

ITEM NO. 3

FLOOD REPORT OF HARYANA FOR THE YEAR 2015

Haryana is a small landlocked state situated in the North West part of India and is bounded by Shivalik range in the North- East and river Yamuna in the East, Aravali range in the South-West and river Ghaggar in the West. River Yamuna form part of the boundary between Haryana & Uttar Pradesh and River Ghaggar between Haryana & Punjab. The total area of the state is 44.2 lac hectares out of which about 39.0 lac hectares is arable.

Topographically, from drainage angle the entire state is divided into two parts i.e. area draining into Yamuna Sub Basin of Ganga Basin and area draining into Ghaggar Sub Basin of Indus Basin.

Yamuna Sub Basin

Drainage area of Yamuna Sub Basin comprises of area of Yamuna Nagar (part), Karnal, Panipat, Sonapat, Rohtak, Jhajjar, Rewari, Gurgaon, Mewat, Mahendergarh, Jind (part), Faridabad and Palwal districts. It covers about 40% area of the state and it drains into river Yamuna. Experiencing high flooding during heavy rainfall, diversion drains were constructed in the northern portion of this catchment out-falling into river Yamuna in the North of Delhi. Ujjina Diversion Drain was constructed to out-fall into river Yamuna in Haryana territory in the South of Delhi to check drainage congestion through Khaluka Regulator in Rajasthan. Due to the construction of a number of bunds in Rajasthan territory in catchment area of river Sahibi, Krishnawati, Dohan and Landoha Nalla originating from Aravali hills of Rajasthan, the flood problem in Rewari, Mahendargarh, Jhajjar and Mewat has now reduced considerably. The problem arises only when there is heavy downpour in low lying pockets and in such situation, dewatering is resorted to, on SOS basis.

Important drains of Yamuna Sub Basin area are Chautang Nallah, Dhanaura Escape, Nissing Drain, Indri Drain, Main Drain No. 2, Nai Nallah, Drain No. 8, Diversion Drain No. 8, Out-fall Drain No. 8, Najafgarh Drain, Chhapra Drain, Meham-Lakhanmajra Drain, KCB Drain, Supplementary Drain, Nuh Drain, Ujjina drain, Ujjina diversion Drain, Gaunchi Main Drain etc.

Ghaggar Sub Basin

Remaining 60% area of the state drains in to the Ghaggar Sub Basin of Indus Basin comprising of Yamuna Nagar (part), Panchkula, Ambala, Kurukshetra, Kaithal,

Jind, Bhiwani, Hisar, Fatehabad and Sirsa districts. This area has a country slope towards river Ghaggar. The river Ghaggar enters Haryana State in district Panchkula from the foothills of Shivalik and flows in South-West direction to Rajasthan through Haryana and Punjab. River Tangri and Markanda merge in the Ghaggar River in Kaithal district. Ghaggar River and its tributaries create serious problems enroute in districts Ambala, Kurukshetra, Kaithal, Fatehabad and Sirsa. The Ghaggar River drains into desert area of Rajasthan. Important drains of Ghaggar Sub Basin are GandaNallah, SYL Parallel Drain, Saraswati Drain, Kaithal drain, Amin drain, Pundri Drain No. 1, Pundri Drain No. 2, Kasan Drain, Kalwa-Kinana Drain, Padana Drain, Hansi Drain, Rori-Ghaggar Drain, RangoiKharif Channel cum Drain, RangoiNallah, Rangoi Diversion drain. The Bass-Hisar-Ghaggar drain is under implementation which will provide relief to the areas in Hisar, Fatehabad and Sirsa districts.

A number of ring/protection bunds and embankments have been constructed with high level approaches and ramps to protect abadi of important towns and villages which otherwise could get marooned as a result of spillover from rivers/nallahs due to their location in flood belt of this basin. Beside this, Ottulake has also been deepened to store Ghaggar flood water to use the same in a number of Kharif channels in district Sirsa.

Main drains, their capacity and out-fall source is as under:-

Sr. No.	Name of Drain	Capacity Discharge in Cusec	Out-fall
YAMUNA SUB BASIN			
1	Main Drain No. 2	6325	River Yamuna
2	NaiNallah	2241	Drain No. 8
3	Diversion Drain NO. 8	7320	River Yamuna
4	West Jua Drain	500	Mangeshpur drain
5	Drain No. 8	1537	Bhindawas lake/drain
6	Out-fall drain No. 8	4000	Dhansa out-fall drain
7	KCB Drain	692	Mangeshpur drain
8	Chandeni Drain	425	Nuh drain
9	Nuh Drain	1362	Ujina drain
10	Ujina drain	2200	Ujina Diversion drain
11	Ujina Diversion Drain	2200	Gaunchi Main Drain
12	Gaunchi Main Drain	6655	River Yamuna
GHAGGAR SUB BASIN			
1	Saraswati Drain	16660	A tributary of river Ghaggar
2	Kaithal Drain	213	River Ghaggar
3	Rangoi Diversion Drain	4088	River Ghaggar

Sr. No.	Name of Drain	Capacity Discharge in Cusec	Out-fall
4	Hisar Drain	500	River Ghaggar
5	HisarGhaggar multipurpose channel	500	River Ghaggar
6	MirpurChoe Drain	830	River Ghaggar
7	Amin Drain	2250	River Ghaggar
8	HisarGhaggar Drain	750	River Ghaggar
9	Baretta Drain	1380	River Ghaggar
10	SirhindChoe Drain	2454	River Ghaggar
11	RangoiNallah	7000	River Ghaggar

Flood situation in the year 2015

During 2015 Haryana received deficit rainfall and district wise statement of rainfall during the monsoon of 2015, as collected from Agriculture Department is given in **Table-C**. The rainfall received during the months of July, August and September 2015 was as low as 66%-74% of normal rainfall in Hisar, Rohtak, Fatehabad, Mohindergarh districts. The twelve districts of the State received less than 40% of the normal rainfall during the monsoon period of 3 months in 2015. Hence no major flood situation was faced during the flood period of 2015 and the medium received in the rivers was mainly due to rainfall in the catchment areas of the rivers.

The basin wise status of flood received during 2015 is given below:-

Yamuna Sub Basin

This year medium flood discharge was recorded in river Yamuna at Hathnikund Barrage with maximum discharge of 101360 Cs on 13.08.2015. This flood passed safely in river Yamuna but eroded some agricultural land along the river edge at various locations near at some locations near village TapuKamalpur, Kalanaur, Bagwali, Lapra, TapuMajri, Ralesar, Odri, Bhogpur, mandolin Gaggar, Mali Majra and Nawajpur, Bitripur, Sandhala and GumthalaRao in district Yamuna Nagar.

The medium flood discharge was received in River Somb dated 11.07.2015 and 16.07.2015. Apart from this the district Karnal and panipat experienced no major damage due to low flood discharge in River Yamuna. But during the passage of flood water some agriculture land eroded near ShergarhTapu complex while some minor damages were observed at KundaKalan complex and Lalupura complex.

Further, no major flood problem was observed in district Jhajjar, Rohtak, Bahadurgarh during the monsoon period of year 2015 as there were scanty and localized rains in this area. However, rainwater remained standing in some pockets

due to topography of the area and high sub soil water levels. The rain water accumulated in low lying areas of district Jhajjar which was dewatered by deploying pumps. The dewatering in the Achhej Link Drain was hampered to some extent due to sloughing of earth on side slopes. No portion of abadi was affected. The main affected villages were Babra, Godhri, Matanhail, Mundsa, Khaparwas, Bhindawas, AkheriMadanpur, Mundhera, Gochhi, Dhandlan, Bishan/Beri, Dubaldhan, Achhej, Baghpur, Dujana, Dighal, Jahazgarh, Bakra, Kabulpur, Mandothi, Asoda, Todran, JasorKheri and Daboda in which the rainwater accumulated in depth varying from 6 inch to 1 feet. In district Rohtak, total 115 No. pumps on 44 temporary sites were installed during the year 2015. The dewatering was carried out successfully in villages like Ritoli, Baland, Sunaria, Chiri, Kiloj etc.

Ghaggar Sub Basin

The flood water of river Markanda, Tangri, Patiala Nadi, MerapurChoe drain and Para river apart from number of creak of Ghaggar and Saraswati belt falls in the Ghaggar river. During the second week of July-2015, 219 mm rain was recorded in Pundri constituency in district Kaithal and 23 No. villages were badly affected due to the furry of floods and the flood water accumulated in the low lying area especially in field of village Deeg and Habri. The crops in approximately 3750 acres area of these villages were effected/badly damaged and all the dewatering process of the flooded area was completed by 30.09.2015. All excess rain water was disposed off from the fields with the help of V.T pumps and by digging temporary ditch drain.

The medium/ low floods were also recorded in all the rivulets of Ghaggar basin during the monsoon season of 2015 in district Ambala and Kurukshetra. Some erosion of land took place, which was controlled by providing temporary protection measures as per the site requirements. Similarly, no damages were reported in Kaithal, Hisar, Fatehabad and Sirsa districts during the flood season 2015. In district Bhiwani, few places were waterlogged due to local rains like village Bond, Nimri, Bihri etc. The rain water was drained out using drainage pumps. All efforts were made to save standing crops with timely drainage of accumulated rainwater for harvesting and before sowing season of Rabi crops.

The maximum discharge observed in the main rivers during the year was as under:-

Sr. No.	River	Discharge Site at	Maximum Discharge Recorded in Cusec	Date on which maximum Discharge recorded
1	River Yamuna	HathniKund Barrage	101360	16.08.2015
2	River Ghaggar	Panchkula Site 4A	11409	16.07.2015
		GulhaCheeka	38441	14.07.2015
		Khanauri	13275	15.07.2015
		Chandpur including RangoiNallah and JoyaNallah	10500	15.07.2015
		Downstream Ottu	1550	-
3	River Markanda	Jhansa	8529	02.08.2015
4	River Tangri	Jansui	8100	14.08.2015

Further statement showing Annual Peak Flood Data of various sites since 2002 is given in **Table- D**. In Addition position of pumps for dewatering of flood water from low lying areas is given in **Table-E**.

Table-C

**DISTRICT WISE MONSOON RAINFALL DATA FOR THE YEAR 2015
(JULY TO SEPTEMBER)**

(in millimeters)

District	July ,2015		August, 2015		Sept, 2015		Total		% Dev
	Actual	Normal	Actual	Normal	Actual	Normal	Actual	Normal	
Ambala	311	307.8	213	326	123.3	177.6	647.3	811.4	-20.22
Bhiwani	71	128.2	79	132	14.1	56	164.1	316.2	-48.10
Faridabad	254.3	201.6	184.7	234.7	5.3	121.7	444.3	558	-20.38
Palwal	189.5	160.4	66.3	171.8	15.3	86.6	271.1	418.8	-35.27
Fatehabad	45.7	104.3	19	95.9	19.3	51.5	84	251.7	-66.63
Gurgaon	127.3	169	155.8	185.2	56.5	80.1	339.6	434.3	-21.81
Mewat	210.6	167.2	143.6	194	155	99.3	509.2	460.5	10.58
Hisar	31.3	118.8	40	113.8	3	57.4	74.3	290	-74.38
Jhajjar	133.2	159.3	125.4	151.2	31.1	72.4	289.7	382.9	-24.34
Jind	105.5	142.3	93.3	147	20.2	85.6	219	374.9	-41.58
Kaithal	121	128.3	49.7	140.1	24	73.4	194.7	341.8	-43.04
Karnal	265	197.8	110.9	224.3	41.6	94.6	417.5	516.7	-19.20
Kurukshetra	301.6	202.3	196.5	203.3	74.3	91.1	572.4	496.7	15.24
Mohindergarh	65.7	154.3	45.6	144.4	7.2	53.2	118.5	351.9	-66.33
Panchkula	170.2	327	198.4	346.6	56.8	171.2	425.4	844.8	-49.64
Panipat	180.3	176.2	83.3	203.9	55	86.5	318.6	466.6	-31.72
Rewari	137.8	150.1	110.5	183.5	42.3	69.1	290.6	402.7	-27.84
Rohtak	77.5	194.1	76.3	195.8	2	68.6	155.8	458.5	-66.02
Sirsa	61.9	99.8	32.6	81.7	12.3	37.6	106.8	219.1	-51.26
Sonepat	199.5	194.4	152.8	208.7	8.5	85.2	360.8	488.3	-26.11
Yamunanagar	271.7	304.4	259	325.4	126.8	144.5	657.5	774.3	-15.08
Average	158.6	180.4	116	190.92	42.57	88.724	317.2	460	-31.04

Table-D

**STATEMENT SHOWING ANNUAL FLOOD PEAK DATA AT VARIOUS SITES
(Discharge in Cusecs)**

YEAR	YAMUNA RIVER	MARKANDA	TANGRI	GHAGGAR RIVER				
	U/S TAJEWALA	JHANSA	JANSUI	4-A Panchkula	Guhla Cheeka	Khanauri	Chandpur	D/S Ottu
2002	3,11,174 on 14.8.02	59,000 On 14.8.02	26,890 on 15.7.02	17,862 On 14.8.02	45,096 on 16.8.02	14,900 on 17.8.02	9,850 on 17.8.02	5,850 on 16.9.02
2003	86,411 on 5.7.03	52,570 on 5.9.03	11,298 On 4.9.03	10,818 on 1.7.03	46,029 On 5.9.03	14,650 on 5.9.03	10,500 on	6,000 On 8.9.03
2004	81,929 on 18.8.04	25,010 on 17.8.04	47,818 On 3.8.04	83,684 on 3.8.04	61,730 on 7.8.04	17,500 on 7.8.04	17,000 on 11.8.04	20,700 on 13.8.04
2005	1,56,000 on 5.7.05	55,500 on 6.7.05	23,427 on 5.7.05	17,862 On 5.7.05	45,403 on 7.7.05	14,800 on 8.7.05	6,850 on 9.7.05	7,500 on 11.7.05
2006	1,56,237 On 23.7.06	59,000 on 27.7.06	Leakage	33,822 on 9.7.06	36,440 on 27.7.06	11,300 On 29.7.06	4,600 on 29.7.06	-
2007	1,07,346 on 13.8.07	8,545 on 15.8.07	7,344 on 13.8.07	49,088 on 13.8.07	43,260 on 16.8.07	14,450 On 17.8.07	8,000 on 18.8.07	4,700 on 18.8.07
2008	4,09,876 on 20.9.08	8,085 on 22.9.08	19,998 on 21.9.08	36,786 on 20.9.08	50,454 On 22.9.08	18,250 On 24.9.08	13,550 on 22.9.08	-
2009	4,30,454 On 11.9.09	9,661 On 13.9.09	17,560 On 13.9.09	58,670 on 12.9.09	49,174 On 14.9.09	12,575 On 16.9.09	12,800 On 16.9.09	8,050 On 15.9.09
2010	7,44,507 on 20.9.10	40,000 On 22.8.10	45,458 on 6.7.10	58,667 on 17.7.10	63,460 on 7.7.10	49,500 On 10.7.10	38,000 on 11.7.10	20,500 on 14.7.10
2011	6,41,462 on 16.8.11	9,322 on 9.7.11	7,099 On 1.7.11	11,485 on 8.7.11	33,602 on 25.7.11	8,350 On 26.7.11	4,350 On 26.7.11	2,550 on 28.8.11
2012	88201 on 4.8.12	7643 On 31.7.12	4731 On 8.7.12	7423 on 18.9.12	28560 On 20.9.12	20020 On 19.9.12	4350 On 21.9.12	4930 On 3.9.12
2013	8,06,464 on 17.06.13	9548 On 16.9.13	2509 On 10.8.13	22514 on 24.7.13	26422 On 18.6.13	8000 On 10.8.13	6750 On 18.8.13	3750 On 14.8.13
2014	128339 on 16.7.14	8306 on 20.7.14	110 on 25.7.14	114872 on 15.8.14	27582 on 21.7.14	6725 on 21.7.14	14450 on 9.9.14	NIL
2015	101360 on 16.08.2015	8529 on 02.08.2015	8100 on 14.08.2015	11409 on 16.07.2015	38441 on 14.07.2015	13275 on 15.07.2015	10500 on 15.07.2015	8850 on 21.07.2015

Table-E

POSITION OF DRAINAGE PUMPS AS ON 31.12.2015

Name of Unit	Total No. of Pumps	Capacity in Cs.	Pumps in working order	Capacity in Cs.	Pumps under repair
DIESEL MOBILE PUMPS					
BWS Unit	252	504	245	478	16
YWS Unit (N)	30	55	30	55	2
YWS Unit (S)	139	226	105	223	22
LCU Unit	319	638	228	456	91
TOTAL	740	1423	608	1212	131
ELECTRICAL MOBILE PUMPS					
BWS Unit	97	306	90	272	8
YWS Unit (N)	66	334	66	334	-
YWS Unit (S)	118	354	84	222	34
LCU Unit	483	1735	341	1232	142
TOTAL	764	2729	581	2060	184
PERMANENT PUMPS					
BWS Unit	286	2715	286	2715	16
YWS Unit (N)	31	165	31	165	-
YWS Unit (S)	-	-	-	-	-
LCU Unit	225	1282	214	1192	11
TOTAL	542	4162	531	4072	27
G.Total (Diesel, Electrical & VT Pumps)	2046	8314	1720	7344	342

Note: The pumps will be got repaired before 30.06.2016