

GOVERNMENT OF INDIA
WATER RESOURCES, RIVER DEVELOPMENT AND GANAGA REJUVENATION
LOK SABHA

UNSTARRED QUESTION NO:4317

ANSWERED ON:11.08.2016

Prevention of Floods

Rai Shri Nityanand;Rajbhar Shri Hari Narayan

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

- (a) whether the Government is aware that most parts of the country face severe floods during rainy/monsoon season and great loss to the society is incurred in various fields;
- (b) if so, the details and the facts thereof;
- (c) whether any permanent/ comprehensive scheme has been prepared or is under consideration to prevent recurring floods in the country;
- (d) if so, the details and the salient features thereof; and
- (e) the financial assistance provided/to be provided to each State/UT during the current plan to tackle the problem?

Answer

THE MINISTER OF STATE FOR WATER RESOURCES, RIVER DEVELOPMENT AND GANGA REJUVENATION
(DR SANJEEV KUMAR BALYAN)

(a) & (b) Floods are a natural calamity that India faces almost every year, in varying degrees of magnitude. The frequent occurrence of floods can be attributed to various factors, including wide variations in rainfall both in time and space with frequent departures from the normal pattern, inadequate carrying capacities of rivers, river bank erosion and silting of river beds, landslides, poor natural drainage in flood prone areas, snowmelt and glacial lake out bursts. The XII Plan Working Group on "Flood Management and Region Specific Issues" constituted by Planning Commission has compiled the maximum flood affected area in the country as 49.815 million hectare (mha). The average annual flood damages in India during the period from 1953 to 2015 are of the order of Rs. 4267.24 crore as per data base compiled by Central Water Commission. The details are given at Annex-1.

(c) , (d) and (e) The subject of flood management being under the purview of the States, the schemes for flood control are formulated and implemented by concerned States as per their priority. The Union Government supplements the efforts of the States by providing technical guidance and also promotional financial assistance for management of floods in critical areas.

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The Government of India had launched Flood Management Programme (FMP) for works related to river management, anti-erosion, restoration of damaged flood management works, anti-sea erosion etc. Under this programme, a total of 518 projects were approved in XI and XII Plan and the central assistance of Rs 4773.08 Crore has been released till date out of which, the amount of Rs. 1207.08 Crore was released in XII Plan.

Out 518 projects approved under FMP in XII Plan, 293 projects have been completed till date, which have provided reasonable protection against floods in 19.593 lakh hectare of area and benefited the population of 197.227 lakh in the country. The State- wise details of projects approved, projects completed and funds released in XI and XII Plan under FMP are given at Annex-2

Besides the structural measures mentioned above, the Central Water Commission (CWC) under the Ministry maintains flood forecasting network of 708 stations out of which flood forecasts are presently issued for 184 stations. The flood forecasts issued by CWC are utilized by local administration in deciding plans for shifting of people from flood affected areas to safer locations and by State / Project Authorities in optimum regulation of reservoirs for ensuring safety of people residing in the downstream areas of dams / reservoirs.

In addition, Ministry has approved a plan scheme during XII Plan for Rs.281 crore for flood forecasting, modernisation and expansion of the flood forecasting network for automatic data collection, expeditious transmission and flood forecast dissemination. The scheme has the following broad components:

i) The Flood Forecasting network is proposed to be expanded from existing 184 flood forecasting stations to 275 stations as per details in Annex-3. Simultaneously, the support network of 708 hydrological observation sites would be increased to 1118 out of which 1074 stations, as against the current 507, would be on an automatic satellite based telemetry system. As a result of the telemetry network, live information would be available on the real time basis. It will eliminate the delays in dissemination of flood warnings to the States due to the manual system of dissemination.

ii) All the 12 regional offices of CWC will have the facility of carrying out data modeling for making timely forecasts to forewarn the community and the local authorities with lead time upto 72 hours before occurrence of the event. This is in contrast with the existing forecast lead time of 24 hours.

iii) The enhanced network will ensure coverage of the hitherto uncovered additional regions in sub-basins of Ganga, Brahmaputra,

Mahanadi & Godavari, which are amongst highly flood prone areas and experience huge flood damages.

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iv) It is also proposed to provide inundation forecast on pilot basis in 3 mha flood prone area of Kosi, Brahmaputra, Godavari and Sabri sub-basins using high resolution Digital Elevation Models already available with National Remote Sensing Centre.

v) Currently, on an average 6000 flood warnings are issued annually with an accuracy of over 98%. It is expected that with expanded network of flood forecast systems, these would go upto 10,000 annual warnings covering hitherto uncovered areas in the basins mentioned above, with an enhanced lead time of upto 72 hours. This would give community enough time to ensure preventive action to save life and property.

In addition, the Government of India is having continuous dialogue with Government of Nepal for construction of storage projects in Nepal for mitigation of floods in India caused by rivers flowing from Nepal.

ANNEXURE REFERRED TO IN REPLY OF PARTS (a) & (b) , LOK SABHA UNSTARRED QUESTION NO. 4317 FOR ANSWER ON 11.08.2016 REGARDING "PREVENTION OF FLOODS"

Annex-1

STATEMENT SHOWING DAMAGE DUE TO FLOODS / HEAVY RAINS DURING 1953 TO 2015

SN	Year	Area Affected (mha)	Population affected (million)	Damage to crops (Nos)	Damage to houses (Nos)	Cattle Lost (Nos.)	Human Live Lost (Nos)	Damage to Public utilities (Rs. Cr.)	Total damages Crops, Houses & Public utilities in Rs.Crore (col.6+8+11)
1	1953	2.290	24.280	0.930	42.080	264924	7.420	47034	37 2.900 52.400
2	1954	7.490	12.920	2.610	40.520	199984	6.561	22552	279 10.150 57.231
3	1955	9.440	25.270	5.310	77.800	1666789	20.945	72010	865 3.980 102.725
4	1956	9.240	14.570	1.110	44.440	725776	8.047	16108	462 1.140 53.627
5	1957	4.860	6.760	0.450	14.120	318149	4.979	7433	352 4.270 23.369
6	1958	6.260	10.980	1.400	38.280	382251	3.896	18439	389 1.790 43.966
7	1959	5.770	14.520	1.540	56.760	648821	9.418	72691	619 20.020 86.198
8	1960	7.530	8.350	2.270	42.550	609884	14.309	13908	510 6.310 63.169
9	1961	6.560	9.260	1.970	24.040	533465	0.889	15916	1374 6.440 31.369
10	1962	6.120	15.460	3.390	83.180	513785	10.655	37633	348 1.050 94.885
11	1963	3.490	10.930	2.050	30.170	420554	3.701	4572	432 2.740 36.611
12	1964	4.900	13.780	2.490	56.870	255558	4.588	4956	690 5.149 66.607
13	1965	1.460	3.610	0.270	5.870	112957	0.195	7286	79 1.070 7.135
14	1966	4.740	14.400	2.160	80.150	217269	2.544	9071	180 5.736 88.430
15	1967	7.120	20.460	3.270	133.310	567995	14.264	5827	355 7.857 155.431
16	1968	7.150	21.170	2.620	144.610	682704	41.112	130305	3497 25.373 211.095
17	1969	6.200	33.220	2.910	281.900	1268660	54.423	270328	1408 68.112 404.435
18	1970	8.460	31.830	4.910	162.780	1434030	48.606	19198	1076 76.441 287.827
19	1971	13.250	59.740	6.240	423.130	2428031	80.241	12866	994 129.113 632.484
20	1972	4.100	26.690	2.450	98.560	897301	12.460	58231	544 47.174 158.194
21	1973	11.790	64.080	3.730	428.030	869797	52.482	261016	1349 88.489 569.001
22	1974	6.700	29.450	3.330	411.640	746709	72.434	16846	387 84.942 569.016
23	1975	6.170	31.360	3.850	271.490	803705	34.097	17345	686 166.050 471.637
24	1976	11.910	50.460	6.040	595.030	1745501	92.160	80062	1373 201.495 888.685
25	1977	11.460	49.430	6.840	720.610	1661625	152.290	556326	11316 328.948 1201.848
26	1978	17.500	70.450	9.960	911.090	3507542	167.574	239174	3396 376.100 1454.764
27	1979	3.990	19.520	2.170	169.970	1328712	210.606	618248	3637 233.627 614.203
28	1980	11.460	54.120	5.550	366.370	2533142	170.851	59173	1913 303.283 840.504
29	1981	6.120	32.490	3.270	524.560	912557	159.630	82248	1376 512.314 1196.504
30	1982	8.870	56.010	5.000	589.400	2397365	383.869	246750	1573 671.607 1644.876
31	1983	9.020	61.030	3.290	1285.850	2393722	332.327	153095	2378 873.429 2491.606
32	1984	10.710	54.550	5.190	906.090	1763603	181.308	141314	1661 818.164 1905.562
33	1985	8.380	59.590	4.650	1425.370	2449878	583.855	43008	1804 2050.043 4059.268
34	1986	8.810	55.500	4.580	1231.580	2049277	534.410	60450	1200 1982.535 3748.525
35	1987	8.890	48.340	4.940	1154.640	2919380	464.490	128638	1835 950.590 2569.720
36	1988	16.290	59.550	10.150	2510.900	2276533	741.600	150996	4252 1377.800 4630.300
37	1989	8.060	34.150	3.010	956.740	782340	149.820	75176	1718 1298.770 2405.330
38	1990	9.303	40.259	3.179	695.610	1019930	213.733	134154	1855 455.266 1708.920

39 1991 6.357 33.889 2.698 579.015 1134410 180.421 41090 1187 728.893 1488.329
 40 1992 2.645 19.256 1.748 1027.578 687489 306.284 78669 1533 2010.670 3344.532
 41 1993 11.439 30.409 3.206 1308.627 1926049 528.324 211193 2864 1445.534 3282.485
 42 1994 4.805 27.548 3.963 888.622 914664 165.206 52315 2078 740.762 1794.590
 43 1995 5.245 35.932 3.245 1714.787 2001898 1307.894 62438 1814 679.627 3702.308

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ANNEXURE REFERRED TO IN REPLY OF PARTS (a) & (b) ,LOK SABHA UNSTARRED QUESTION NO. 4317 FOR ANSWER ON 11.08.2016 REGARDING "PREVENTION OF FLOODS"

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SN Year Area Affected (mha) Population affected

(million) Damage to crops Damage to houses Cattle Lost (Nos.) Human Live Lost

(Nos) Damage to Public utilities

(Rs. Cr.) Total damages Crops, Houses & Public utilities in Rs.Crore

(col.6+8+11)

Area (mha) Value (Rs. Cr.) Nos. Value

(Rs. Cr.)

44 1996 8.049 44.729 3.827 1124.491 726799 176.589 73208 1803 861.393 3005.743
 45 1997 4.569 29.663 2.258 692.743 505128 152.504 27754 1402 1985.934 2831.181
 46 1998 10.845 47.435 7.495 2594.167 1932874 1108.783 107098 2889 5157.771 8860.721
 47 1999 7.765 27.993 1.753 1850.873 1613260 1299.057 91289 745 462.830 3612.760
 48 2000 5.382 45.013 3.580 4246.622 2628855 680.943 123252 2606 3936.979 8864.544
 49 2001 6.175 26.463 3.964 688.481 716187 816.474 32704 1444 5604.461 7109.416
 50 2002 7.090 26.323 2.194 913.092 762492 599.368 21533 1001 1062.083 2574.543
 51 2003 6.120 43.201 4.268 7307.230 775379 756.481 15161 2166 3262.154 11325.866
 52 2004 5.314 43.725 2.888 778.694 1664388 879.601 134106 1813 1656.090 3314.385
 53 2005 12.562 22.925 12.299 2370.923 715749 380.531 119674 1455 4688.219 7439.672
 54 2006 1.096 25.224 1.822 2850.668 1497428 3636.848 266945 1431 13303.926 19790.922
 55 2007 7.145 41.402 8.795 3121.532 3280233 2113.108 89337 3389 8049.037 13283.677
 56 2008 3.427 29.910 3.186 3401.563 1566809 1141.891 101780 2876 5046.481 9589.935
 57 2009 3.844 29.537 3.592 4232.609 1235628 10809.795 63383 1513 17509.353 32551.758
 58 2010 2.624 18.297 4.994 5887.380 293830 875.952 39706 1582 12757.253 19520.586
 59 2011 1.895 15.973 2.718 1393.847 1152518 410.475 35982 1761 6053.570 7857.892
 60 2012 2.141 14.689 1.950 1534.108 174526 240.572 31558 933 9169.968 10944.648
 61 2013* 3.640 21.147 3.635 3214.987 662495 526.125 156855 2137 3938.119 11094.961
 62 2014* 10.238 9.248 5.094 1439.151 169410 459.216 16562 1402 4740.341 6638.274
 63 2015* 0.020 22.680 2.258 12382.361 865792 7974.296 25689 944 8718.057 29384.773
 TOTAL 442.293 1981.151 236.510 84580.241 75914495 42573.528 5929664 102967 136769.771 268835.957
 AVG 7.021 31.447 3.754 1342.544 1204992 675.770 94122 1634 2170.949 4267.237
 MAX 17.500 70.450 12.299 12382.361 3507542 10809.795 618248 11316 17509.353 32551.758
 (YEAR) 1978 2005 2003 1978 2009 1979 1977 2009 2009
 Annex-1(Contd..)

ANNEXURE REFERRED TO IN REPLY OF PARTS (e) ,LOK SABHA UNSTARRED QUESTION NO. 4317 FOR ANSWER ON

11.08.2016 REGARDING "PREVENTION OF FLOODS"

Annex-2

State-Wise Works Approved, Works Completed and Funds Released under Flood Management Programme (FMP) during XI and XII Plan

Rs. in crore

Sl. No. State XI Plan XII Plan Total (XI + XII Plan) Status

Works Approved Funds Released

(XI Plan) Works Approved Funds

Released

(XII Plan) Works Approved Number of Works

Completed

Total Funds Released

(XI + XII Plan)

Nos. Estimated Cost Nos. Estimated Cost Nos. Estimated Cost

1	Arunachal Pradesh	21	224.69	81.69	0	0.00	64.22	21	224.69	11	145.91
2	Assam	100	996.14	748.86	41	1386.97	64.89	141	2383.11	94	813.75
3	Bihar	43	1370.42	723.18	4	447.63	184.64	47	1818.05	41	907.82
4	Chhattisgarh	3	31.13	15.57	0	0.00	3.75	3	31.13	0	19.32
5	Goa	2	22.73	9.98	0	0.00	2.00	2	22.73	2	11.98
6	Gujarat	2	19.79	2.00	0	0.00	0.00	2	19.79	1	2.00
7	Haryana	1	173.75	46.91	0	0.00	0.00	1	173.75	0	46.91
8	Himachal Pradesh	3	225.32	165.98	4	1139.62	221.87	7	1364.94	1	387.85
9	Jammu & Kashmir	28	408.22	252.57	15	562.47	129.39	43	970.69	8	381.96
10	Jharkhand	3	39.30	18.44	0	0.00	4.27	3	39.30	2	22.71
11	Karnataka	3	59.46	23.80	0	0.00	0.00	3	59.46	0	23.80
12	Kerala	4	279.74	63.68	0	0.00	55.22	4	279.74	0	118.90
13	Manipur	22	109.34	66.34	0	0.00	24.36	22	109.34	19	90.70
14	Meghalaya	0	0.00	3.81	0	0.00	0.00	0	0.00	0	3.81
15	Mizoram	2	9.13	14.48	0	0.00	1.93	2	9.13	0	16.41
16	Nagaland	11	49.35	28.96	6	74.52	31.04	17	123.87	9	60.00
17	Orissa	67	169.00	101.12	1	62.32	0.00	68	231.32	60	101.12
18	Puducherry	1	139.67	7.50	0	0.00	0.00	1	139.67	0	7.50
19	Punjab	5	153.40	40.43	0	0.00	0.00	5	153.40	0	40.43
20	Sikkim	28	104.92	83.69	17	261.40	8.15	45	366.32	21	91.84
21	Tamilnadu	5	635.54	59.82	0	0.00	0.00	5	635.54	0	59.82
22	Tripura	11	26.57	23.62	0	0.00	0.00	11	26.57	8	23.62
23	Uttar Pradesh	26	667.57	290.69	3	291.70	111.22	29	959.27	6	401.91
24	Uttrankhand	12	119.82	49.63	10	715.72	153.98	22	835.54	8	203.61
25	West Bengal	17	1822.08	643.26	1	438.94	146.14	18	2261.02	6	789.40
	Total	420	7857.08	3566.00	102	5381.28	1207.08	522	13238.36	297	4773.08

ANNEXURE REFERRED TO IN REPLY OF PARTS (d) ,LOK SABHA UNSTARRED QUESTION NO. 4317 FOR ANSWER ON 11.08.2016 REGARDING "PREVENTION OF FLOODS"

Annex-3

State-wise Details of Flood Forecasting Network

Sl. No. State Existing Flood Forecasting Stations Additional Flood Forecasting Stations proposed to be installed Total flood Forecasting Network after expansion

1	Andhra Pradesh	8	9	17
2	Arunachal Pradesh	1	2	3
3	Assam	25	4	29
4	Bihar	32	2	34
5	Chhattisgarh	1	0	1
6	Gujarat	11	1	12
7	Haryana	1	1	2
8	Himachal Pradesh	0	1	1
9	Jammu & Kashmir	1	4	5
10	Jharkhand	5	15	20
11	Karnataka	8	0	8
12	Kerala	0	2	2
13	Madhya Pradesh	3	1	4
14	Maharashtra	9	1	10

15 Manipur 0 0 0
16 Odisha 12 2 14
17 Rajasthan 0 12 12
18 Sikkim 0 8 8
19 Tamil Nadu 2 12 14
20 Telangana 8 5 13
21 Tripura 2 0 2
22 Uttar Pradesh 35 5 40
23 Uttarakhand 3 4 7
24 West Bengal 14 0 14
25 NCT Delhi 2 0 2
26 Dadra & Nagar Haveli 1 0 1
Total 184 91 275