

GOVERNMENT OF KHYBER PAKHTUNKHWA



(Army Pre Flood Coordination Conference-2024)

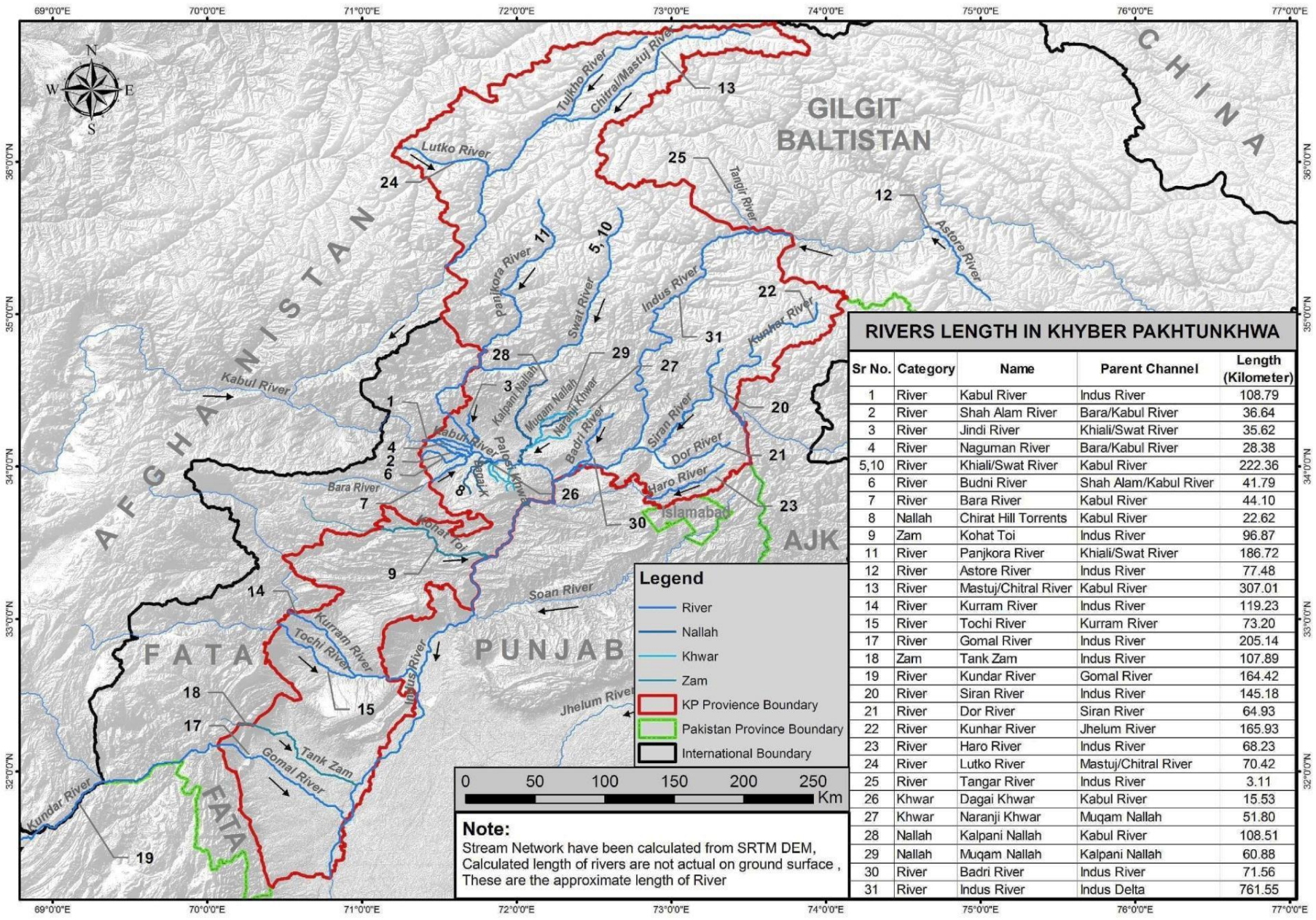
FLOOD PREPAREDNESS PLAN (FLOOD SEASON 2024) Irrigation Department

6th June, 2024

Role of Irrigation Department during Flood Season

- Establishment of Provincial Flood Emergency Cell at Peshawar headed by XEN Hydrology.
- Flow measurement at specific sites on rivers, canals and nullahs.
- Collection of flow data and dissemination of Daily Flood Situation Report (DFSR) to relevant organizations*.
- Flood fighting to protect flood mitigation structures during Emergency on Indus River in D.I Khan only.

* *H/Q 11-Corps, NDMA, PDMA, Police Department, Civil Secretariat, Relief Commissioner, Director Information Khyber Pakhtunkhwa, District administration, Federal Flood Commission, Cabinet Division Islamabad, IRSA etc.*

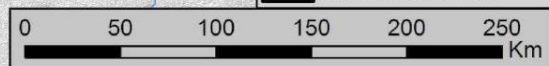


RIVERS LENGTH IN KHYBER PAKHTUNKHWA

Sr No.	Category	Name	Parent Channel	Length (Kilometer)
1	River	Kabul River	Indus River	108.79
2	River	Shah Alam River	Bara/Kabul River	36.64
3	River	Jindi River	Khiali/Swat River	35.62
4	River	Naguman River	Bara/Kabul River	28.38
5,10	River	Khiali/Swat River	Kabul River	222.36
6	River	Budni River	Shah Alam/Kabul River	41.79
7	River	Bara River	Kabul River	44.10
8	Nallah	Chirat Hill Torrents	Kabul River	22.62
9	Zam	Kohat Toi	Indus River	96.87
11	River	Panjkora River	Khiali/Swat River	186.72
12	River	Astore River	Indus River	77.48
13	River	Mastuj/Chitral River	Kabul River	307.01
14	River	Kurram River	Indus River	119.23
15	River	Tochi River	Kurram River	73.20
17	River	Gomal River	Indus River	205.14
18	Zam	Tank Zam	Indus River	107.89
19	River	Kundar River	Gomal River	164.42
20	River	Siran River	Indus River	145.18
21	River	Dor River	Siran River	64.93
22	River	Kunhar River	Jhelum River	165.93
23	River	Haro River	Indus River	68.23
24	River	Lutko River	Mastuj/Chitral River	70.42
25	River	Tangar River	Indus River	3.11
26	Khwar	Dagai Khwar	Kabul River	15.53
27	Khwar	Naranji Khwar	Muqam Nallah	51.80
28	Nallah	Kalpani Nallah	Kabul River	108.51
29	Nallah	Muqam Nallah	Kalpani Nallah	60.88
30	River	Badri River	Indus River	71.56
31	River	Indus River	Indus Delta	761.55

Legend

- River
- Nallah
- Khwar
- Zam
- KP Province Boundary
- Pakistan Province Boundary
- International Boundary



Note:
Stream Network have been calculated from SRTM DEM, Calculated length of rivers are not actual on ground surface, These are the approximate length of River

TIME LAG OF RIVERS IN KHYBER PAKHTUNKHWA

S.No	Location	Distance in KM	Time Lag Hours
	<u>SWAT RIVER</u>		
i.	Khawaza Khela to Amandara	65	12 hours
ii.	Amandara to Munda	85	9 hours
iii.	Munda to Charsadda Road	40	6.5 hours
iv.	Charsadda Road to Nowshera	35	6 hours
	<u>KABUL RIVER</u>		
i.	Warsak to Nowshera	60	10 hours
	<u>INDUS RIVER</u>		
i.	Jinnah Barrage to Chashma Barrage	56	4.5 Hours
ii.	Chashma Barrage to D.I.Khan	100	15 -17 hours
iii.	D.I.Khan to Ramak	70	9 hours

Discharge Limit Chart-Rivers/Nullahs in Khyber Pakhtunkhwa

S.No.	Name of River/ Khwar /Nullah	Low Flood (cfs)	Med Flood (cfs)	High Flood (cfs)	Very High Flood (cfs)	Highest Flood Recorded (cfs)	Highest Flood Date
1	Indus River at Tarbela (Inflow)	250000	375000	500000	650000	650000	30-07-10
2	Indus River at Tarbela (outflow)	250000	375000	500000	650000	650000	30-07-10
3	Indus River at Attock Khairabad	225000	375000	500000	650000	994600	30-07-10
4	Kabul River at Warsak	40000	60000	100000	150000	159000	Jun-05
5	Kabul River at Nowshera	60000	90000	140000	200000	450000	29-07-10
6	Sw at River at Munda H/W	40000	60000	80000	150000	355000	29-07-10
7	Sw at River at Chakdara	30000	50000	70000	100000	360000	30-07-10
8	Sw at River at Khaili Charsadda Road	40000	60000	80000	120000	360000	30-07-10
9	Kurram River at Kurram. Ghari H/W	30000	50000	80000	100000	200000	28-07-10
10	Takhta Baig Khwar at Khyber	7500	15000	30000	80000	123000	04-08-08
11	Kabul River at Adezai Bridge	30000	50000	70000	80000	90200	8/27/2022
12	Sw at River at Khwazakhela	30000	45000	60000	80000	246392	8/26/2022
13	Kunhar River at Balakot	20000	40000	60000	80000	92000	Aug-92
14	Kalpani Nullah at Chowki Risalpur	20000	40000	50000	60000	118604	30-7-10
15	Panjkora River At Zulam Bridge (DIR)	20000	30000	50000	75000	139510	8/26/2022
16	Kalpani Nullah at Mardan City	20000	30000	40000	60000	80315	7/1/2010
17	Siran River at Daryal	15000	30000	40000	50000	55181	8-1992
18	Badri Nullah at Swabi	7500	15000	35000	50000	60000	7/30/2010
19	Dour River at Rajoya	10000	25000	35000	70000	75970	8-1992
20	Haro River at Jabori	10000	20000	35000	55000	82876	8-1992
21	Gambila River at Gambila Lakki	15000	25000	45000	55000	64024	28-7-10
22	Naguman River Charsadda Road	10000	20000	30000	50000	75575	30-7-10

S.No.	Name of River/ Khwar /Nullah	Low Flood (cfs)	Med Flood (cfs)	High Flood (cfs)	Very High Flood (cfs)	Highest Flood Recorded (cfs)	Highest Flood Date
23	Bara River at Chamkani	10000	25000	30000	40000	48000	12-8-07
24	Chilla Nullah at Pabbi	3000	10000	17500	25000	28620	8/29/1979
25	Naranji Nullah at Swabi	5000	10000	20000	35000	45000	2010
26	Jindi Khwar at Utmanzai	6000	9000	16000	20000	25000	29-07-10
27	Budni Nullah at Darmangi	6000	16000	20000	45000	123000	4-8-08
28	Jindi River at Charsadda	7500	10000	15000	20000	42000	30-7-10
29	Muqam Nullah at Shahbaz garhi	3000	8000	15000	30000	45000	2010
30	Balar Khwar at Mardan	3000	10000	20000	30000	42000	29-07-10
31	Dallus Nullah at Warsak Road	3000	8000	15000	18000	21700	8/8/2010
32	Kohat Toi	7000	15000	25000	40000	50000	28-07-10
33	Shah Alam River at Takht Abad	5000	7500	12500	15000	20000	30-07-10
34	Chikar Nullah at Pabbi	3000	7500	12000	15000	14800	29-07-2010
35	Shahi Bala Khwar	3000	7500	12000	15000	19000	8/8/2010
36	Sheen Hall Khwar at Rustum	3000	7500	10000	15000	17934	11-08-88
37	Hakim Ghari Nullah at Pabbi	2500	5000	7000	10000	10650	8-7-83
38	Garandi Nullah at Urmar	2000	3000	4000	6000	7000	19-8-2003
39	Dagi Nullah at Pabbi	1500	2500	3500	4000	5000	29-7-10
40	Khudrizai Nullah at Pabbi	1000	1250	1500	2000	2500	9/8/1984

**Remarks:- All these are natural waterways/Rivers /Nullahs/Khwar not made or designed by the Executive Engineer.
The discharge are calculated on the basis of flows passing through it on long term averages.**

TYPICAL DAILY FLOOD SITUATION REPORT(DFSR)



GOVERNMENT OF KHYBER PAKHTUNKHWA
FLOOD CELL IRRIGATION DEPARTMENT PESHAWAR
DAILY FLOOD REPORT
PHONE / FAX NO. 091-9222799.



Date: 28-08-2022

TIME 07:00 PM

S.No	Name of Rivers	Locations	Discharge in (cusecs)	Flow Status	Remarks
1a	Indus River (inflow)	Tarbela	260000	LOW	
	Indus River (Out flow)	Tarbela	244500	NORMAL	
1b	Indus River	Attock Khairabad	539400	HIGH	
1c	Indus River (In flow)	Jinnah Barrage	398048	MEDIUM	
	Indus River (Out flow)	Jinnah Barrage	394048	MEDIUM	
1d	Indus River (In flow)	Chashma	512204	HIGH	
	Indus River (Out flow)	Chashma	508204	HIGH	
2	Kabul River	Warsak	109000	HIGH	
		Nowshera	336461	V HIGH	
3	Panjhora River	Dir	33837	MEDIUM	
4	Swat River	Khwazakhela	15576	NORMAL	
		Chakdara	37975	LOW	
		Munda Head Works	6000	MEDIUM	
5	Swat River Khiali	Charsadda Road	61570	MEDIUM	
6	Shah Alam River	Takhtabad	12559	HIGH	
7	Kabul River	Adezai Bridge	58692	MEDIUM	
8	Naguman River	Charsadda Road	17620	LOW	
9	Budni Nullah	Charsadda Road	193	NORMAL	
10	Jindi River	Charsadda	5908	NORMAL	
11	Kalpani Nullah	Mardan City Bughdada	1495	NORMAL	
12	Kalpani Nullah	Chowki Risalpur	26277	LOW	
13	Siran River	Dhryal	2335	NORMAL	
14	Haro River	Jabori Bohar	2906	NORMAL	
15	Kunhar River	Balakot	5981	NORMAL	
16	Gambela River	Gambela Bridge	1599	NORMAL	
17	Kohat Toi	Highway Bridge kohat	101	NORMAL	
18	Kurram River	Kuram Garhi H/Work	4525	NORMAL	
19	Bara River	chamkani	1211	NORMAL	
20	Muqam Nullah	Shahbaz garhi Mardan	599	NORMAL	
21	Badri Nullah	Swabi Mardan Road	210	NORMAL	

TIME LAG

S.NO	Location	Distance in KM	
1	Khawaza Khela to Amandara	65	12 Hours
2	Amandara to Munda	55	9 Hours
3	Munda to Charsadda Road	40	6.5 Hours
4	Charsadda to Nowshera	35	6 Hours
5	Warsak to Nowshera	60	10 Hours

Liason Officer/Duty officer

copy to:-

- 1- Chief Minister Govt: of Khyber Pakhtunkhwa Peshawar
- 2- Secretary to Govt: of Khyber Pkahtunkhwa Irrigation Department Peshawar
- 3- GSO-2 INT HQ Engineer Army 11-Crops Peshawar
- 4- DCs of Khyber pakhtunkhwa Peshawar, Nowshera, Charsadda, Swabi, Swat.
- 5- PS To Minister Irrigation Khyber Pakhtunkhwa
- 6- PTV/Geo/Ajj News Peshawar
- 7- Commissioner Peshawar Govt: of Khyber Pakhtunkhwa
- 8- Chief Engineer (North/South) Irrigation Department Pesh
- 9- Director PDMA Peshawar
- 10- FFC Islamabad.

- 11- S.Es(H/Q) South & North
- 12- IRSA Islamabad
- 13- GM Sui Gas Department Islamabad
- 14- Exective Engineer Irrigation Division Charsadda.
- 15- Army Gerison H/ Quarter Nowshera
- 16- Army Khwazakhela Distt: Swat.
- 17- Air Force Risalpur Cantt Distt: Mardan.
- 18- Army 479 Brigade Battalian Engineers Akora Khattak.
- 19- Army 102 Brigade
- 20- Army 20 Engineers.
- 21- Flood Forcasting Cell Lahore

Flood Contingency Plan, 2024

1. Flood Emergency Cell at regional office Peshawar has been established and is operational since 22nd April 2024 .
2. Local Flood Emergency Cells established in the offices of the Executive Engineers in the flood prone districts.
3. Rehabilitation & calibration of damaged gauges has been completed.
4. Emergency supervisory staff will be deployed on barrages and head works before the onset of Monsoon Flood Season.
5. Barrages, Head works and other Irrigation installation are being operated under Standard Operating Procedure (SOP) to deal with emergencies arising out of Flood situation.
6. Pre-flood inspection of Barrages, Head Works, Escape gates have been carried out.

Emergency Flood Contingent Plan for D.I Khan

1. Emergency tenders for flood works will be **finalized by 15th June 2024.**
2. Emergency gangs will be engaged by the contractors on all vulnerable locations.
3. Additional supervisory staff will be deployed on marginal bund.
4. The earth moving machinery will be deployed at vulnerable locations. The contractors will arrange machinery from open market during emergency.
5. Executive Engineer, Flood Division has shared contingency plan with the Deputy Commissioner, accordingly vigilance committees will be notified.
6. Close liaison would be ensured amongst the field staff of the Department and all concerned agencies.

Flood Mitigation Structures.

No.	Description	Length (Km)
1.	Spurs along Indus river in D.I.Khan (U/S bridge 32 and D/S bridge 13)	61
2.	a. Total length of Guide Bund b. Total length of Marginal Bund c. Total length of Flood Embankment	6 37 10.5

Post Floods 2022

Irrigation Infrastructure Damages

The assessed value of damages to irrigation and drainage infrastructure amounted to Rs. 22,386 million.

- 03 No. Bays of Munda Head Works were fully washed away due to extreme flood in Swat river.
- Flood protection works/embankments constructed along Kabul & Swat river also received severe damage due to erosive action as well as overtopping.
- The Main Chashma Right Bank Canal (CRBC) was damaged at more than 140 places and a major portion about 3Kms of main Canal has been washed away.
- The flood protection embankments on right side of Main CRBC was washed away in different reaches in a length of 90 Kms.
- Flood Carrier Channels (FCCs) were also badly damaged in D.I Khan.

Post Floods 2022

Irrigation Infrastructure Damages--Contd

- Various distributaries/minors of CRBC & Paharpur Canal Network were also partially damaged.
- In Chitral, 60 channels suffered damage, with the estimated cost of their restoration being approximately Rs. 336.50 million. Additionally, flood protection works amounting to Rs. 1280.50 million were reported as damaged.
- Mansehra Irrigation Division reported that , 25 channels suffered damages, with the estimated cost of their restoration being approximately Rs. 220.60 million. Additionally, flood protection works amounting to Rs. 445.50 million were reported as damaged.
- All over the province damages to the Irrigation infrastructures and public and private properties were also observed.

POST FLOOD 2022, RESTORATION/REHABILITATION PORTFOLIO

S.#	Name of Scheme	Cost of PC-I (Rs in M)	No of Sub Works	Releases (Rs in M)	Expenditure (Rs in M)	Progress %age	
						Physical	Financial
1	220955-Restoration of damaged flood structures and drainage system in Khyber Pakhtunkhwa.	3245.00	97	721.81	721.81	55%	22.24%
2	20956-Restoration of Water Supplies in Irrigation System and Channels in Khyber Pakhtunkhwa	2457.00	112	524.27	524.27	90%	21.33%
3	220962-Restoration and Rehabilitation of Patrol Roads/Bridges along Canals and Drains damaged in flood 2022 throughout Khyber Pakhtunkhwa.	580.0	4	53.57	53.57	30%	9.23%
4	220961-Rehabilitation of damaged flood protection structures in Khyber Pakhtunkhwa (Phase-I)	1300	16	300	300	50%	23%
	Sub Total:-	7582.00	229	1599.65	1599.65		

POST FLOOD 2022, RESTORATION/REHABILITATION PORTFOLIO

S.#	Name of Scheme	Cost of PC-I (Rs in M)	No of Sub Works	Releases (Rs in M)	Expenditure (Rs in M)	Progress %age	
						Physical	Financial
5	220998-Reconstruction and Rehabilitation of Irrigation, System and Flood Protection Works in Khyber Pakhtunkhwa. (ADB)	12118.0	143	ADB Assisted Project. 20 Nos schemes completed. Detail design for the remaining schemes have been completed. Tenders are in process.			
6	220961-Rehabilitation of damaged flood protection structures in Khyber Pakhtunkhwa (Phase-II)	5978.17	173	Awaited for approval of PDWP			
7	220960-Rehabilitation of damaged Irrigation system and channels in Khyber Pakhtunkhwa	3203.90	160	Awaited for approval of PDWP			
	Sub Total:-	21300.07	476				
	Grand Total	28882.07	705	1599.65	1599.65		

Detail Major Flood Protection Projects (09 Nos)

(Rs in Million)

S #	ADP #	Name of the scheme	Estimated cost (m)	Total length (km)	Physical progress	Expenditure	Liability	Remarks
	A	Peshawar Canals Division Peshawar						
1	2158	170665-Construction of Flood Embankment on Kabul River Upper side of Motorway Interchange District Nowshera	1060.18	7.47	85%	905.346	154.834	In Progress
2	2144	160459-Construction of flood structures along Jabba Daudzai & Zangal Korona area along kabul river & Shah Alam river District Nowshera & Peshawar	1482.98	12.15	83%	1051.04	196.006	-do-
3	2103	140523-Construction of Flood Embankment on Right side of Kabul River (Reach No. 1) District Nowshera	713.243	7.03	93%	649.118	64.125	-do-
4	2104	140524-Construction of Flood Embankment on Right side of Kabul River (Reach No. 2) District Nowshera	943.10	6.35	91%	826.516	116.584	-do-
5	2105	140525-Construction of Flood Embankment on Right side of Kabul River (Reach No. 3) District Nowshera	2311.93	25.10	98%	2268.728	43.202	-do-
6	2118	150383-Construction of Protection Structure on Right Side of Kabul River U/s & D/s Nowshera Mardan Road Bridge, District Nowshera.	3023.681	22.24	100%	2981.151	42.53	Completed
		Sub Total A:-	9299.18	80.34		8681.899	617.281	
	B	Charsadda Irrigation Division Charsadda						
7		140526 - Construction of Flood Embankment from Khashki to Nowshera Kalan on Left Side of Kabul River, District Nowshera	1396.438	9.14	100%	1396.438	-	Completed
8		150715 - Construction of Protection Structures on L/S of Kabul River U/S and D/S Nowshera Mardan Road Bridge, District Nowshera	1138.352	5.36	100%	1138.352	-	Completed
9	1378	170664 - Construction of Flood Embankment from Khashki village to Motor way Bridge L/S Kabul River District Nowshera/Charsadda (Reach-1)	1512.89	6.85	80%	1207.277	305.613	In Progress
		Total B:-	4047.68	21.35		3742.167	305.613	
		G.Total:-	13346.86	101.69		12424.066	922.894	

FLOOD PROTECTION SCHEMES ON RIGHT & LEFT BANK OF KABUL RIVER DISTRICTS PESHAWAR, CHARSADDA & NOWSHERA



LEGENDS

S.#	Description	Shown as
1.	River / Nullah / Drains	
2.	Completed Portion	
3.	In-Progress Portion	
4.	Planned under (FPSP-III)	
5.	Town, Village & Places etc	Abc
6.	Main Bridges	

Thank
you

