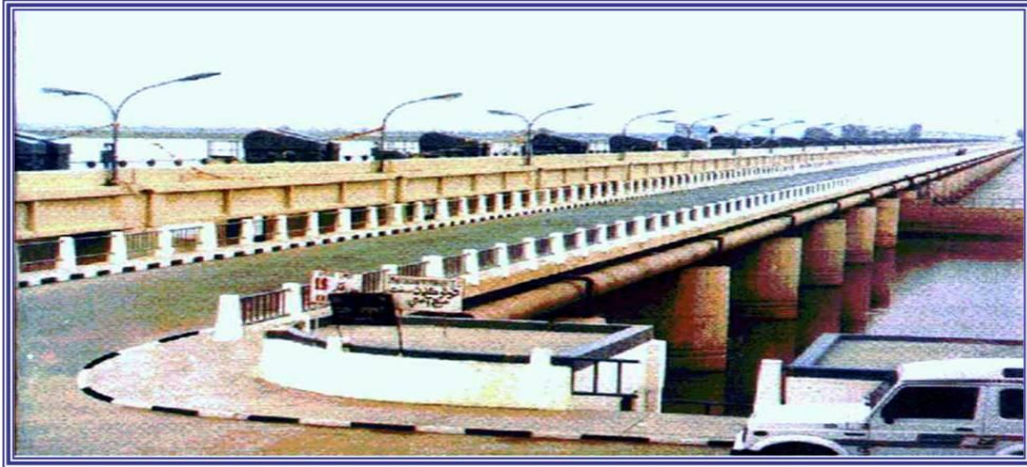




GOVERNMENT OF SINDH
IRRIGATION DEPARTMENT



CONTINGENCY PLAN 2017

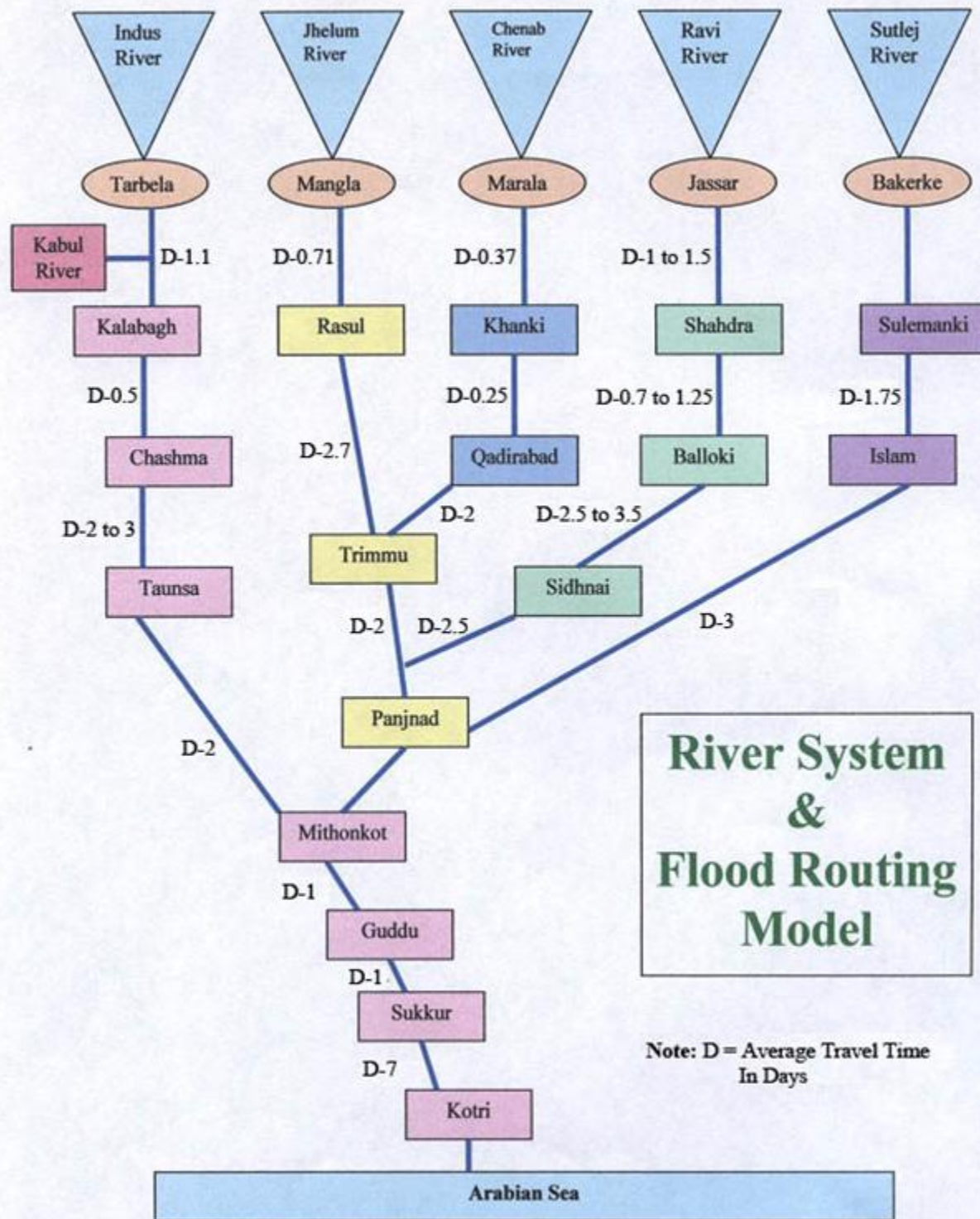
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Introduction

Indus River is one of the world longest river. It begins in Tibet and flows into the Arabian Sea. The river system is fed mainly by snow and glaciers of the Himalayas and is one of the few rivers that exhibit a tidal bore. The flow is also determined by the seasons, being lower in winter and overflowing its banks in monsoon season, from July to September. Therefore the River Indus is the dominant source of surface water for the Indus Basin, the catchment of the river and its tributaries is 9,44,165 square kilometres (3,64,700 square miles) of which 5,61,010 square kilometres (2,16,700 square miles) lie within Pakistan. The basin can be divided into various regions based upon their physical and geographical features (Northern Mountains, Western Mountains, Potohar Plateau, Salt Range and Indus Plain). At Mithankot, the Indus receives the combined water of its five major left bank tributaries (Jhelum, Chenab, Ravi, Beas and Sutlej through Punjnad. Three barrages Gudu, Sukkur and Kotri control the water in Sindh Province territory. The total length of Indus and Sindh is 537 miles (Gudu to Sukkur 108 miles, Sukkur to Kotri 286 miles and Kotri to Arabian Sea 143 miles)

The Sindh Province bounded to the west by Balochistan to the north by Punjab, the east by the Indian States of Gujrat and Rajasthan and to the south by the Arabian Sea. Sindh is the lower riparian of Indus Basin Irrigation System. The discharge of all the western and eastern rivers of Pakistan viz. Indus, Kabul, Jhelum, Chenab, Ravi and Sutlej accumulated at Mithan Kot and then entered in Sindh Province at Gudu Barrage. Thus Sindh Province is most vulnerable to river floods as accumulated flow from entire Indus Basin is to be conveyed to sea through the province. Moreover the river through Sindh runs on ridge, as much no quick relief is anticipated in case of breach.



Source: Flood Forecasting Division, Pakistan Meteorological Department

Bund Network

In Sindh Province, the Indus River flows on a ridge and surrounding areas are generally lower than the river bed. Therefore, the water once leaving the Indus does not return. Escaped water thus causes greater damage to widespread areas and continues to stay there for a longer period even after the flood peaks are over.

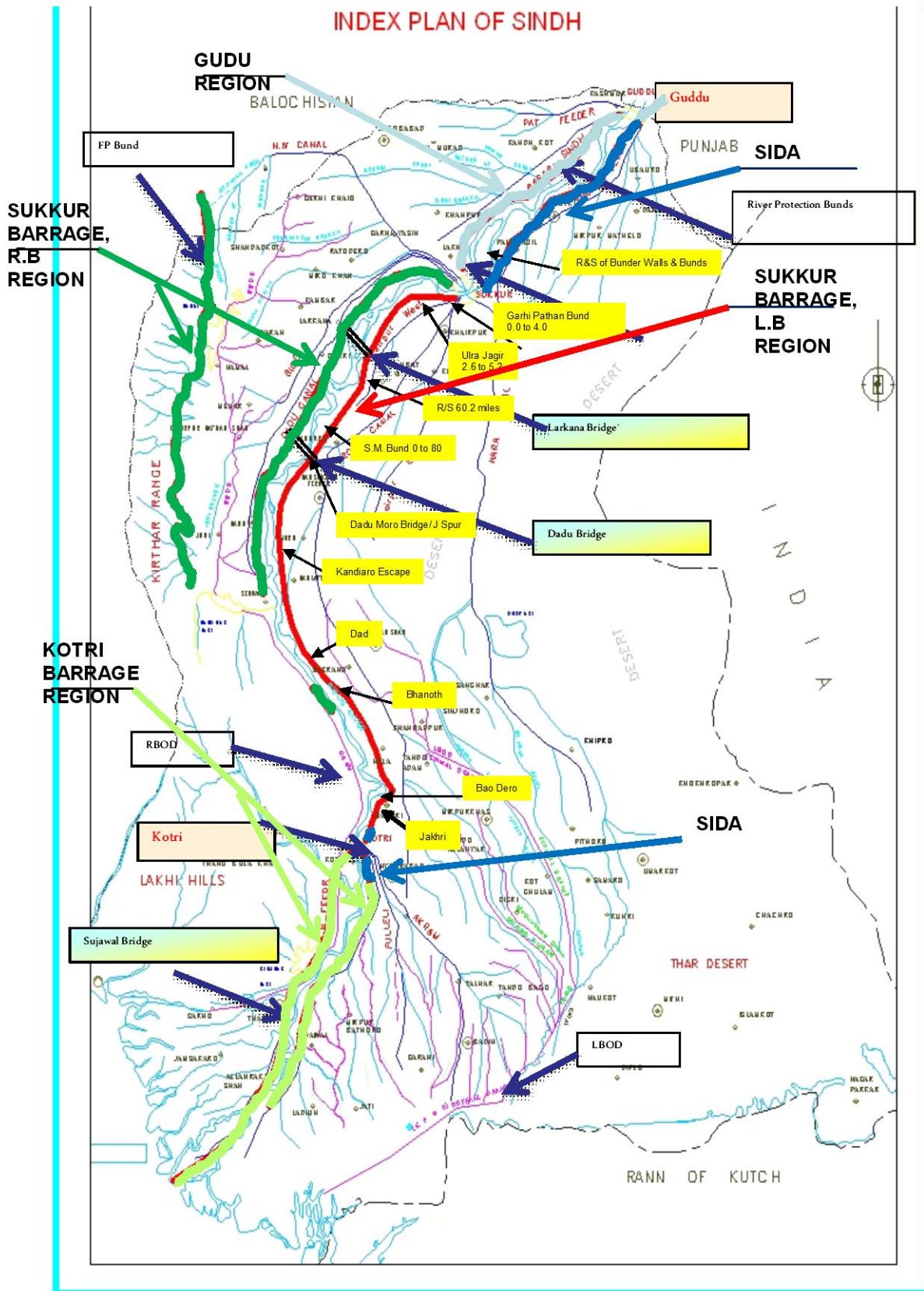
In order to minimise such eventualities, double line of flood embankments have been constructed along almost both the banks from Gudu to few kilometres short of sea as shown in the table below. These embankments are often threatened due to active erosion by the river flows and leakages in the embankments due to poor soils in some reaches.

Apart from this, the Flood Protective (FP) Bund was constructed to control flood flows from hill torrents in the command of right bank of Sukkur Barrage. It is 119.4 miles long, starting from the Manchar Lake in the south and Hamal Lake in the north, extending 53 miles upwards opposite Usta Muhammad towards east along Khirthar Canal named New FP Bund. This bund lies in two districts Dadu and Larkana, protecting the command area of Khirthar, Warah, Dadu and Rice Canal.

The inventory of bund in Sindh is as under: -

S. No.	Name Of Region	1 st Line (In Mile)	2 nd Line (In Mile)
1	Gudu Barrage	216 – 0	113 – 6
2	Sukkur Barrage	401 – 5	162 – 3
3	Kotri Barrage	257 – 6	54 – 4
4	FP Bund	119	-
Total		994 – 3	330 – 5
Grand Total		1324 – 8	

INDEX PLAN SHOWING FLOOD PROTECTION BUNDS



River Discharge & Magnitude

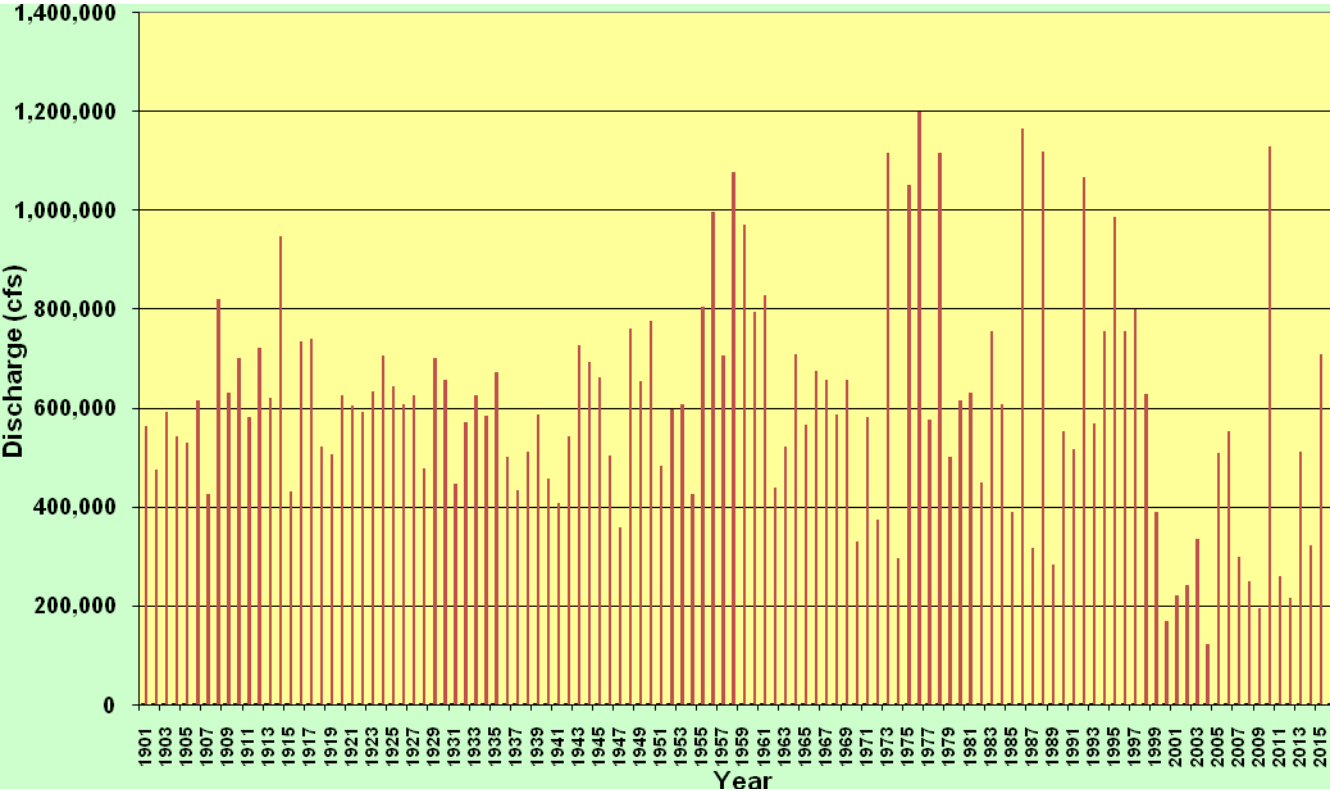
The flow in the River Indus during the months of April and May varies between 30,000 cusecs to 2,00,000 cusecs. It swells as much as 7,00,000 to 12,00,000 cusecs in the months of July, August & September at Gudu Barrage, Sukkur Barrage and Kotri Barrage. It swells as much as 7,00,000 to 9,00,000 cusecs depending upon the intensity and duration of rains in the catchments areas:

Flood Stages

In order to define the degree of flood flows in the Indus the actual river discharges at Gudu Barrage categorised into various stages of flood as under: -

S. No.	Discharge	Flood Stage
1	Up to 2,00,000 cusecs	Normal
2	2,00,000 to 3,50,000 cusecs	Low flood
3	3,50,000 to 5,00,000 cusecs	Medium flood
4	5,00,000 to 7,00,000 cusecs	High flood
5	7,00,000 to 9,00,000 cusecs	Very high flood
6	Above 9,00,000 cusecs	Super flood

Yearly Maximum Recorded Discharge @ Sukkur Barrage



Flood Frequency Analysis @ Gudu Barrage

Return Period (Year)	Flood (Cubic Feet)
2	6,00,000
5	8,50,000
10	10,00,000
20	11,50,000
50	13,50,000

Identification Of All Vulnerable Points

The dyke's line is considered as strong as its weakest position. Thus every inch of the bund is to be properly guarded by patrolling yet certain points require special vigilance, which are identified and are given below along with arrangements made at these vulnerable points.

Gudu Barrage Region, Sukkur

S. No.	Location/Name Of Bund	Reason	Arrangement
1	Haibat Bund, mile 0/0 to 2/0	Breach occurred during super flood 2010	i. Restoration of breach & strengthening committed ii. Labour gang & residing provision iii. Hydraulic excavator/dozers vi. Lightening arrangement v. Stock of stone boulders & Abkalani material
2	KK Bund, mile 10/0 to 12/0	Active erosion	Stock of stone boulder, manpower. Lightning arrangement & Abkalani material
3	Upstream Gudu Barrage Head Works both sides. Upstream left marginal bund, mile 4/6 to 13/0	5 breaches occurred in left marginal bund during super flood 2010	i. Remedial work executed ii. Labour gang & residing provision iii. Hydraulic excavator/dozers vi. Lightening arrangement v. Stock of stone boulders & Abkalani material

S. No.	Location/Name Of Bund	Reason	Arrangement
4	Tori Bund Complex	Breach occurred during super flood 2010	i. Restoration of breach & strengthening committed ii. Labour gang & residing provision iii. Hydraulic excavator/dozers. vi. Lightning arrangement v. Stock of stone boulders & Abkalani material
	i. New Ghoraghat-Tori-Makhwani Link Bund, mile 0/0 to 3/0		
	ii. New Ghoraghat Bund, Ghoraghat Cross & KhairWah Bund		
	iii. New Makhwani Bund, mile 0/0 to 4/0 & providing stone pitching, mile 0/0 to 2/0 & Old Tori Bund, mile 6/4 to 6/6 + 300		
5	Sukkur Begari Bund	Wave wash	i. Almost rehabilitation works are carried out ii. Deployment of machinery iii. Manpower vi. Lightning arrangement
	i. Mile 0/0 to 4/6 ii. Mile 11/6 to 15/0 iii. Mile 30/0 to 33/0		

Ghotki Feeder Canal Area Water Board (SIDA)

6	Qadirpur Shank Bund	Miranpur Lake famously known as a Kari Dhandh has activated due to erosion of Qadirpur Shank Bund during flood 2010	i. Strengthening work is going on ii. Labour gang & Landhi arrangement iii. Hydraulic excavator/dozers vi. Lightning arrangement v. Stock of stone boulders & Abkalani material
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S. No.	Location/Name Of Bund	Reason	Arrangement
7	RN Mangli Bund, left side, mile 0/0 to 1/0	A very dangerous blowout occurred in mile 0/7 + 300 RN Mangli Bund it was dangerous & difficult in the sense that the water level at that point was very higher than 30 ft	<ul style="list-style-type: none"> i. Labour gang & residing provision. ii. Hydraulic excavator/dozers iii. Light arrangement iv. Abkalani material
8	Qaidpur Loop Bund Mile 5/0 to 7/0	Miranpur Lake has turned into bye river and is flowing parallel to Qadirpur Loop at short distance.	<ul style="list-style-type: none"> i. 0.2 million Cft stone is stacked. ii. Stud proposed for which module test is under process. iii. Landhi is established. iv. Machinery deployed. v. Lighting arrangement. vi. Abkalani material.
9	LM Bund (old), mile 0/0 to 3/0	Due to construction of OGDCL Bund & Tower afflux in the river discharge has been observed in LM Bund, mile 0/0 to 3/1 & some portion of Ranwati Bund there was heavy wave wash pressure during flood 2010	<ul style="list-style-type: none"> i. Strengthening of bund is completed ii. Landhi is established at site iii. Hydraulic excavator/dozers vi. Lightening arrangement v. Stock of stone boulders & Abkalani material

Sukkur Barrage Right Bank Region, Larkana

S. No.	Location/Name Of Bund	Reason	Arrangement
10	SL Bund near Sukkur Airport, mile 0/2 to 0/6	Dhoro portion	<ul style="list-style-type: none"> i. Raising & strengthening & stone pitching work is completed ii. 0.4 million Cft stone stacked at site ii Deployment of machinery i. vi Manpower . v. Lightening arrangement
11	Ruk Spur, mile 0/5, 1/1, 1/6 & 2/3	Active erosion	Work under progress
12	J Spur 1/6 Nasrat Loop Bund	Active erosion	<ul style="list-style-type: none"> i. Recently during low water discharge the apron was launched & hence evoking Para 5 to 7 under emergency clause work of recouping is deployed ii. 0.6 million stone is stacked at site ii Machinery is deployed i. vi Labour is engaged .
17	LS Bund (Seri Bund), mile 32/3 to 36/5	Dhoro portion (Seri blowout point)	<ul style="list-style-type: none"> i. R&S& stone work is completed ii. 0.4 million Cft stone is stacked at site iii Machinery is deployed . vi Labour is engaged. .
18	FP Bund i. RD 169 to 183 ii. RD 346 to 353	Due to afflux created by wrong alignment of motorway, Dhoro portion	<ul style="list-style-type: none"> i. Work of stone pitching & strengthening has been carried out ii. Precautionary measures taken at site.
19	LS Bund, mile 88/0 to 92/0	Erosion due to wave wash	<ul style="list-style-type: none"> i. Work done ii. Machinery is deployed iii Labour is engaged . vi Abkalani material stacked at site .

S. No.	Location/Name Of Bund	Reason	Arrangement
20	LS Bund, mile 92/0 to 102/0	Dhoro portion, leak occurred during flood 2010	i. Work done ii. Machinery is deployed iii. Labour is engaged . . vi. Abkalani material stacked at site
21	Manchar Containing Bank, RD 7	Breach point	i. Work done ii. Machinery is deployed iii. Labour is engaged . . vi. Abkalani material stacked at site
22	Manchar Containing Bank RD 80	Dhoro	i. Work done ii. Machinery is deployed iii. Labour is engaged . . vi. Abkalani material stacked at site
23	Manchar Containing Bank from RD 93 to 100	Breach occurred during flood 2010	i. Work done ii. Machinery is deployed iii. Labour is engaged . . vi. Abkalani material stacked at site
24	FP Bund i. RD 223 ii. RD 246 iii. RD 258 iv. RD 282 v. RD 325	Direct hit Direct hit Direct hit Breach point Direct hit	i. Earthwork completed & stone work is in progress ii. Labour is engaged iii. Abkalani material stacked at sit
25	Superior Bund RD 49	Breach occurred during flood 2010	i. Work completed ii. Labour is engaged iii. Abkalani material stacked at site
26	FP Bund i. RD 00.0 ii. RD 50.0 iii. RD 113.0 iv. RD 147.0 v. RD 213.0	Old breach point Old breach point Old sluice Old breach Old breach	i. Work has been carried out ii. Labour is engaged iii. Abkalani material stacked at site

Sukkur Barrage Left Bank Region, Sukkur

S. No.	Location/Name Of Bund	Reason	Arrangement
27	UlraJagir Bund, mile 2/6 to 5/2	River erosion is active	i. Strengthening work is carried out ii. Labour gang & Landhi established iii. Hydraulic excavator/ dozers vi. Lighting arrangement v. Abkalani material
28	Faridabad Bund, mile 0/0 to 2/2 & 11/0 to 12/0	Dhoro portion	i. Abkalani material ii. Labour gang & Landhi established iii. Hydraulic excavator/ dozers vi. Lighting arrangement
29	i. SM Bund, mile 3/2 ii. SM Bund, mile 7/4 to 8/4 iii. SM Bund (Bakhri), mile 12/4 iv. SM Bund mile 33/0 v. SM Bund, mile 49/2	Leaks/Wave wash/Dhoro Leaks Erosion Blowout/Leaks Erosion	i. Abkalani material ii. Labour gang & Landhi established iii. Hydraulic excavator/ dozers iv. Lighting arrangement
30	Manjuth Loop Bund, mile 0/0 to 1/5	Blowout/Leaks	i. Abkalani material ii. Labour gang & Landhi established iii. Hydraulic excavator/ dozers vi. Lighting arrangement
31	SM Bund (Bhorthi Site), mile 37/4		i. Restoration of breach & strengthening committed ii. Labour gang & residing provision iii. Hydraulic excavator/ dozers vi. Lighting arrangement v. Abkalani material.
32	J-Spur of Dadu-Moro Bridge, mile 0/0 to 0/5	Erosion	i. Abkalani material ii. Labour gang & Landhi established iii. Hydraulic excavator/ dozers vi. Lighting arrangement

S. No.	Location/Name Of Bund	Reason	Arrangement
33	i. SM Bund, mile 92/0 to 93/0 ii. SM Bund, mile 98/0 to 99/0 iii. SM Bund, mile 103/1 iv. SM Bund, mile 104/6 to 107/6	ChararoDhoro (Leak 2010) MekaroDhoro (blowout 2010) Earthen dyke of escape tail Maim strike 2010	i. Strengthening of bund carried out ii. Abkalani material iii. Hydraulic excavator/dozers iv. Lighting arrangement
34	SM Bund, i. Mile 129/0 ii. Mile 135/0 iii. Mile 135/6 to 137/0 iv. Mile 142/5 v. Mile 152/0 vi. Mile 155/5 vii. Mile 157/3 to 158/0 viii. Mile 161/0 ix. Mile 162/2 x. Mile 166/4	SaeedabadDhoro (blowout) BhanoteDhoro, old river course T-Head Spur Hala Spur Dhoro KhanothDhoro, old river course Kalian Dhoro KhaiberDhoro (severe wave wash) SekhatDhoro, sandy portion BauderoDhoro (deep) JakheriDhoro (deep)	i. Strengthening of bund carried out ii. Abkalani material iii. Labour gang & Landhi established iv. Hydraulic excavator/dozers v. Lighting arrangement

Sindh Irrigation & Drainage Authority, Left Bank Canal Area Water Board

S. No.	Location/Name Of Bund	Reason	Arrangement
35	Ghalian Front Bund, mile 7/0 to 7/3	Due to reach according year 1956	i. Work for raising & strengthening is carried out ii. However, the check on old vulnerable points is to be made. iii. Machinery is deployed vi. Lighting arrangement v. Labour is engaged
36	Jamshoro Frond Bund, RD 2/2 to 2/4	Due to 1 st bund line downstream of Kotri Barrage & current lien passing directly from Qasimabad Hyderabad	i. Work for raising & strengthening is carried out ii. However, the check on old vulnerable points is to be made iii. Machine is deployed vi. Lighting arrangement v. Labour engaged
37	Gidumal Front Bund RD 3/7 to 4/0	This bund is connected with Jamshoro Front Bund & passing from the Latifabad, Hyderabad	i. Work for raising & strengthening is carried out ii. However, the check on old vulnerable points is to be made iii. Machine is deployed vi. Lighting arrangement v. Labour engaged

Kotri Barrage Region, Hyderabad

S. No.	Location/Name Of Bund	Reason	Arrangement
38	<u>Hajipur Bund</u> i. Mile 0/0 to 0/5 ii. Mile 3/7 iii. Mile 6/0 to 6/6	Treacherous soil, river main current is flowing very close to old bund sluice	i. Work for raising & strengthening is carried out ii. However, the check on iii. old vulnerable points is to be made iv. Machinery is deployed v. Lighting arrangement v. Labour is engaged
39	Hajipur Bund, mile 12/4 to 13/5	River hits direct to the spurs nose points & bund	i. Work for raising & strengthening is carried out ii. However, the check on iii. old vulnerable points is to be made iv. Machinery is deployed v. Lighting arrangement v. Labour is engaged
40	MS Bund, mile 5/7	Water touches the bund at low discharge. Heavy cut off	i. Work for raising & strengthening is carried out ii. However, the check on iii. old vulnerable points is to be made iv. Machinery is deployed v. Lighting arrangement v. Labour is engaged
41	MS Bund, mile 18/3	Wave wash action always create serious situation. River diverting the current	i. Work for raising & strengthening is carried out ii. However, the check on iii. old vulnerable points is to be made iv. Machinery is deployed v. Lighting arrangement v. Labour is engaged
42	1 st Surjani Bund, mile 0/0 to 1/5	Main river current flows along the bund & remains under direct hit	

S. No.	Location/Name Of Bund	Reason	Arrangement
43	MS Bund, mile 42/5 to 44/3	River diverting the current & severe erosion problem. Crossing of old river Couse which is 300-400 ft& erosion ordinate reduced by 115 ft in one day	
44	Ali Bahar Loop Bund, mile 0/0 to 0/5	Active erosion site	<ul style="list-style-type: none"> i. Work for raising & strengthening is carried out ii. However, the check on iii. old vulnerable points is to be made iv. Machinery is deployed v. Lighting arrangement v. Labour is engaged
45	BP Bund (Agimani Loop), mile 0/3, 4/6 & 13/0 to 13/4	<p>Treacherous soil old breach site 13/0 to 13/4.</p> <p>Treacherous soil breach occurred 2010 mile 4/6</p>	<ul style="list-style-type: none"> i. Work for raising & strengthening is carried out ii. However, the check on iii. old vulnerable points is to be made iv. Machinery is deployed v. Lighting arrangement v. Labour is engaged

Causes Of Breaches

The most frequent cause of a breach is, however, the development of leak, presence of rat or snake holes in bund section, roots of small trees, treacherous soil, bank as kalar, hard clay or cracked soil in body of bund structure. In case of important or dangerous bunds, where such blowouts or leaks are found to occur frequently at high water, the areas subject to such underground leaks should have permanent "Ring Bunds" constructed around them. The history of irrigation in Sindh is bound up with that of the line of bunds along thaw Indus, without which the development of the country is impossible.

Pre Abkalani Arrangements

1. Reconnaissance Survey

The reconnaissance survey is carried out along the Flood Protective (FP) Bund Line also inside the bund to observe the general conditions of the reverie area, river meanders and the erosion ordinate where the river meanders is following in the proximity of the bund line.

2. Old Borrow Pits To Be Filled

According to the Bund Manual, the borrow bit near the toe of the bund line on either side of the body of the bund are strictly prohibited. Particularly the borrow pits line on the side of the bund be filled and it is also to be ensured that all the borrow pits are filled/levelled.

3. Milestone Be Installed

Milestone, bearing the location and identification of the bund line are installed at site. However, missing milestones will be fixed/installed shortly.

4. Gauge Pillars To Be Required & Painted

The gauges are to be installed at every mile along the bund line to record the flood levels at different flood stages and to show the depth of water against the respective bunds where it is located. The existing gauge pillars damaged during the last flood are repaired and repainted at some gauges, however the locations gauge pillars were collapsed or missing are to be reconstructed. (Work is in progress)

5. Opening Up & Refilling Of Leaks Be Carried Out

The bunds where the leaks occurred during the last flood are located and identified at site. All the leaks are being opened and properly attended.

6. All Masonry Works Be Inspected

The bund sluices lying along the front bund line are properly inspected and attended. Since all loop bunds are non-functional, hence all sluice are being/seated properly in order to avoid any adverse cover as faced during flood 2010.

7. **Side Slopes Of All The Bunds Be Cleared**

The most important feature of the Pre Abkalani Arrangement along the bund line is the clearance of jungle, weeds, grass and other unwanted material along entire slopes and the top of bund.

This Pre Abkalani Arrangement facilitates in exposure of the earthen body of the bund, where it becomes very easy to detect the leaks, rat holes and other activity of burrowing animals are exposed and during the flood season the occurrence of leaks is to be easily detected and timely controlled.

8. **All Abandoned Bunds Likely To Cause Pocketing Should Be Given Large & Effective Cuts**

This activity is being fully implemented with help of Revenue/Police Department.

9. **Executive Engineer To Issue Certificate Duly Countersigned By The Superintending Engineer For The Good Condition Of The Bunds**

Such certificate is issued.

10. **Streamlining Supply Chain**

The intensity of flood can be coverage at the most a fortnight in advance. The period is too meagre for completion of procurement formalities. As such streamlining the supply chain for Abkalani material, machinery and equipment is inevitable. The process is supposed to be completed by 2nd week of June, without mention of quantity, which is specified on expectation of definite degree of receipt of flood. The procurement process stands initiated on basis of “right in time” supply management.

During Abkalani Arrangements

1. Coordination With LEA &DCs

All the departments are in coordination with the Irrigation Department.

2. Preparation Of Duty Roaster

All the staff employed along the bunds and the staff of the canal infrastructure is to be shifted and assigned the special task of performing the duties along bunds during Abkalani Season such duty roaster stand prepared by regional offices.

3. Procurement Of Abkalani Material

In wake of the ensuing flood season the Abkalani material is to be procured up to 15th June and stocked at store Landhies along bund line.

4. Construction Of Katcha Landhies

The construction of Katcha Landhies is to be started from 15th of June. In the month of June one Landhi per mile has been constructed. From 1st July at each furlong Landhies will be constructed.

5. Patrolling Be Made Along The Bunds

Beside the regular establishment, work charge establishment/casual labour is to be engaged as the flood water touches the bund. During the month of June, two men per mile have been engaged and subsequently will be increased to 4 men per mile. During the month of July, August as per Bund Manual, 8 to 16 men per mile will be engage looking to magnitude of discharges, besides engagement of gauges to combat emergency.

6. Equipment/Machinery Be Mobilised/Demobilised

The most prominent and important feature of the pre Abkalani arrangements is the arrangement of the equipment/machinery along the vulnerable/most vulnerable locations of the front bund line. The earth moving machinery like excavator, dozers and dumpers will be deployed along the important locations of the front bund line. One excavator, dozer, tractor trolley and Datsun Pickup at every 10 miles along the bund line will be deployed.

Machinery available with department:

Hydraulic Excavators	=	82 Nos.
Dozers	=	19 Nos.
Dump trucks	=	20 Nos. + Logistic arrangement

Further deployment of machinery requisite from Agriculture Department and contractors stands streamlined.

7. **Arrangement Of Labour Be Made**

All the Revenue Officers//Official and prominent Zamindars will be formally requested to provide the labour during flood season. Such activity will commence as soon as flood water approaches Gudu Barrage.

8. **Wetting/Soaking Of Bunds**

Adequate arrangements for soaking and essential prerequisite of a safe bund for the consolidation or compaction of a bund depends on the soaking, which discloses faults, which can be made good or leaks, which can be filled before the main rise of river.

Irrigation Department Arrange Soaking Or Wetting Of Bunds By Two Methods

- (a) Wetting channels can be used for soaking both front and loop bunds.
- (b) Flooding of a compartment through a bund sluices in the front bund for wetting the loop or retired bunds.

The special arrangements of soaking are being arranged along front line bunds and those reaches of the loop bunds, which cannot be wetted by gravity channels by providing pumps for wetting.

9. **Jungle Clearance**

The planting of trees is not allowable along bunds, because their roots tend to loosen the structure of the bund when shaken by wind storms and to encourage creep and the development of leaks, which because of the existence of the roots are difficult to close. When the organic matter dies and decays and crumbles, it leaves dangerous hollows, which cause settlement and lead to further trouble.

Irrigation Department removes the jungle from M&R Funds along the side slopes of all bunds up to widths respectively of 20 feet on land side and 10 feet on the river side. When clearing away jungle, care must be taken to have the roots thoroughly removed and the bund or ground should be properly made up lay growth, which should be encouraged for prevention of wave wash on river side.

The jungle clearance work stands started from 1st June.

10. **Bund Sluice**

The bund sluice is constructing, where the bund line crosses a canal or water course, whereas loop bund. A bund sluice or sluices are required in the front bund to serve as controlled inlet and outlet of the flood water, especially for wetting of loop bunds. This should be kept in mind that the bund sluices are weak points in river bund embankment.

11. **Flood Warning Centres**

In order to know the flood situations in the catchments areas, the Central Flood Warning Centre will be set up at Sindh Secretariat Building No. 2 (Tughlaq House), Karachi. This centre will be connected with the flood warning centres established at Gudu, Sukkur, Kotri and Flood Warning Centre, Lahore, where day and night staff will be available.

Based on discharge data received from Flood Warning Centre, Lahore, the Flood Warning Centre, Karachi will prepare the forecast in respect of probable river flows likely be expected at Gudu Barrage at least 7 days ahead. All the field staff as well as other concerned agencies will be informed accordingly.

Contact numbers of the Flood Warning Centres are as under:

Flood Warning Centre	Telephone No.	Fax No.
Irrigation Department, Tughlaq House, Karachi	021-99211505	021-99211505
Gudu Barrage, Kashmore	07225-76926 071-9310186	071-9310966 071-9310182
Sukkur Barrage, Sukkur	071-5612432	071-5612974 071-9310188
Kotri Barrage, Hyderabad	022-3877403	022-3210396 022-9210336
Sindh Irrigation & Drainage Authority (SIDA), Hyderabad	022-9210080 022-9210084	022-9210081

Coordination From Other Departments

Revenue Department & District Arrangement

A very important role plays the Revenue Department along with District Management/Revenue Department helps the Irrigation Department with hand to hand. Revenue officers are requested to provide the cheer labour in case of acute emergency because the Revenue Department remains in close to touch with the people and their notables/tribal, chiefs.

PTCL

Irrigation Department has own wireless system and the important stations are connected with each other, but yet it is felt that it is not sufficient to cover whole of bund system. Hence the PTCL as and when needed is required to install special telephone connections.

All the vulnerable places of bunds require being equipped with landline phones.

Law & Order/Security For Supervisory Staff

Without law and order, no subordinate will be able to perform work during night/ odd hours but even in day time. The following agencies have to cooperate in this regard and provide protection to staff on bund.

- i. Police
- ii. Police mobile
- iii. Rangers

All the vulnerable places of bunds require protection to staff.

Forest Department

Forest Department is routinely asked to supply munasthunnies, panjarseto as far as possible as flood season is concerned. Irrigation Department requires the material at vulnerable points. In this regard Forest Department has been requested to arrange the following material in the following Sub Divisions.

Agriculture Department

In case of any emergency dozers will be requisite form Agriculture Department for deployment at vulnerable point as per flood situation. It may be made binding on the department concerned to make the dozer not only available at shortest possible notice but they may be requested to keep the dozers in working condition and available at workshop along with staff during all the days of the week i.e. working or closing days.

Role Of Army

Generally up to a very high flood, discharge i.e. 7 lac cusecs at Gudu Barrage, no assistance of armed forces will be required by the department, the help will be required, when flows in River Indus exceed by 7 lac cusecs or in some emergent situation arises at particular section of bund. Pre-warning signal of very high flood in Indus in Sindh can be available a week in advance of the actual arising of the flood at Gudu Barrage. In such case, vulnerable points will be looked after by army and administration for making arrangements as per situation.

WAPDA/HESCO

The WAPDA/HESCO has always been able to provide temporary emergency electric connections at special vulnerable points along bund lines at the time of high flood.

End Of Abkalani Be Announced & Relevant IRC Forum Be Submitted

Inshallah with the help of almighty Allah, the Abkalani season will end safely and the respective IRC Forum will be intimated.
