in design of surge shafts to surge tunnels. ➤ Stoppage of works due to agitation launched by Anti Dam activists in Assam against construction of Project. Work stopped since 16.12.2011. ➤ Issue of D/s impact studies.
2	Parbati - II (4x200 = 800 MW) NHPC	Himachal Pradesh	<ul style="list-style-type: none"> ➤ Hon'ble High Court of Himachal Pradesh ban on stone crusher operation. ➤ Delay in revised forest clearance. ➤ TBM suffered extensive damage due to heavy ingress of water and slush in TBM face in Nov, 2006. ➤ Slide in Power House area in Feb, 07. ➤ Flash flood in August, 2011. ➤ Jiwa Nallah works affected due to cavity treatment. ➤ Contractual issues. ➤ Poor geology in HRT
3	Tapovan Vishnughad (4x130 = 520 MW) NTPC	Uttarakhand	<ul style="list-style-type: none"> ➤ Delay in procurement/deployment of Tunnel Boring Machine by Civil Contractor. ➤ Slow progress in Power house due to poor rock strata. ➤ Heavy water ingress due to bad geology in HRT and rock fall on TBM. TBM struck 3 times. ➤ Flash flood in June, 2013. ➤ Termination of civil contracts for Barrage and HRT.
4	Tuirial (2x30 = 60 MW) NEEPCO	Mizoram	<ul style="list-style-type: none"> ➤ Suspension of Project activities due to local agitation for about 7 yrs. (June-2004 to May-2011) ➤ Poor approach roads. ➤ Slope failure in Power House. ➤ Insufficient resources by contractor.
STATE SECTOR			
5	Uhl-III 3x33.33= 100 MW) BVPC	Himachal Pradesh	<ul style="list-style-type: none"> ➤ Delay in award of works. ➤ Contract for construction of HRT rescinded twice i.e. during May, 2008 & July, 2010 due to slow progress and non-performance by the contractor. ➤ Poor geology in HRT.
6	Sawra Kuddu (3x37 =111MW) HPPCL,	Himachal Pradesh	<ul style="list-style-type: none"> ➤ Delay in MOEF clearance. ➤ Delay in award of Civil & E&M works. ➤ Poor geology in HRT. ➤ Slow progress of HRT Lining. ➤ Contractual issues ➤ Contract for HRT package terminated on 9.1.14. Re-awarded in Nov,2014 to M/s. HCC.
7	Kashang-II & III (1x65 + 1x65 MW) =130 MW HPPCL	Himachal Pradesh	<ul style="list-style-type: none"> ➤ Local issues. Works could not be started due to continuous agitation by Lipa villagers. Matter is sub-judice. ➤ Flash flood in June, 2013. ➤ Works stopped by contractor.

Sl. No	Project Name/(I.C.)/ Executing Agency	State	Reasons for time and cost over run
8	Thottiyar (1x30+1x10)= 40MW KSEB	Kerala	<ul style="list-style-type: none"> ➤ Land acquisition issue. ➤ The works of weir and approach channel stopped from 2010 to 2012 by local people. ➤ The work stopped by Court from 12.12.2012 to April-2013. ➤ Contractual Issues.
9	Pallivasal 2x30 = 60 MW KSEB	Kerala	<ul style="list-style-type: none"> ➤ Slow progress of civil works. ➤ Delay in land acquisition. ➤ Change in alignment of Adit to HRT. ➤ Poor geology strata in HRT. ➤ Heavy Monsoon ➤ Contractual Issues.
10	Pulichintala (4x30 = 120 MW) TGENCO (Slippage 60 MW)	Telengana	<ul style="list-style-type: none"> ➤ Delay in award of E&M works. ➤ Unprecedented floods in Oct.2009 & Sept.2011. ➤ Contractual issues. ➤ Slow progress of Power House works.
PRIVATE SECTOR			
11	Tidong-I (2x50 = 100 MW) N S L Tidong Power Gen. Ltd	Himachal Pradesh	<ul style="list-style-type: none"> ➤ Delay in NOC by Projects affected Panchayats, suspension of works by Govt.for one year.
12	Tangnu Romai-I (2x22 = 44 MW) TRPGPL	Himachal Pradesh	<ul style="list-style-type: none"> ➤ Slow progress of civil works. ➤ Poor geology. ➤ Difficult area. ➤ Weather conditions & accessibility.
13	Maheshwar (10x40 = 400 MW) SMHPCL	Madhya Pradesh	<ul style="list-style-type: none"> ➤ R&R issues ➤ Cash flow problem with developer
14	Bhasmey (2x25.5 =51 MW) Gati Infrastructure	Sikkim	<ul style="list-style-type: none"> ➤ Forest clearance ➤ Financial constraints with developer.
15	Rangit-IV HE Project (3X40 = 120 MW) JPCL	Sikkim	<ul style="list-style-type: none"> ➤ Slow progress of HRT & Surge Shaft works due to poor geology. ➤ Works hampered due to earthquake in September, 2011. ➤ Financial constraints with developer. Works at hold since October'2013.
16	Teesta Stage VI (4x125 = 500 MW) Lanco Energy Private Limited	Sikkim	<ul style="list-style-type: none"> ➤ Poor geology in HRT. ➤ Land acquisition. ➤ Contractual issues ➤ Funds constraints with developer
17	Singoli Bhatwari (3x33 = 99 MW) L&T	Uttarakhand	<ul style="list-style-type: none"> ➤ Poor geology in HRT. ➤ Agitation by local people. ➤ Flash flood in June,2013.
18	Phata Byung (2x38 = 76 MW) LANCO	Uttarakhand	<ul style="list-style-type: none"> ➤ Flash flood in June,2013. ➤ Poor geology in HRT. ➤ Funds constraints with developer.
19	Sorang (2x50 = 100 MW), HSPPL	Himachal Pradesh	<ul style="list-style-type: none"> ➤ Poor geology. ➤ Difficult area. ➤ Weather conditions & accessibility. ➤ Penstock cracks / leakage during filling of Water conductor System. ➤ Rupture in surface penstock in Nov-15 during trial run.

