

GOVERNMENT OF INDIA
MINISTRY OF JAL SHAKTI

DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION

LOK SABHA

UNSTARRED QUESTION NO. 3655

ANSWERED ON 10.08.2023

FLOOD FORECASTING STATIONS

3655. SHRI DHARAMBIR SINGH

Will the Minister of **JAL SHAKTI** be pleased to state:

- (a) the details of the agreement between Central Water Commission (CWC) and Google for effective flood management;
- (b) the details of the flood forecasting stations set up in the country, State/UT-wise;
- (c) whether the CWC's flood monitoring and forecast dissemination was able to accurately predict the floods in Haryana; and
- (d) if so, the details thereof by indicating the number of advance days in this regard?

ANSWER

THE MINISTER OF STATE FOR JAL SHAKTI

(SHRI BISHWESWAR TUDU)

(a) A collaboration agreement between Google and Central Water Commission (CWC) was signed for a period of 3 years effective from 2nd June 2018. Under the agreement, the Parties agreed to share technical expertise in the fields of artificial intelligence, machine learning, geospatial mapping and analysis of hydrological observation data to collaborate on (i) improving flood prediction systems, which will help provide location-targeted, actionable flood warnings (the "Flood Forecasting initiative"); (ii) a high priority research project on the Google Earth Engine ("Earth Engine Project"); and (iii) a cultural project to build online exhibitions on the rivers of India (the "Culture Project").

(b) The details of State/UT-wise flood forecasting stations are given below :

State/UT-wise Flood Forecasting Stations				
Sl. No.	Name of State/ UT	Number of Flood Forecasting Stations		
		Level	Inflow	Total
1	Andhra Pradesh	10	10	20
2	Arunachal Pradesh	3	1	4
3	Assam	30	0	30
4	Bihar	40	3	43
5	Chhattisgarh	1	2	3
6	Gujarat	6	8	14

7	Haryana	1	1	2
8	Himachal Pradesh	1	0	1
9	Jammu & Kashmir	3	0	3
10	Jharkhand	2	15	17
11	Karnataka	1	14	15
12	Kerala	4	2	6
13	Madhya Pradesh	2	12	14
14	Maharashtra	8	14	22
15	Odisha	12	7	19
16	Rajasthan	4	11	15
17	Sikkim	3	5	8
18	Tamil Nadu	4	11	15
19	Telangana	5	9	14
20	Tripura	2	0	2
21	Uttar Pradesh	39	5	44
22	Uttarakhand	4	4	8
23	West Bengal	12	4	16
24	Daman & Diu	1	0	1
25	NCT of Delhi	2	0	2
	Total	200	138	338

(c) & (d) CWC issues short range (upto 24 hours) flood forecast based on gauge to gauge correlation and medium range (upto 7 days) advisory flood forecast based on models to the concerned stakeholders at 338 stations (200 Level Forecast Stations + 138 Inflow Forecast Stations) across the country, including the State of Haryana. The dissemination of flood forecasts is done through dedicated web-portals, social media, flood bulletins, emails etc.

CWC maintains 2 Flood Forecasting Stations in Haryana: 1 Level Forecasting Station and 1 Inflow Forecasting Station in river Yamuna.

Flood Forecasting Information in Haryana			
Name of the river	Name of FF site	District	Basin Name
2	3	4	5
Yamuna	Karnal Bridge (Level)	Karnal	Ganga & its tributaries
Yamuna	Tajewala Weir (Hathnikund) (Inflow)	Yamunanagar	Ganga & its tributaries

Further, there are 10 Hydrological Observation (HO) stations in Haryana.

The accuracy of the forecast depends upon many factors such as rainfall forecast, structure operation and drainage congestion. Generally higher lead time forecasts have relatively lower accuracy than shorter lead time forecasts.
