PART–A

MANDI BAHAUDDIN CANAL DIVISION

CHAPTER - 1

SALIENT FEATURES OF THE MANDI BAHAUDDIN CANAL DIVISION

1.1 LOCATION

Mandi Bahauddin Canal Division was established in July, 2021 after the revamping of the Punjab Irrigation Department. The Divisional Office is located in Canal Colony Mandi Bahauddin on right side of Mandi Bahauddin, Rasul Road.

1.2 GENERAL DESCRIPTION

Mandi Bahauddin Canal Division is responsible for the operation and maintenance of river training works along the right bank of the River Chenab from downstream of Qadirabad Barrage up to the outfall of the Lower Jhelum Canal (LJC) Escape, covering the jurisdictions of District M.B. Din and District Sargodha. Total length of Bunds and Spurs in Mandi Bahauddin is 30.30 miles along right bank and 497.73 Miles of canals which exist in Mandi Bahauddin/Sargodha Districts. The purpose of these infrastructures is to save tens of thousands of inhabitants dwelling along River Chenab from ravages of the river which can wreak havocs to their lives and property during monsoon. A brief description of Rivers/Nallah which brings floods in District Mandi Bahauddin and detail of flood protection works constructed to mitigate flood damages have been explained in this flood fighting plan. An index plan of Mandi Bahauddin Canal Division showing all flood protection works constructed along River Chenab is placed at page No. **9-A.**

1.3 ADMINISTRATIVE SETUP

1. Executive Engineer Mandi Bahauddin Canal Division, Mandi Bahauddin
2. Sub Divisional Officer Phalia Canal Sub Division, Phalia.
3. Sub Divisional Officer, Sohawa Canal Sub Division, M.B. Din.
4. Sub Divisional Officer, Busal Canal Sub Division, M.B. Din.
5. 11 No. Sub Engineers.

CHAPTER – 2

FLOOD PROTECTION AND RIVER TRAINING WORKS

2.1 DESIGN PARAMETER OF TRAINING WORKS

RIVER CHENAB

Chenab River originates from the hills of occupied Jammu and Kashmir and after entering in Pakistan, it is controlled at Marala Barrage in District Sialkot. Other important structures on this River D/S Marala Barrage are Alexandra Railway Bridge and G.T Road Bridges near Gujrat city, Khanki and Qadirabad Barrages.

Prior to 1983, this River used to flow along its left bank but it started to drift towards right side in the subsequent flood seasons. The trend of right wards drift kept on increasing and the situation became critical to such an extent that Punjab Irrigation Department had to construct a No. of river training structures along right bank of this River in the subject reach of about 50kms length to check erosion/embayment along right bank and to arrest the chances of Alexandra Bridge from being by-passed by the river.

The area of responsibility of Mandi Bahauddin Canal Division on river Chenab along its right bank starting from D/S Qadirabad Head Works upto the escape of Lower Jhelum Canal in District Sargodha.

Detail of works in the above mentioned river reaches is as under.

QADIRABAD BARRAGE TO OUTFALL LJC ESCAPE (RIVER REACH)

Sr. No.	Name of spur	Location	Length of spur (in ft.)	Length of shank	Length of head	Top width (in ft.)	Side slope of shank
1	Guide wall spur village Farrukhpur.	Distt: MBDin	2240	--	--	25	2:1
2	Hockey Spur No.1 at Bhutta Marran	Distt: MBDin	2385	1650	735	25	2:1 & 3:1
3	Hockey Spur No.2 at Bhutta Marran	Distt: MBDin	685	--	--	20	1:1
4	Solid Stone Studs No. 4,5,6 & 7 in front of Bhutta Marran	Distt: MBDin	220	--	--	15	1:1
5	J-head Spur Kokaray	Distt: MBDin	4105	1750	2135	25	2:1 & 3:1
6	J-head spur Chakori village.	Distt: MBDin	2650	--	855	25	2:1
7	Guide wall spur village Noorpur.	Distt: MBDin	1581	--	--	25	2:1
8	J-head Spur Haveli Manak	Distt: MBDin	3560	1800	1760	25	2:1 & 3:1

9	Guide wall spur U/S Haveli Manik.	Distt: MBDin	1400	--	--	25	2:1
10	Hockey Spur with stud near Village Bherowal.	Distt: MBDin	600	--	--	20	2:1
11	J-head Spur Dera Gujjran	Distt: Sargodha	3710	2000	1710	25	2:1 & 3:1
12	Hockey Spur near village Miana Hazara	Distt: Sargodha	684	-	-	25	2:1
	Total		**27925**				
			5.585 Mile				

ABSTRACT

i	Qadirabad Barrage to outfall LJC escape sloping spurs/J-head hockey spur,Guide wall.	=	11 No.
ii	Studs / Other Structures	=	12 No.
	TOTAL	**=**	**23 No.**
	TOTAL LENGTH	**= 1.831 Miles**	

i) HUMBER FLOOD BUND

This bund has been constructed to protect Phalia disty system & agriculture land of villages Thakar Kalan, Miana Thakar, Waryam, Bherowal, Humber, Basti Makhdum & Dhunny Kalan etc. from flood waters of River Chenab. The bund was originally constructed during the financial year 1983, with a total length of 82,500 feet (16.5 miles), extending from Village Dhuni Kalan to the tail of LJC Escape.

The bund was designed based on the 1973 Highest Flood Level (HFL), with a freeboard of 5 feet above that reference level. In the Super flood of August 2025, localized overtopping occurred at multiple RDs due to insufficient freeboard and outdated design parameters. This required the raising and remodeling of above-said flood bund on currently observed HFL and 6ft of freeboard as per FFC criteria. The total length taken up for raising and remodeling is 67500 ft because the flood bund from RD 67+500 to 83+500 has come under the shadow of main Phalia Sial More Road. This raising and remodeling will be completed in fiscal year 2025-26 & 2026-27 under annual development program.

Table 1: Salient Features of Humber Flood Bund are as under:

Parameter	Description
Year of Completion	1983
Total Length	83,500 ft (16.5 miles)
Location	From Village Dhuni Kalan to Tail LJC Escape
Type of Bund	Earthen
Top Width	25 ft

Freeboard	5 ft above HFL 1973
Side Slopes	3:1 (river side), 2:1 (country side)
Top R.L.	659–674 ft
HFL 1992	655–669 ft
HFL 2025	658–672 ft
Pitched Section	RD 39+000–40+000 = 1,000 ft
Lag Time	8-9 hours

A **CONSTRUCTED/COMPLETED WORK DURING 2005-06, 2006-07.**

Following works namely "Construction of spurs/studs on right bank of River Chenab to protect village abadies and agricultural lands of Qadirabad, Farrukhpur, Chakori, Noorpur, etc." were planned to be executed under ADP 2005-06 and work has been completed on 30.6.2007. The salient features of these components are as under:-

1) Constructing Farrukhpur flood protection bund RD 0+000 to 33+500

The Farrukhpur Flood Bund is situated at right bank of Budhi Nullah drain adjacent / extension of Budhi Nullah Flood Bund normally acts as the bank of drain to restrain the drain water entering into the adjoining villages and also to guide the Budhi Nullah drain water towards the main creek of River Chenab. It starts from Village Chuk Kalan and ends at main creek of river Chenab in village Farrukhpur. This flood bund was constructed in year 2006-07 with total length of 33+500 ft. The flood bund faces direct hit of River Chenab during flood and back watering of Budhi Nulla Drain simultaneously. During the construction of flood bund, it was designed on highest flood levels of 1992 flood with only 3 ft free board.

On August 27, 2025, an unprecedented super flood passed from Qadirabad Barrage of more than 1077000 Cs from Barrage gates and additionally from breaching section. Meanwhile, all of sudden the flood water started over topping from several RDs of Farrukhpur Flood Bund due to insufficient free board and outdated design. Owing to this situation, the remodeling and raising of this flood bund on latest design criteria HFL 2025 + 6ft freeboard to safeguard the structure as well as a huge area behind the flood bund. This work will be completed in fiscal year 2025-26 and 2026-27 under annual development program.

Parameter	Description
Year of Completion	2006–07
Total Length	33,500 ft (0–33500)

Type	Earthen flood bund
Top Width	25 ft
Side Slopes	River side 3:1; Country side 2:1
Top R.L.	681.50 ft
HFL 2014	678.00 ft
HFL 2025	681.00 ft
Lag Time from Qadirabad H/W	2–3 hours

2) Constructing Guide Wall spur near Farrukhpur village

Parameter	Description
Length of guide wall	2240 feet
Top width	25 feet
Side slopes	2:1
Thickness of pitching	2 feet
High flood level	680.0 ft.
Top level of guide wall.	680.0 ft.
Top level of apron	659.50 ft.
Free board	5.00 ft.
Lag Time from Qadirabad H/W	2-3 hours

3) Constructing J-head spur near Chakori village

Parameter	Description
Length of shank	2650 feet
Length of head	855 ft.
Top width	25 feet
Side slopes	2:1
Thickness of pitching	2 feet
High flood level	671.50 ft.
Top level of spur	676.50 ft.
Top level of apron	656.00 ft.
Free board	5.00 ft.
Lag Time from Qadirabad H/W	3-4 hours

4) Constructing Guide wall spur with sloping stud near Noorpur village

Parameter	Description
Length of guide wall	1581 feet
Top width	25 feet
Side slopes	2:1
Thickness of pitching	2 feet
High flood level	659.60 ft.
Top level of guide wall.	659.60 ft.
Top level of apron	654.50 ft.
Lag Time from Qadirabad H/W	3-4 hours

5) Salient features of sloping stud

Parameter	Description
Length	Straight part = 100 feet Sloping part = 192 feet Total = 292 feet
Top width	15 feet
Side slopes	1:1

6) Constructing Guide wall spur with sloping stud U/S Haveli Manik

Parameter	Description
Length of guide wall	1400 feet
Top width	25 feet
Side slopes	2:1
Thickness of pitching	2 feet
High flood level	668.20 ft.
Top level of guide wall.	668.20 ft.
Top level of apron	653.70 ft.
Lag Time from Qadirabad H/W	3-4 hours

7) Salient features of sloping stud

Parameter	Description
Length	Straight part = 100 feet Sloping part = 171 feet Total= 271 feet
Top width	15 feet
Side slopes	1:1

B CONSTRUCTED/COMPLETED WORK DURING 2020-21

During the super flood of 2014, the River Chenab developed a pronounced rightward loop downstream of Qadirabad Barrage. This morphological change exposed several villages—namely Bhutta Marran, Kokaray, Haveli Manak, and Dera Gujjran (located approximately 25–46 km downstream of Qadirabad Barrage)—to severe river erosion and potential displacement. To mitigate this threat, a river training scheme was prepared in accordance with Model Study Report No. IRR-1334, vetted by NESPAK consultants and approved by the Administrative Department. The following structures with salient features were sanctioned under the scheme:

1) Constructing Bhutta Marran Hockey Spur No 1 & 2

Initially, a series of solid studs were built during the financial year 2016–17 to counteract the severe erosive action of the river. Subsequently, during the financial year 2020–21, two permanent hockey-type spurs were completed to

ensure long-term stabilization of this reach of riverbank. The hockey spur no.2 was initially a stone stud and later converted into the hockey spur. The river water overtopped these hockey spurs in this super flood 2025.

Parameter	Description
Length	Spur No.1 – 2,385 ft; Spur No.2 – 685 ft
Location	Near Village Bhutta Marran
Type of Structure	Stone-built Hockey Spurs
Side Slopes	2:1 & 3:1 (Spur No.1); 1:1 (Spur No.2)
Top Width	25 ft (Spur No.1); 20 ft (Spur No.2)
Lag Time	3–4 hours

2) Constructing J-head Spur Kokaray

The J-Head Spur at Village Kokaray constitutes a vital component of the Annual Development Programme (ADP) 2016–17 scheme. The Kokaray J-Head Spur, being the primary structure of its type projecting into the River Chenab, serves a critical hydraulic function by deflecting high-velocity river flows away from the adjoining abadies and fertile agricultural farms. It was designed to withstand a discharge of 900,000 cusecs. A deep scour hole developed silently near the head portion, undermining the toe and foundation support. As flood levels began to recede, this concealed scour led to the sudden collapse of 300–400 ft of the spur head, later extending to approximately 750 ft in total length. Continuous water movement along the un-pitched country side generated reverse flow, rear scouring, and erosion behind the spur head, aggravating the damage.

During the second freshet, this failure was primarily attributed to altered River Morphology, Shift of River Flow Pattern towards the Structure, Increased velocity of floodwaters due to already wetted riverbed and Development of a deep scour hole in the vicinity of head portion of J-Head. In light of the observed damages and hydraulic behavior during the 2025 super flood, this J-head Spur will be restored as per original conditions along with the provision of country-side pitching to avoid rear scouring and sloughing.

Parameter	Description
Top Width	25 ft
Shank Length	1,750 ft
Head Length	2,135 ft
Side Slopes	Shank 3:1 (river) & 2:1 (country);
Free Board	5 ft above HFL 2014 (672.00 ft)
Apron Size	Avg. 400 cft per rft
Stone Pitching Thickness	1 + 1 ft
HFL 2025	675.50 ft (Q ≈ 1.077 M cusecs + Breaching

3) Constructing J-head Spur Haveli Manak

The J-Head Spur at Haveli Manak was constructed during the financial year 2017–18 as part of the ongoing flood protection and river training works along the right bank of the River Chenab. However, two consecutive high floods within the same season exposed the structure to prolonged hydraulic stress. As a result, the un-pitched country-side slopes experienced considerable erosion and sloughing due to backwater effects and slope saturation.

Although the river-side pitching and main spur body remained intact and functionally sound, the damaged slopes require immediate restoration to maintain the design efficiency and ensure long-term stability against future flood events.

Parameter	Description
Total Length	3,560 ft
Length of Shank	1,800 ft
Length of Head	1,760 ft
Location	Upstream Haveli Manak
Type	J-Head Spur
Side Slopes	2:1 and 3:1
Top Width	25 ft
Lag Time	3–4 hours

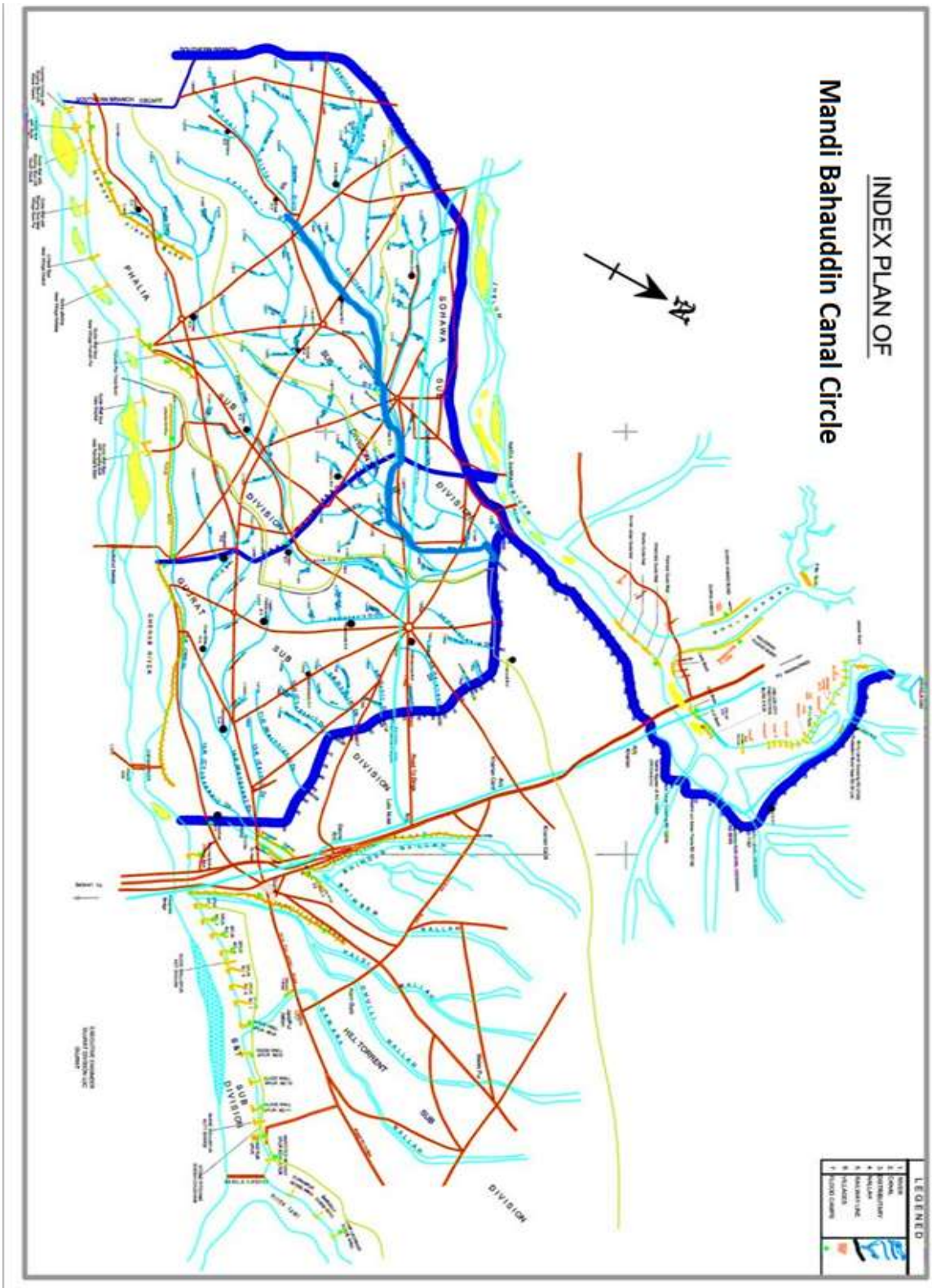
4) Constructing J-head Spur Dera Gujjran

This J-Head Spur is a flood protection structure located near Village Dera Gujjran along the right bank of the River Chenab constructed under the same ADP scheme. Designed as a J-Head -type spur, it serves to protect the adjoining abadies and fertile agricultural lands from potential hydraulic attack and river erosion during high flood stages. Due to change in river behavior, no structural or functional damage was observed at the J-Head Spur Dera Gujjran in 2025 super flood.

Parameter	Description
Total Length	3710 ft
Length of Shank	2000
Length of Head	1710
Side Slopes	2:1 & 3:1
Top Width	25 ft
Lag Time	6–7 hours

2.2 LOCATION MAP

Location Map is attached.


INDEX PLAN OF
Mandi Bahauddin Canal Circle
LEGENED
PHALIA
GUJRAT
SUB DIVISION
DIVISION
HILL TORRENT

CHAPTER – 3

BRIEF HISTORY OF PAST FLOOD EVENTS

Unexpected heavy rains in the first week of September, 1992 caused historic floods in the catchment area of Twin Rivers i.e. Jhelum and Chenab at the same occasion. The discharge in river Chenab at Marala Barrage 845090 Cs. was experienced on 10.9.1992 at 18.00 hours. Similarly the flow in River Chenab at Qadirabad Barrage at 1800 hours of 9.9.1992 was only 41681 Cs. which started rising on 10.9.1992 morning and went upto 948530 Cs. on 11.9.1992. The flood water spread on the right side of River Chenab and river edge were badly damaged.

During subsequent flood seasons, the main river channel started drifting towards right side between Marala to Alexandra Bridge reach. As a result of this development, the entire river started flow along its right bank. Consequently, serious problems such as embayment, land erosion, bank sloughing and inundation of agricultural lands, basis infrastructures and villages were experienced. Due to this expanding erosive tendency of the river, a number of villages and thousands of acres of valuable agricultural land lost to the river. This problem, therefore, required a suitable and effective preventive measure. To evolve an affective flood management plan for this area, model studies were carried out by the Irrigation Research Institute. 11 No. spurs were constructed along Right Bank of River Chenab from D/S Marala Headworks to Alexandra Ridge in District Gujrat.

During flood season of 1997, heavy rains started in Gujrat District on 26.8.1997. Incessant heavy rains continued for about 36 hours without any break. Situation took serious turn on 27-28/8/97 when heavy discharge in River Chenab (exceptionally high flood of 775525 Cs.) along with dangerous wind storm and heavy rain made the situation precarious. Floods in Nullahs also joined hands. Joint action blow was so serious that a time came when situation was out of the control of a man and it power. In fact, even it could be termed as a calamity or bolts from the blue. Following spurs/guide banks suffered heavy damages i.e J-head spur No. 2, 3,4,6,8, Guide bank spur No. 9 & Guide bank spur No. 10 were damaged. These damages were restored during financial year 1997 to 1999.

A high flood was received D/S Qadirabad Barrage on 7.8.2010 with discharge of 319733 Cs. Resultantly a loop was developed in between guide wall spur on right bank of River Chenab opposite village Randiali and inverted hockey spur opposite village Bahri and J-Head Spur Chakori in District M.B.Din. The sites were inspected by the Executive Engineer, Gujrat Division UJC on 16.8.2010. The condition of structures was serious. The apron from RD 0-70 of the inverted hockey spur Bahri was completely launched and pitching slipped into the scour pit in different reaches. The shank of the spur has also washed away in a length of 70 feet. The apron and solid portion of J-Head spur Chakori was also badly damaged. The model study of these structures was made by the Irrigation Research Institute. In the light of design and proposals given by the Principal Research Officer (Hydraulics) the restoration work of Inverted Hockey Spur Bahri was carried out. Simultaneously J-Head Spur near village Chakori was also replenished re-constructed and restoration completed accordingly. The both works have been completed at site during the fiscal year of 2011-2012.

As regard, the following infrastructures were badly damaged during flood season 2010 which was repaired/restored.

Farrukhpur Flood Bund

- Repairing & providing pitching in damage and vulnerable reaches of Farrukhpur flood bund.

Haveli Manik Guide Wall

- Restoration damaged and by-passed sloping stud U/S Haveli Manik Guide wall.

Bherowal Guide Wall

- Protecting/Restoring by passed solid stud D/S hockey spur near village Bherowal.

During subsequent flood season 2011 and 2012, the discharge received in River Chenab was 166383 Cs. and 170210 Cs. respectively. During this medium flood no damages were occurred fortunately.

During flood season 2013, a high flood was received with discharge of 369960 Cs. downstream Murala Barrage. This heavy discharge damaged various infrastructures which were existed on the right bank of River Chenab. The following works were taken up under Para 2.89 of PWD code.

Sr.	Name of Work
1	Protection of Farrukhpur flood bund on erosion side at RD 11-12 & 14-15.
2	Protecting & restoring of hockey stud/spur for protection of village Behlolpur from erosion of right side of River Chenab,
3	Protection abadies of village Bhutta Piran from erosion on Right Side of River Chenab.

The below mentioned scheme was approved by the Federal Flood Commission Islamabad and work completed during the Financial year 2012-13 to 2014-15.

Sr. No.	Name of Work
1.	Checking erosion on right bank of River Chenab to protect Bhekho out fall drain and agriculture land of Miana Hazara

During flood season 2014, a discharge of 856464 Cs. was received downstream Marala Barrage on 6.9.2014 which create a hue and cry situation in the surrounding abadies located on the Right Bank of River Chenab in District Gujrat. The hill torrents and nallahs also joined hands and enhanced the disturbance situation. The sudden increase in the discharge badly eroded the Right Bank of River Chenab as well as the infrastructures. It is also worth mentioning here that the heavy rains started in the first week of September 2014 in Gujrat District. The incessant heavy rains continued and the situation took serious turn hour to hour. Consequently an exceptional heavy flood wrecked havoc on the lives and livings of inhabitants of District Gujrat. Downstream Khanki Barrage the discharge of 947099 Cs. was received which created a hue and cry situation in the upstream locality and damaged a lot of agricultural and stock lives. The flood protection structures and river training works between Marala Head Works to Khanki Head Works were also damaged.

Downstream Qadirabad Barrage 903504 Cs. Discharge passed which damaged the flood bunds, embankments; guide walls etc. existed on the right bank of River Chenab, falling in the jurisdiction of District Mandi Bahauddin. Consequently, the following infrastructures were damaged partially and to some extent.

Sr. No.	Name of infrastructure/minor damaged
1	Restoration of damages/by pass sloping stud U/S Guide Wall Haveli Manik.
2	Restoration of cut between RD 23-24 of Farrukhpur Flood Bund.
3	Restoration of eroded bank between RD 3-4, 7-8, 10-11 and RD 21-22 of

	Farrukhpur Flood Bund.
4	Restoring cuts from RD 10-50100 tail of Qadirabad minor.

The following works were taken up during the financial year 2014-15 and 2015-16.

INESCAPABLE WORKS

Sr. No.	Name of infrastructure
1	Restoration of eroded bank between RD 3-4, 7-8, 10-11, 11-12, 21-22 and closing cut between RD 23-24 Furkhpur Flood Bund.
2	Restoraiton damaged bypassed sloping stud U/S Guide wall Haveli Manik.

OTHER WORK

Sr. No.	Name of infrastructure
1.	Construction of Solid stone stud to protect pitching of village Kokary.

WORK EXECUTED UNDER PARA 2.89 OF PWD (2015-16)

Sr. No.	Name of infrastructure
1.	Checking erosive action of Chenab River near village Bhuta Marran.

WORK EXECUTED UNDER PARA 2.89 OF PWD (2016-17)

Sr. No.	Name of infrastructure
1	Constructing solid stone studs on right bank of River Chenab to protect village Bhutta Marran

The 2025 flood season began with moderate monsoon rainfall over the upper catchments of the Chenab Basin. However, on 27 August 2025, an exceptionally high flood was recorded at Marala Barrage with an inflow of 917,525 cusecs. As this flood wave traveled downstream, additional contributions from rainwater and inflows from Bhimber Nullah, Phalkhu Nullah, and other tributaries resulted in an unprecedented super discharge of 1,077,951 cusecs at Qadirabad Barrage. A second freshet of approximately 557,000 cusecs followed shortly thereafter.

The simultaneous impact of upstream flood peaks and local rainfall generated a prolonged high-stage condition along the river, subjecting all flood protection structures maintained by the M.B. Din Canal Division to extreme hydraulic stresses. This led to the breaching of the Farrukhpur flood bund, overtopping and development of erosional stress at various RDs of Humber Flood bund, washing out of the nose portion of J-head Spur Kokaray, apron launching, sloughing of pitching of river side and washing out of nose portion of Haveli Manak Guide wall,

breaching of Qadirabad minor due to overflow of Bhekho drain and apron launching of miana hazara hockey spur.

WORK EXECUTED UNDER PARA 2.89 OF PWD (2025-26)

Sr. No.	Name of infrastructure
1.	Checking erosion of Chenab River at J-head Spur Kokaray.

The following works were taken up during the financial year 2025-26:

Sr. No.	Name of Work
1	Restoration and Rehabilitation of Qadirabad minor.
2	Restoraiton of Farrukhpur Flood Bund.
3	Raising and Remodeling of Farrukhpur Flood Bund.
4	Raising and Remodeling of Humber Flood Bund.
5	Restoration of J-head Spur Kokaray along right bank of river Chenab.
6	Restoration of Haveli Manik Guide wall along right bank of river Chenab.
7	Restoration of Deficient Apron of Miana Hazara Hockey Spur.
8	Protection of Haveli Manik, Chak Chot, Basti Makhdoom etc. from erosive action of river Chenab downstream Qadirabad barrage in Mandi Bahauddin.

CHAPTER – 4

DESIGN DATA, HISTORIC PEAK FLOOD DATA AND PREVIOUS FIVE YEARS FLOOD DATA OF HEAD WORKS/BARRAGES AND OR OTHER CONTROL POINTS

4.1 FLOOD LIMITS OF MARALA HEAD WORKS

1.	Normal flood	=	0.0 – 1.0 lac Cs.
2.	Low flood	=	1.0 – 1.5 lac Cs.
3.	Medium flood	=	1.5 – 2.0 lac Cs.
4.	High flood	=	2.0 – 4.0 lac Cs.
5.	Very high flood	=	4.0 – 6.0 lac Cs.
6.	Exceptionally high flood	=	6.0 & above.

4.2 TIME LAGS OF FLOODS

- **Distance 8 Km from Border to Murala time for flood water.= 2hours**

AHKNOOR TO MURALA

- LOW Flood = 9-10 hours.
- Medium Flood = 8-9 hours.
- High Flood = 7-8 hours.
- Very high Flood = 5 hours.
- Exceptionally high Flood = 4 hours.

Flood water above 1.00 lac

Marala to Alexandra bridge	(42KM)	=	5-6 hours.
Alexandra bridge to Khanki	(14KM)	=	1.5-2 hours
Khanki to Qadirabad	(28KM)	=	3-4 hours

4.3 HIGHEST FLOODS

1992	-	845090 Cs. Marala Barrage
1992	-	650000 Cs. Alexandra Bridge
1992	-	910000 Cs. Khanki Headworks
1992	-	948530 Cs. Qadirabad Barrage
2014	-	856464 Cs. Marala Barrage
2014	-	780216 Cs. Alexandra Bridge
2014	-	947099 Cs. Khanki Headworks
2014	-	903504 Cs. Qadirabad Barrage
2025	-	917525 Cs. Marala Barrage
2025	-	1043812 Cs. Khanki Barrage
2025	-	1077951 Cs. Qadirabad Barrage

4.4 PEAK DISCHARGES.

i) YEARLY PEAK DISCHARGES OF RIVER CHENAB AT MARALA

Year	Peak Flood	Year	Peak Flood	Year	Peak Flood
1925	139596	1959	870795	1993	409490
1926	202765	1960	599303	1994	472570
1927	237718	1961	272003	1995	439970
1928	686000	1962	331362	1996	766860
1929	718000	1963	204158	1997	775525
1930	254000	1964	215863	1998	213705
1931	260238	1965	144677	1999	214765
1932	332326	1966	618338	2000	247610
1933	366000	1967	190386	2001	160950
1934	228000	1968	155262	2002	224780
1935	253000	1969	219302	2003	313024
1936	177500	1970	203733	2003	147318
1937	145759	1971	175143	2004	93150
1938	261700	1972	132915	2005	345479
1939	203000	1973	769550	2006	332956
1940	167100	1974	192630	2007	252409
1941	297000	1975	582600	2007	148627
1942	301500	1976	549400	2008	174977
1943	256900	1977	437125	2009	94168
1944	150500	1978	456394	2010	282418
1945	207650	1979	248111	2011	166383
1946	263540	1980	199981	2012	169914
1947	253720	1981	527462	2013	369960
1948	432000	1982	647098	2014	856464
1949	251956	1983	171579	2015	153408
1950	540761	1984	160042	2016	412065
1951	193847	1985	222595	2017	187470
1952	209570	1986	241800	2018	168278
1953	316898	1987	114140	2019	211296
1954	820090	1988	481365	2020	298884
1955	344090	1989	352115	2021	171156
1956	272200	1990	160020	2022	210936
1957	1100000	1991	40560	2023	192960
1958	478457	1992	845090	2024	160950
				2025	917525

ii) YEARLY PEAK DISCHARGES OF RIVER CHENAB AT KHANKI.

Year	Peak flood	Year	Peak flood	Year	Peak Flood
1925	266809	1960	809524	1995	650000
1926	224640	1961	353994	1996	851000
1927	223796	1962	346279	1997	847000
1928	441497	1963	186435	1998	214954
1929	747000	1964	176590	1999	170815
1930	194376	1965	200618	2000	309253
1931	292098	1966	636670	2001	155648
1932	271769	1967	209767	2002	240389
1933	246163	1968	235397	2003	371888
1934	177813	1969	274357	2003	172593
1935	259730	1970	251954	2004	106934
1936	15946	1971	293293	2005	368078
1937	105835	1972	811723	2006	418740
1938	261685	1973	1000496	2007	300197
1939	175979	1974	189446	2008	202000
1940	128393	1975	666241	2009	74550
1941	168687	1976	615043	2010	327637
1942	210357	1977	472130	2011	131492
1943	238169	1978	433096	2012	186413
1944	164719	1979	246867	2013	410332
1945	180122	1980	194814	2014	947099
1946	149681	1981	563856	2015	163967
1947	236583	1982	243260	2016	418736
1948	438529	1983	--	2017	184346
1949	224949	1984	134897	2018	182025
1950	986658	1985	148482	2019	181944
1951	217868	1986	341000	2020	286230
1952	264065	1987	109413	2021	183688
1953	315330	1988	844050	2022	210945
1954	806774	1989	512225	2023	204041
1955	230490	1990	270015	2024	163215
1956	340663	1991	314553	2025	1043812
1957	1086460	1992	910000		
1958	401682	1993	366680		
1959	1021018	1994	509113		

iv. YEARLY PEAK DISCHARGES OF RIVER CHENAB AT QADIRABAD

Year	Peak discharge	Year	Peak discharge
1968	221607	2004	90043
1969	360038	2005	379572
1970	240401	2006	443206
1971	312098	2007	311382
1972	249259	2008	194038
1973	854341	2009	55535
1974	198228	2010	319733
1975	669819	2011	164604
1976	628741	2012	180789
1977	482871	2013	403403
1978	428009	2014	903504
1979	240785	2015	175054
1980	178582	2016	416492
1981	575440	2017	164660
1982	245030	2018	172031
1983	303120	2019	159544
1984	108476	2020	258954
1985	321917	2021	167812
1986	318117	2022	202149
1987	342758	2023	185749
1988	892266	2024	145219
1989	497649	2025	1077951
1990	290417		
1991	--		
1992	948530		
1993	434754		
1994	425567		
1995	644397		
1996	853231		
1997	873442		
1998	259713		
1999	630500		
2000	291349		
2001	136575		
2002	226398		
2003	367408		
2003	159296		

CHAPTER - 5

FLOOD FIGHTING STRATEGY

In order to combat the flood, the following plan is to be put in operation for each River or Nallah and protective works on it.

i) HUMBER PROTECTION BUND

The Sub Engineer Bhikho and Sub Divisional Officer Phalia are incharge of this bund. Emergency flood fighting material as per list attached will also be available at huts, which have already been constructed for this purpose at vulnerable sites i.e. RD 20000, RD 33000, RD 40000 and at RD 47000. However, localized overtopping and erosional stress was observed at multiple RDs in this super flood of 2025.

There is no likelihood of the flood water touching the bund upto 3.50 lac cs. discharge below Qadirabad Barrage. At 5.00 lac of discharge below Qadirabad Barrage, the flood water touches the bund in reach RD 10000 to RD 47000 and in this situation there is no likelihood of any attack on the bund. However when the discharge below Qadirabad exceeds 5.00 cusecs, the Sub Engineer Phalia will also shift his headquarter from Duggal Rest House to RD 39000 of Humber Protection Bund to watch the said bund from RD 39000 to 67500 and Sub Engineer Bhikho shall be incharge of reach RD 0-33000 with temporary headquarter at RD 33000. The gang huts on these points have already been constructed.

When the discharge below Qadirabad is more than 5.50 lac cusecs Sub Divisional Officer Phalia will also shift his camp to Humber flood bund and will be overall incharge of watching Humber Protection Bund. In case of acute emergency District Coordination, Mandi Bahauddin and District Police Officer, Mandi Bahauddin will be approached to assist the Department.

ii) FARRUKHPUR FLOOD BUND

The Farrukhpur Flood Bund is an earthen protective embankment situated along the right bank of the Budhi Nullah Drain. It is functioning as an extension of the Budhi Nullah Flood Bund, it prevents drain overflow from entering adjacent abadies and channels the Budhi Nullah flows safely toward the main creek of the River Chenab. It runs along and protects the adjoining abadies i.e. Qadirabad city, Alan, Thathi Shah Muhammad, Noshera, Farrukhpur, Melu and Matto. It was constructed during FY 2006–07 and has a total length of

33,500 ft (approximately 6.8 miles). Owing to its alignment, the bund is subjected to dual hydraulic stresses: direct river attack from the Chenab during flood events, and backwatering pressures generated by Budhi Nullah. This bund has merely a freeboard of 3ft with outdated design. Due to these reasons; this bund got breached at RD 8-9, 17-18 and 20-21. The raising and remodeling of this bund will be carried out this financial year.

CHAPTER – 6

FLOOD DAMAGES RESTORATION WORKS

A) The following site was damaged during flood season 2010 and work completed during 2010-11 which are as under:-

Sr.#	Name of Scheme
1.	Protecting & Restoring J-Head Spur Chakori

B) The following sites were damaged during flood season 2013 and works have been taken up under para 2.89 of PWD Code.

Sr. #	Name of scheme
1	Protecting abadies of village Bhutta Piran from erosion of right side of River Chenab.
2	Protection of Farrukhpur flood bund on erosion side at RD 11-12 & 14-15.

C) The following structure was damaged during flood season 2025 and to control its further erosion, it was taken up under Para 2.89 of PWD Code.

Sr. No.	Name of infrastructure
1.	Checking erosion of Chenab River at J-head Spur Kokaray.

D) The following sites were damaged in super flood 2025 and restoration works was carried out accordingly.

Sr. No.	Name of Work
1	Restoration and Rehabilitation of Qadirabad minor.
2	Restoraiton of Farrukhpur Flood Bund.
3	Raising and Remodeling of Farrukhpur Flood Bund.
4	Raising and Remodeling of Humber Flood Bund.
5	Restoration of J-head Spur Kokaray along right bank of river Chenab.
6	Restoration of Haveli Manik Guide wall along right bank of river Chenab.
7	Restoration of Deficient Apron of Miana Hazara Hockey Spur.
8	Protection of Haveli Manik, Chak Chot, Basti Makhdoom etc. from erosive action of river Chenab downstream Qadirabad barrage in Mandi Bahauddin.

CHAPTER – 7

FLOOD FIGHTING WATCHING ARRANGEMENT

7.1 PRE-FLOOD ARRANGEMENT

Necessary flood fighting material is available on stock. Structure wise status of Reserve Stock of stone is as under:-

SR. NO.	NAME OF DIVISION /NAME OF INTERVENTION	SANCTIONED LIMIT OF RESERVE STOCK (Lac CFT)	STONE AVAILABLE AT SITE (LAC CFT)	BALANCE QUANTITY REQUIRED
1	RD 40-41 of Humber flood bund	0.50	0	0.50
2	Guide wall spur near Farrukhpur village	0.50	0	0.50
3	J-head spur near Chakori village	1.00	0	1.00
4	J-head Spur Haveli Manak	0.50	0	0.50
5	J-head Spur Dera Gujjran	0.75	0.25	0.50
6	Hockey Spur Bhutta Marran	0.55	0.23	0.32
7	Hockey Spur Miana Hazara	0.30	0	0.30
8	Guide Wall Spur U/S Haveli Manak	0.50	0	0.50
9	Farrukhpur Flood Bund	0.40	0	0.40
	Total	**5.00**	**0.48**	**4.52**

The balance quantity of stone will be procured after receipt of funds.

7.2 WATCHING ESTABLISHMENT

Following watching establishment will be engaged during the flood season for watching & general maintenance of flood works on monthly basis. However in case of very high flood or in real emergency the strength of watching establishment will be increased with the express permission of Executive Engineer Mandi Bahauddin Canal Division. Day & night watching will be done in the months of July, August & September as the chances of flood are maximum during these months.

Sr #.	Structure Name	Length (Miles)	Flood Limits							
			Normal Flow Season		Low Flood		Medium /High Flood		Very High / Excep. High Flood	
			Men	Shift	Men	Shift	Men	Shift	Man	Shift
1	Humber flood bund	16.50 Miles	9	1	17	1	34	2	83	3
2	Farrukhpur flood bund	6.70 Miles	3		7		14		34	
Total per Shift			12		24		48		117	
Total			12		24		96		351	
No. of Mates			01		02		08		30	

7.3 ARRANGEMENT AT SENSITIVE SITES

Necessary Flood Fighting Camps will be established at sensitive sites on 15th June 2026. The detail as under.

Establishment of Flood Camps:

Sr.	Structure	Length	Vulnerable Sites		No. of Camps established except vulnerable points		
			Reach	No. of Camps	Normal / Low	Medium / High	Very High/ Exceptionally High
1	Humber Flood Bund	16.5 Miles	RD 35+000 – 40+000	1	-	2	2
2	Farrukhpur Flood Bund	6.7 Miles	RD 15+000 – 20+000	1	-	-	1
Total				2	-	2	3

7.4 WATCHING MATERIAL FOR PERMANENT FLOOD CAMP DURING NORMAL / LOW FLOOD (15 Miles) 2 No. CAMPS

Sr. No.	Item	Required Quantity	Available	Balance required	Remarks / status
1	Shouldari / Tent	2 No.	2 No.	-	The required material will be purchased on receipt of requisite funds before flood season 2026.
2	Chairs	12 No.	--	12 No.	
3	Symbolic Jackets	100 No.	--	100 No.	
4	Charpois	04 No.	02 No.	02 No.	
5	Table	2 No.	--	2 No.	
6	Generator (2-3KVA)	2 No.	--	2 No.	
7	Pedestal Fans	2 No.	--	2 No.	
8	Polythene Sheet	200 Kg	--	200 Kg	
9	Jute / Plastic Bags	2000 No.	--	2000 No.	
10	Bamboos (4'' dia & 10ft long)	200 No.	--	200 No.	
11	Water Cooler	2 No.	--	2 No.	
12	Portable Umbrella	4 No.	--	4 No.	
13	Life Jackets	10 No.	8 No.	2 No.	
14	Utensils (10 persons set)	2 No.	--	2 No.	
15	Walkie Talkie Set	4 No.	--	4 No.	
16	Raincoats	20 No.	--	20 No.	
17	LED Flood Light	20 No.	--	20 No.	
18	Extension Cable (10ft)	4 No.	--	4 No.	
19	Rechargeable Torches	40 No.	8 No.	32 No.	
20	Kassi	40 No.	7 No.	33 No.	
21	Axes	40 No.	7 No.	33 No.	
22	GI Buckets	10 No.	--	10 No.	
23	7/44 Cable	1000 ft	--	1000 ft	
24	Sutli	4 kg	--	4 kg	
25	Sewing Needles	20 No.	--	20 No.	
26	Emergency Medical Kit	2 No.	--	2 No.	
27	Wire Crates (3x3x3) near river action camps where reserve stock is available	200 No.	--	200 No.	

B. WATCHING MATERIAL FOR TEMPORARY FLOOD CAMP DURING MEDIUM OR EXCEPTIONALLY HIGH FLOOD (7 OR 5 Miles) 1 No. CAMPS TO BE OUTSOURCED.

Sr. No.	Item	Required Quantity	Remarks
1	Shouldari / Tent	1 No.	WATCHING MATERIAL FOR TEMPORARY FLOOD CAMP TO BE OUTSOURCED
2	Chairs	6 No.	
3	Symbolic Jackets	50 No.	
4	Table	1 No.	
5	Generator (2-3KVA)	1 No.	
6	Pedestal Fans	1 No.	
7	Jute / Plastic Bags	500 No.	
8	Water Cooler	1 No.	
9	Portable Umbrella	2 No.	
10	Utensils (10 persons set)	1 No.	
11	Charpois	2 No.	
12	Walkie Talkie Set	1 No.	
13	Raincoats	10 No.	
14	LED Flood Light	10 No.	
15	Extension Cable (10ft)	2 No.	
16	Rechargeable Torches	20 No.	
17	Kassi	20 No.	
18	Axes	20 No.	
19	GI Buckets	5 No.	
20	7/44 Cable	500 ft	
21	Sutli	2 kg	
22	Sewing Needles	10 No.	

7.5 ARRANGEMENT FOR SOUNDING & PROBING

There is no requirement for proper arrangements related to the sounding & probing in this Division.

7.6 LIGHTING ARRANGEMENT

During peak flood hours, flood fighting operations will be carried out round the clock. In case of windstorm and rain, lantern and gas lamps fail to work, therefore, to overcome the problem, a reliable generator set with all accessories will be kept on each flood bund, which will facilitate successful operation. For this purpose, LED Flood lights, rechargeable torches and sufficient number of generators would have already been arranged by this division.

7.7 RATION ARRANGEMENT

Relates to District Administration.

7.8 P.O.L ARRANGEMENT FOR VEHICLE

In case the petrol, oil and lubricants are in short supply on account of disruption of communication elsewhere in the country, the Executive Engineer Incharge will make timely arrangements for having adequate P.O.L reserve at convenient places i.e. petrol pumps at Phalia, Mandi Bahauddin and

Qadirabad in consultation with and through an order by the concerned District Coordination Officer.

7.9 TRANSPORTATION

Presently 3 No. 4 X 4 vehicles are available in Mandi Bahauddin Canal Division. Additional vehicles, if required, will be arranged from other the departments.

7.10 EARTH MOVING MACHINERY

In an exceptionally high flood case, 12 no. Excavators, 18 no. Tractor Trolleys, 9 no. Dumpers, and 12 Front Blade Tractors will be employed by this division.

7.11 LAW AND ORDER

Experience shows that whenever any flood emergency arises, inhabitants of the area try to cut the protection bund at upstream to divert the flood threat from their locality and a law order situation arises.

In such a situation, it would be necessary for District Administration to provide:

a) Adequate day & night patrolling to guard against any attempt to stealthily cutting a bund.

b) Adequate provision of police force for any open and defiant attempt of breaching the bund at any place.

In these situations, the District Coordination Officer and the District Police Officer of the respective Districts would be expected to promptly provide adequate police force accompanied with a Magistrate on being apprised of the situation by the officers of Irrigation.

7.11 MEDICAL ARRANGEMENT FOR LABOUR

Relates to District Administration.

7.12 LIAISON WITH OTHER DEPARTMENT

The District Coordination Officer & District Police Officer will be contacted in advance and a list of volunteers will be prepared with whom contact will be made during emergency. The list containing the names of volunteers and the village lumberdars, made responsible by the Civil Authorities, will also be kept in liaison.

7.13 ROLE OF THE ARMY

Pak Army Representative has to inspect the flood infrastructure before flood season. The irrigation department will remove the deficiency pointed out by the army authority before coming flood season. Any emergent situation will be reported by the Irrigation Department to the Pak Army.

7.14 DUTY OF TELEPHONE ATTENDANT

Telephone Attendant will be available round the clock at Divisional Flood Emergency Camp. The detail is as under:

Shift No..	Name of Official	Cell No.	Time	
			From	To
1	Safdar Iqbal Signaler	0349-7271963	7.00 AM	3.00 PM
2	Muhammad Abbas Signaler	0345-5863332	3.00 PM	11.00 PM
3	Raiz Ahmad Signaler	0341-8422068	11.00 PM	7.00 AM

Telephone Number of Telegraph Office at canal colony Mandi Bahauddin: "0546-510480".

7.15 WIRELESS ARRANGEMENTS

Speedy means of communications will be adopted through departmental Wireless sets, Canal Telegraph, Messengers & running the jeep drivers to keep a close liaison beginning from that of watchman to the Superintending Engineer. No important event should take more than one hour to be conveyed to the Executive Engineer and two hours to the Superintending Engineer. Mobile wireless sets have already been purchased and given to the Executive Engineer Mandi Bahauddin (Code 'AMJAD MB Din') and all the three S.D.Os (Code of S.D.O Phalia is 'SADIQ PHALIA') & Sub engineers (Code is on their names) and also applied for wireless frequency. At present this office is using frequency of Police. Base sets have also been purchased out of which one has been installed at Canal Telegraph Office Mandi Bahauddin and Phalia. During flood season, main camp will be established at RD 20000, 33000 of Humber Flood bund and RD 12000 of Farrukhpur Flood Bund for District Mandi Bahauddin as these points are centrally located and are, therefore, most suitable for exercising comprehensive check at all the vulnerable points. The concept of establishment of main camps have already been acceded by the Army Monitors and District Administration of District Mandi Bahauddin during flood season, 2000.

Similarly wireless communication has been established in Qadirabad Headworks Division. Good interaction is available through intercommunication network. The entire "CHAJ DOAB AREA" has been covered with this communication network.

Direct communication with the Flood Information Center Lahore is required to maintain for collection of necessary flood and rainfall data in upper catchments, so that timely intimation be conveyed to the concerned quarters.

Similarly one Base station has been installed with the co-ordination of Executive Engineer Qadirabad to receive current information on wireless.

CALLING CODE DATA OF IRRIGATION OFFICERS ON WIRELESS

Sr. No.	Officer/official with designation	Calling Code	Police control/frequency
1.	Chief Engineer, Sargodha	Farzand Sargodha	Sargodha
2.	Superintending Engineer, MB Din Canal Circle, MB Din	Amjad-1 MB Din	Mohsin Control/162.975
3.	Executive Engineer, MB Din	Amjad MB Din	Azam Control/162.800
4.	Executive Engineer, Qadirabad	Amjad Qadirabad	Nisar Qadirabad /162.875
5.	Sub Divisional Officer, Phalia	Sadiq Phalia	Salah-ud-Din/163.850
6.	Sub Divisional Officer, Sohawa	Sadiq Sohawa	Salah-ud-Din/163.850
7.	Sub Divisional Officer, Busal	Sadiq Busal	Salah-ud-Din/163.850
8.	Sub Engineer, Headquarter	Muhammad Nabeel	Azam Control/162.800
9.	Sub Engineer, Bhikho	Muhammad Rizwan	--

FREQUENCY FOR THE POLICE CHANNELS

Channel No.1	157.975	Lahore
Channel No.2	162.800	Azam Control Gujrat
Channel No.3	162.850	Zulfiqar, Gujranwala
Channel No.4	160.775	Atta Control Chakwal
Channel No.5	162.900	Shaheen, Murree
Channel No.6	162.925	---
Channel No.7	162.950	--
Channel No.8	162.975	Mohsin, Jhelum
Channel No.9	160.025	---
Channel No.10	161.400	Nisar,Sialkot
Channel No.11	163.850	Salah-ud-Din, M.B.Din
Channel No.12	163.875	Hassan, P.C Rawat
Channel No.13	163.900	---
Channel No.14	163.925	---
Channel No.15	163.950	---
Channel No.16	163.975	Faisalabad

CHAPTER – 8

DETAIL OF ENCROACHMENT

There is no encroachment on any flood protection work in Mandi Bahauddin Canal Division Some private properties have been constructed by the original owners on the flood banks particularly in Phalia Canal Sub Division. Department has not acquired the land, hence these constructions does not fall in the category of encroachments.

Total Encroachment	Removal	Balance	Action to be Taken
----------Nil----------			

CHAPTER – 9

DUTY ROSTER/FLOOD FIGHTING PROGRAM

Executive Engineer, Mandi Bahauddin Canal Division.

Executive Engineer will be overall incharge of flood activities in the jurisdiction of Mandi Bahauddin Canal Division. The flood protection works falling in the areas of District Mandi Bahauddin are in the administrative control of Executive Engineer. He is responsible for maintenance and supervision of flood protection / watching arrangement during flood season. He will also keep liaison with the civil / army authorities and Superintending Engineer Mandi Bahauddin Canal Circle Mandi Bahauddin regarding the situation.

In case of emergency, on the request of Sub Divisional Officer, Phalia Sub Division, the Executive Engineer Mandi Bhauddin will order to deploy Sub Divisional Officer Sohawa and Busal along with their subordinate staff to assist/coordinate Sub Divisional Officer Phalia to cope with the emergency. Their duty roster will be as under:-

Sub Divisional Officer, Phalia Canal Sub Division.

In case of emergency and high flood, he will be responsible for the watch and ward of Humber Flood Bund & Farrukhpur Flood Bund along Right side of River Chenab falling in Phalia Sub Division. He will be mainly responsible for the protection of flood infrastructure & coordination with the Army/District Civil Administration/Executive Engineer Mandi Bahauddin Canal Division and also camp at Humber Flood bund at RD 33000 with base station on police frequency Mandi Bahauddin.

Sub Engineer, Chillianwala.

Sub Engineer, Challianwala will be attached at Headquarter Phalia to attend the emergency if any.

Sub Engineer, Chhimon.

Sub Engineer, Chhimon will be incharge of Humber Bund, watch all flood activities and remain present round the clock with a gang of labour to look after flood infrastructures.

Sub Engineer, Wasu.

Sub Engineer, Wasu will be incharge of Farrukhpur Flood Bund, watch all flood activities and remain present round the clock with a gang of labour to look after flood infrastructures.

Sub Engineer, Dinga.

Sub Engineer, Dinga will be incharge of Humber Flood Bund and watch all flood activities and remain present round the clock with a gang of labour to look after flood infrastructures.

Sub Engineer, Phalia.

Sub Engineer, Phalia Section will be incharge of Guide wall spur Bherowal, Haveli Manik & Noorpur to watch all flood activities and remain present round the clock with a gang of labour to look after flood infrastructures.

Sub Engineer, Bhikho

Sub Engineer, Bhikho Section will be incharge of J-head Kokaray, J-head spur Chakori, J-head Spur Haveli Manak and Hockey Spur Miana Hazara to watch all flood activities and remain present round the clock with a gang of labour to look after flood infrastructures.

CHAPTER – 10

EMERGENCY TELEPHONE NUMBERS

Sr. #	Designation	Office	Residence
i)	**IRRIGATION DEPARTMENT IRRIGATION & POWER SECRETARIAT LAHORE**		
1.	Minister, Irrigation	042-99212809-10	
2.	Secretary, Irrigation Department Lahore	042-99212117-18	042-35731116
3.	Addl. Secretary (Admn.) Lahore.	042-99212119	--
4.	Addl. Secretary (OP) Lahore.	042-99212129	042-5224359
5.	Addl. Secretary (Technical) Lahore.	042-99212123	042-6818219
6.	Deputy Secretary (Admn.) Lahore.	042-99212126	042-570392
7.	Deputy Secretary (OP) Lahore.	042-99212127	042-7848174
8.	Deputy Secretary (Development) Lahore.	042-99212128	042-7586597
9.	Section Officer (Flood) Lahore.	042-99212134	042-7581015
ii)	**SARGODHA IRRIGATION ZONE**		
1.	Chief Engineer, Irrigation Sargodha	048-9230445	048-9230451
2.	Executive Engineer (OP) Sargodha.	048-9230446	048-729067
3.	Superintending Engineer, Mandi Bahauddin.	0546-510410	0546-510410
4.	Executive Engineer, MB Din Canal Division.	0546-510480	0546-510480
5.	Sub Divisional Officer Sohawa M.B.Din.	0546-506562	0546-506562
6.	Sub Divisional Officer Busal M.B.Din.	0546-506561	0546-506561
7.	Sub Divisional Officer Phalia.	0546-596811	0546-596811

iii)	**HEADWORKS DIVISIONS**		
1.	Executive Engineer, Murala.	052-3502102	--
2.	Executive Engineer, Khanki.	055-6605255	--
3.	Executive Engineer, Qadirabad.	054-7550198	054-7424272
iv)	**DISTRICT ADMINISTRATION MANDI BAHAUDDIN.**		
1.	District Administrator, Mandi Bahauddin.	0546-520900	0546-299009/ 599002
2.	District Coordination Officer, M.B.Din.	0546-504220	0546-504200
3.	District Police Officer, M.B.Din.	0546-502324	--
4.	E.D.O (Revenue) M.B.Din.	0546-501825	0546-506340

5.	D.D.O (Revenue) Phalia.	0546-596460	0546-596690
6.	D.D.O (Revenue) M.B.Din.	0546-506488	0546-505145
7.	D.D.O (Revenue) Malakwal.	0546-591276	0546-591368

PAKISTAN BROAD CASTING CORPORATION

NEWS ORGANIZATION LAHORE

Sr. No.	Designation	Office	Residence
1.	Deputy Controller Incharge News Editor	042-99200674	042-5862694
2.	Deputy Controller News	042-99200681-4	Ext.
3.	Radio F.M 105 Gujrat.	053-3520320 & 3520785	
4.	Radio F.M 98 M.B.Din	0546-509798	

PAKISTAN TELEVISION CORPORATION LAHORE

Sr. No.	Designation	Office	Residence
1.	News Room	Direct= 042-99200617 042-99200618	--
		Exchange= 042-99200651-59	--
		Fax = 042-99200620	

FLOOD CONTROL CENTER PUNJAB

Sr. No.	Designation	Office	Residence
1.	Flood warning Center, 46-Jail Road Lahore.	042-99205371	Fax 042-99205372
2.	Flood Cell, I&P Secretariat Lahore.	042-99212134	Fax 042-99212116
3.	Police Wireless Control, Jail Road Lahore.	042-7572090	--
4.	Flood Emergency Board of Rev. Punjab.	042-99204408	Fax-042-99204405
5.	National Flood Forecasting Bureau Lahore.	042-7586479	042-7562874
6.	Senior Meteorologist	042-99240402	--
7.	Chief Engineer (D&F) Zone Lahore	042/99233551	--
8.	Director Flood (D&F) Zone Lahore	042/99233552	--
9.	Flood Cell (I) Secretariat Lahore	042/99212134	
10.	National flood forecasting Bureau Lahore	042/99200208	042/7583747

MILITARY ENGINEERS TELEPHONE Nos.

1.	Headquarters Engineers, 30-Corps Gujranwala Cantonment.	0432-269/2353	--
2.	24-Engineers Battalion, Sialkot Cantonment Sialkot.	0432-571/5186	--
3.	Headquarters Engineers 1-Corps, Kharian Cantonment.	05771-095/2364	--
4.	15-Div. Sialkot	0432-571/3223 & 3225	
5.	10-Brigade Sialkot	0432-571/4202	

CHAPTER – 11

STANDARD OPERATING PROCEDURE (SOP) FOR BREACHING SECTIONS

11.1 HISTORY OF THE BREACING SECTION

There is no breaching section on any flood protection work in Mandi Bahauddin Canal Division.

11.2 LOCATION, DESIGN, QUANTITY AND VARIETY OF THE EXPLOSIVE REQUIRED FOR DETONATION

---------- NIL ----------

11.3 ARRANGEMENT OF EXPLOSIVES AND SECURITY OF EXPLOSIVE STORES.

---------- NIL ----------

11.4 LIST OF THE SECURITY STAFF ALONGWITH DETAIL OF THEIR TRAINING ETC.

---------- NIL ----------

11.5 DETAIL OF MECHANICAL MEANS AS A STANDBY ARRANGEMENTS IN CASE OF DETONATION FAILURE.

---------- NIL ----------

11.6 DUTY ROSTER IN CASE OF CRITICAL SITUATION.

---------- NIL ----------

11.7 BREACHING COMMITTEE WITH THEIR ACTION PLAN

---------- NIL ----------

11.8 LIST OF THE VILLAGES LIKELY TO BE INUNDATED IN CASE OF BREACH.

---------- NIL ----------

11.9 ANNOUNCEMENT AND DETAIL OF EVACUATION ARRANGEMENTS

---------- NIL ----------

11.10 DETAILS OF COORDINATION WITH CIVIL/ARMY AUTHORITIES

---------- NIL ----------

11.11 PARALLEL COMMUNICATION ARRANGEMENTS

---------- NIL ----------

11.12 INDEX PLAN

------------NIL------------

Superintending Engineer
Mandi Bahauddin Canal Circle
Mandi Bahauddin

Executive Engineer
Mandi Bahauddin Canal Division
Mandi Bahauddin

Chief Engineer
Irrigation Sargodha Zone
Sargodha

PART – B

CHAPTER – 12

VULNERABLE SITES ON FLOOD BUNDS/STRUCTURES

12.1 APPREHENDED BREACHES IN FLOOD BUNDS/STRUCTURES

The vulnerable sites are:

1. Farrukhpur Flood bund (RD 15+000 to 20+000)
2. Humber Flood bund (RD 35+000 to 40+000)

12.2 Operation of Breaching Sections.

No Breaching section exists under the jurisdiction of Mandi Bahauddin Canal Division.

12.3 Breaches due to rising of flood water, deterioration of flood bunds etc.

Farrukhpur Flood Bund at RD 8-9, RD 17-18 and RD 20-21 but these breaches have been restored accordingly.

CHAPTER – 13

EMERGENCY CONTINGENCY PLAN FOR VULNERABLE SITES

13.1 Plan showing route of Flood Water coming out of the breach supported with levels.



Farrukhpur Flood Bund



Humber Flood Bund

13.2 Detail of villages abadies likely to be affected and this should also be shown on the plan.

1. Thatti Shah Muhammad

2. Nowshera

3. Basti Makhdoom

4. Khamb Kalan

5. Bherowal

13.3 Strategy and action taken be explained in detail. This may include:

13.3.1 – Arrangements

The arrangements are as under:-

13.3.2 – Establishment of Flood Fighting Camps

The camp locations at vulnerable sites are:

Farrukhpur flood bund = RD 12+000

Humber flood bund = RD 33+000

13.3.3 – Duties of Officers/Officials and their camp sites.

CAMP No.	OFFICERS (Name, Designation & Mobile No.)	OFFICIALS (Name, Designation & Mobile No.)
1	Hamza Mazhar Cheema, Sub Divisional Officer Phalia (0300-6254472)	Muhammad Rizwan (Sub Engineer Bheikho Section 0321-6244014)

Executive Engineer, Mandi Bahauddin Canal Division.

Executive Engineer will be overall incharge of flood activities in the jurisdiction of Mandi Bahauddin Canal Division. The flood protection works falling in the areas of District Mandi Bahauddin are under the administrative control of Executive Engineer. He is responsible for maintenance and supervision of flood protection / watching arrangement during flood season. He will also keep liaison with the civil / army authorities and Superintending Engineer Mandi Bahauddin Canal Circle Jhelum regarding the situation.

Sub Divisional Officer, Phalia Canal Sub Division.

In case of emergency and high flood, he will be responsible for the watch and ward of Humber Flood Bund, Farrukhpur Flood bund and river training works along Right side of River Chenab falling in Phalia Sub Division. He will be mainly responsible for the protection of flood infrastructure & coordination with the Army/District Civil Administration/Executive Engineer Mandi Bahauddin Canal Division and also camp at Humber Flood bund at RD 33000 with base station on police frequency Mandi Bahauddin.

Sub Engineer, Kadher

Sub Engineer, kadher will be Incharge of Farrukhpur Flood bund to watch all activities and remain present round the clock with a gang of labour to look after flood infrastructures.

13.3.4 – Departmental machinery available.

No departmental machinery is available in this Division.

13.3.5 – Machinery available from Private Source

Following machinery can be hired in case of emergency from private sources. List of machinery is under:-

1. Dozer
2. Excavator Machine
3. Dumper
4. Tractor with trolley

13.3.6 – Flood Fighting Material required

Sr. No.	Item	Required Quantity	Available	Balance required	Remarks / status
1	Shouldari / Tent	2 No.	2 No.	-	The required material will be purchased on receipt of requisite funds before flood season 2026.
2	Chairs	12 No.	--	12 No.	
3	Symbolic Jackets	100 No.	--	100 No.	
4	Charpois	04 No.	02 No.	04 No.	
5	Table	2 No.	--	2 No.	
6	Generator (2-3KVA)	2 No.	--	2 No.	
7	Pedestal Fans	2 No.	--	2 No.	
8	Polythene Sheet	200 Kg	--	200 Kg	
9	Jute / Plastic Bags	2000 No.	--	2000 No.	
10	Bamboos (4'' dia & 10ft long)	200 No.	--	200 No.	
11	Water Cooler	2 No.	--	2 No.	
12	Portable Umbrella	4 No.	--	4 No.	
13	Life Jackets	10 No.	8 No.	2 No.	
14	Utensils (10 persons set)	2 No.	--	2 No.	
15	Walkie Talkie Set	4 No.	--	4 No.	
16	Raincoats	20 No.	--	20 No.	
17	LED Flood Light	20 No.	--	20 No.	
18	Extension Cable (10ft)	4 No.	--	4 No.	

19	Rechargeable Torches	40 No.	8 No.	32 No.	
20	Kassi	40 No.	7 No.	33 No.	
21	Axes	40 No.	7 No.	33 No.	
22	GI Buckets	10 No.	--	10 No.	
23	7/44 Cable	1000 ft	--	1000 ft	
24	Sutli	4 kg	--	4 kg	
25	Sewing Needles	20 No.	--	20 No.	
26	Emergency Medical Kit	2 No.	--	2 No.	
27	Wire Crates (3x3x3) near river action camps where reserve stock is available	200 No.	--	200 No.	

13.3.7- Flood Fighting Material available.

Detail of Flood Fighting Material available has already been mentioned in section 13.3.6.

13.4 Detail of other infrastructure like electric, Sui Gas, Telephone installations, road network, other buildings, Canals and drainage network.

There exist Electric line, Sui gas, telephone installation, roads, buildings, canals and drains in the area.

Superintending Engineer
Mandi Bahauddin Canal Circle
Mandi Bahauddin

Executive Engineer
Mandi Bahauddin Canal Division
Mandi Bahauddin

Chief Engineer
Irrigation Sargodha Zone
Sargodha

(Chapter 14)

ACTION PLAN

14.1 Re-shifting / Recouping plan of reserve stock stone Departmentally.

Sr. No.	Name of Flood Infrastructures having reserve stock stone.	Available Quantity of Stone (Lac Cft)	Sites where stone can be used during Flood emergency
1	J-head spur Dera Gujjran	0.25	1. Guide Wall Haveli Manak. 2. Hockey Spur Bherowal.
2	Hockey Spur Bhutta Marran	0.23	1. J-head Spur Kokaray. 2. Farrukhpur Flood Bund on right bank of River Chenab.

Reserve stock of stone will be reshuffled through Govt.Contractors

14.2 Detail of inlet/Outlet crossing along with closing methodology.

--------Nil------

14.3 Deployment Machinery (Normal flow to low flood)
ACTION PLAN DURING FLOODS ON RIVER CHENAB

Sr. No.	Name of structure	Length (miles)	Machinery deployed			
			Excavator	Trolleys	Dumpers	Tractor With Front Blade
			-	-	-	1 per 15 miles reach
1	Humber flood bund	16.500	S.E shall allow deputation of one (1) excavator & four (4) Trolleys during low flood at camps / vulnerable points & LMB / RMB.		-	1
2	Farrukhpur flood bund	6.700				-
TOTAL		**23.20**				**1**

Note: - Payment for machinery and work charge employee subject to verification by TPM.

14.4 Deployment Machinery (Medium to high flood)

ACTION PLAN DURING FLOODS ON RIVER CHENAB

Sr. No.	Name of structure	Length (miles)	Machinery deployed			
			Excavator	Trolleys	Dumpers	Tractor With Front Blade
			1 per 7 miles reach	4 per 7 miles reach	2 per 7 miles reach	1 per 7 miles reach
1	Humber flood bund	16.500	2	8	4	2
2	Farrukhpur flood bund	6.700	1	4	2	1
TOTAL		**23.20**	**3**	**12**	**6**	**3**

Note: - Payment for machinery and work charge employee subject to verification by TPM.

14.5 DEPOLYMENT MACHINARY VERY HIGH TO EXCEPTIONALLY HIGH FLOOD

PLAN DURING FLOODS ON RIVER CHENAB

Sr. No.	Name of structure	Length (miles)	Machinery deployed							
			Excavator		Trolleys		Dumpers		Tractor With Front Blade	
			Very High	Exp. High	Very High	Exp. High	Very High	Exp. High	Very High	Exp. High
			1 per 5 miles reach	2 per 5 miles reach	4 per 5 miles reach		2 per 5 miles reach		1 per 5 miles reach	2 per 5 miles reach
1	Humber flood bund	16.500	3	6	12		6		3	6
2	Farrukhpur flood bund	6.700	2	3	6		3		2	3
TOTAL		**23.20**	**5**	**9**	**18**		**9**		**5**	**9**

Note: - Payment for machinery and work charge employee subject to verification by TPM.

14.6 POLICE DEPLOYMENT PLAN

S.No.	Vulnerable sites	Concerned Canal Division	Concerned Police station & District	Police persons to be deployed		Remarks (if any)
				Inspector/ SI/ASI	Constable	
1	Farrukhpur flood bund along left bank of Budi Nallah Drain RD 14000-17000, 21000-22000 & 31000-32000	Mandi Bahauddin Canal Division	Qadirabad Mandi Bahauddin	Sub Inspector = 03 Nos.	12 Nos	
2	Humber Flood Bund RD 44000-45000	Mandi Bahauddin Canal Division	Qadirabad Mandi Bahauddin	Sub Inspector = 01 Nos	06 Nos	

14.7 Detail of Synthetic bags with Capacity of (50 Kg) and (100 Kg)

Sr. No.	Name of Structure	Length (Miles)	Vulnerable Reach	Camp Locations	Site In charge by Name & No.	No. of Synthetic Bags				Remarks
						50 Kg		100 Kg		
FLOOD BUNDS ALONG RIVER CHENAB IN MBDIN CANAL DIVISION MBDIN										
						Required	**Available**	**Required**	**Available**	
1	Farrukhpur Flood Bund	16.5	RD 35000 - 40000	RD: 12000	Muhammad Rizwan Sub Engineer Bhekho 0321-6244014	100	Nil	50	Nil	Not available at stock and will be procured in emergency
2	Humber Flood Bund	6.7	RD 15000 - 20000	RD: 33000	Muhammad Rizwan Sub Engineer Bhekho 0321-6244014	200	Nil	100	Nil	

14.8 Detail of polythene sheets of black colure to protect upstream slope against wave action and to control embankments

Sr. No.	Name of Structure	Length (Miles)	Vulnerable Reach	Camp Locations	Site In charge by Name & No.	No. of Plastic Sheets		Remarks
						sft		
FLOOD BUNDS ALONG RIVER CHENAB IN MBDIN CANAL DIVISION MBDIN								
						Required	**Available**	
1	Farrukhpur Flood Bund	16.5	RD 35000 - 40000	RD: 12000	Muhammad Rizwan Sub Engineer Bhekho 0321-6244014	1000	Nil	Not available at stock and will be procured in emergency
2	Humber Flood Bund	6.7	RD 15000 - 20000	RD: 33000	Muhammad Rizwan Sub Engineer Bhekho 0321-6244014	1000	Nil	

14.9 Any other details as per SOPs approved by the Administration Department.

SOPs shared vide No. SO(FLOODS)VII-22/2017 dated 26.12.2025 shall be strictly followed

(Chapter 15)

BACK UP DIVISIONS (IN CASE OF BREACH)

It is certified that no breaching section exists in the jurisdiction of this Division. The backup Division is Drainage Division Mandi Bahauddin.

Executive Engineer
Mandi Bahauddin Canal Division
Mandi Bahauddin