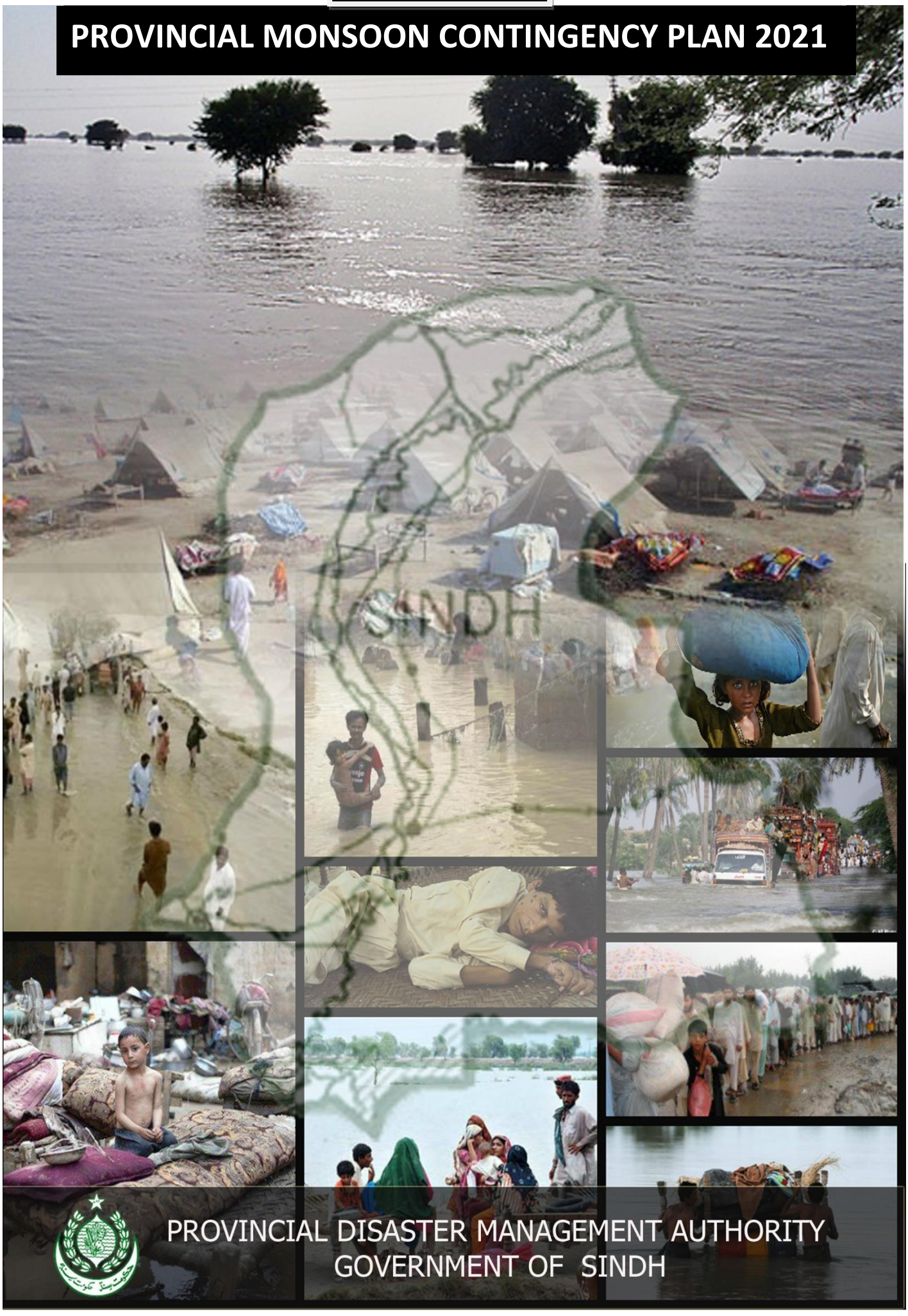
1ST DRAFT

PROVINCIAL MONSOON CONTINGENCY PLAN 2021



PROVINCIAL DISASTER MANAGEMENT AUTHORITY
GOVERNMENT OF SINDH

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LIST OF ACRONYMES

DDMA	District Disaster Management Authority
DRR	Disaster Risk Reduction
DEOC	District Emergency Operation Center
DMA	Disaster Management Authority
ERC	Emergency Relief Cell
FDP	Flood Displaced Person
FFC	Federal Flood Commission
FFD	Flood Forecasting Division
FFT	Flood Forecasting Telemetry System.
GHQ	Army General Headquarters
HH	Households
INGO	International Non-Governmental Organization
LBOD	Left Bank Outfall Drain
MIRA	Multi Cluster Initial Rapid Assessment
NDMA	National Disaster Management Authority
NGO	Non-Governmental Organization
NHA	National Highways Authority
NHEPRN	National Health Emergency Preparedness and Response Network
OCHA	UN Office for the Coordination of Humanitarian Affairs
O&M	Operations and Maintenance
PDMA	Provincial Disaster Management Authority
PEOC	Provincial Emergency Operations Center
PMD	Pakistan Meteorological Department
PRCS	Pakistan Red Crescent Society
RBOD	Right Bank Outfall Drain
SASCOF	South Asian Climate Outlook Forum
SITREP	Situation Report
SUPARCO	Space and Upper Atmosphere Research Commission
SOPs	Standard Operating Procedures
UN	United Nations
UNICEF	UN Children’s Fund
USAR	Urban Search and Rescue Team
Wash	Water, Sanitation and Hygiene
WHO	World Health Organization
WMO	World Meteorological Organization

EXECUTIVE SUMMARY

The nature and intensity of natural disasters has changed considerably over the period of time. Disaster risk reduction and management, attempting to address risks associated with potential hazards is an integral part of development. Consequently, it is less events and more process oriented. It is based on a continuous assessment of vulnerabilities and risks involving the role of multiple actors and stakeholders. Given the complexity, contingency planning is required to define what preparedness mechanisms will be used, when and where. Before a response is required, contingency planning affords agencies, both government and humanitarian the opportunity to define when, where and why their emergency response resources will be deployed, when emergency funds will be used and what kind of responses, materials and types of personnel they will need.

The lessons learnt from unprecedented floods of 2010 followed by heavy monsoon rainfalls of 2011, flash flooding in 2012 and subsequent disasters required quick and effective actions to control the situation and above all, to save lives. However, effective action depends on the existence of practical and well tested contingency plans. The Provincial Contingency Plan has been formulated to translate recommendations from district administrations, line departments and other stakeholders into action. However, the devastation caused due to floods/ rainfalls witnessed during recent years has necessitated for taking on board all agencies for an integrated contingency planning, involving government departments, districts administrations, armed forces and humanitarian assistance organizations, thereby ensuring synergized and optimal utilization of resources by agencies in the field while complementing each other with appropriate linkages and better coordination to support actions along lines of command.

PDMA continues to emphasize upon the Contingency Planning process as a preparedness measure for response to natural hazards particularly Monsoon Contingency. Following catastrophic floods since 2010, this plan

focuses on planning for the upcoming Monsoon – 2021 hazards to identify and analyze related risks for not just their humanitarian impacts but also the associated adverse effects on private and public infrastructure, and to define roles and responsibilities of diverse stakeholders for preparedness and response.

It is worth mentioning here that PDMA shared guidelines for 2021 Monsoon contingency planning with district administrations, line departments, and other stakeholders primarily for anticipating likely scenarios and perceiving threat levels. While further drawing conclusions from the inputs through the technical experts and relevant departments, it mainly involves identifying gaps and challenges to effective emergency response and then planning and implementing a series of actions to increase response capacity and reduce potential gaps. Unlike former simple or generic plans scenarios were used as a basis for developing preparedness plans. The key anticipated outcomes are:

- Awareness for Building Capacities for Response,
- Depict anticipated threat perception for earmarking required resources,
- Build Integrated Planning Capacities, and
- Define required gaps ensuing Preparatory Measures.

The preparations have been made keeping in view the recent years. Whereas, the PMD have predicted that Monsoon rainfall is expected to remain near to normal during July to September 2021 in Pakistan. The upper half of Punjab, northern Balochistan and Kashmir are likely to receive moderately above normal rainfall during the season. Area weighted normal rainfall of Pakistan during Jul – Sep is 140.8 mm.

CHAPTER – 1

OVERVIEW OF MONSOON / FLOODS

1.1 FLOODS

When rivers overflow their banks they cause damage to property and crops. Floods are common and costly Natural Disasters.

Floods usually are local, short-lived events that can happen suddenly, sometimes with little or no warning. They usually are caused by intense storms that produce more runoff than an area can store or a stream can carry within its normal channel. Rivers can also flood when dams fail, when ice jams or landslides temporarily block a channel, or when snow melts rapidly. In a broader sense, normally dry lands can be flooded by high lake levels, by high tides, or by waves driven ashore by strong winds.

Small streams are subject to floods (very rapid increases in runoff), which may last from a few minutes to a few hours. On larger streams, floods usually last from several hours to a few days. A series of storms might keep a river above flood stage (the water level at which a river overflows its banks) for several weeks.

Floods can occur at any time, but weather patterns have a strong influence on when and where floods happen. Cyclones, or Storms that bring moisture inland from the Ocean, can cause floods. Thunderstorms are relatively small but intense storms that can cause floods in smaller streams. Frontal storms form at the front of large, moist air masses moving across the Country and can cause floods. Hurricanes are intense tropical storms that can cause floods.

The size, or magnitude, of a flood is described by a term called Recurrence Interval. By studying a long period of flow records for a stream, it is possible to estimate the size of a flood that would, for example, have a 5-year Recurrence Interval (called a 5-year flood). A 5-year flood is one that would

occur, on the average, once every 5 years. Although a 100-year flood is expected to happen only once in a century, there is a 1 percent chance that a flood of that size could happen during any year.

Flood plains are lands bordering rivers and streams that normally are dry but are covered with water during floods. Floods can damage buildings or other structures placed in flood plains. They also can change the pattern of water flow and increase flooding and flood damage on adjacent property by block

The confluence of River Basins, the Canal Irrigation Network and Interrupted Drainage System and control of Head works on three major rivers, part of Indus River System with India are some of the major reasons of flooding in Pakistan.

1.1.1 CAUSES OF FLOODS

Floods can be divided In five major categories

(I) Monsoon Floods: Flooding along rivers is natural and inevitable. Some floods occur seasonally, when monsoon rains coupled with melting snows fill river basins with too much water, too quickly. Torrential rains from decaying Hurricanes or Tropical Systems can also produce river flooding.

It has been argued that El-Nino and La Nina factors have upset the system of rains in India, Pakistan, Iran and Afghanistan. Incidentally El-Nino events are a local manifestation of a global phenomenon, which begins with the relaxation of the wind stress that drives warm water towards the West. In the case of the monsoons, which are also part of a global phenomenon, the atmospheric pressure at sea level at the South-West of the Indian Peninsula, the ocean temperature in the Bay of Bengal and the rainfall fluctuation across South Asia are inter-related critical factors. Whereas, La-Nina is a counterpart of El-Nino.

(II) Flash Floods: An arroyo is a water-carved gully or a normally dry creek found in arid or desert regions. When storms appear in these areas, the rain water cuts into the dry dusty soil creating a small fast-moving river. Flash flooding in an arroyo can occur in less than a minute, with enough power to wash away sections of pavement.

Because of its rapid nature, flash floods are difficult to forecast and give people little time to escape or to take food and other essentials with them.

(III) Floods due to Breaches: Floods due to the breaches of river embankments and canal breaches are a frequent occurrence in all the districts of Pakistan.

(IV) Urban Floods: As undeveloped land is paved for construction, it loses its ability to absorb rainfall. Rainwater cannot be absorbed into the ground and becomes runoff, filling parking lots, making roads into rivers, and flooding basements and businesses. An urban area can be flooded by an amount of rainfall that would have had no impact in a rural area. But in crowded towns and cities, rainwater flows into storm sewers and drainage thus flooding them.

(V) Coastal Floods - Hurricanes and Tropical storms can produce heavy rains, or drive ocean water into land. Beaches and coastal houses can be swept away by the water. Coastal flooding can also be produced by sea waves called Tsunamis, giant tidal Waves that are created by Volcanoes or Earthquakes in the ocean.

1.2 MONSOON HAZARDS IN SINDH

River Indus after receiving water from 5 rivers' system, causes floods in the Sindh Province. The upper regions of the Sindh Province constitute the Districts of Kashmore, Shikarpur and Larkana on the right bank of River Indus and Ghotki, Sukkur, Khairpur, Naushahro Feroze and Shaheed Benazirabad on the left bank of River Indus. These Districts on the right and left of River Indus face a severe threat owing to passage of River Indus. The districts in the lower Sindh, prone to Riverine flooding include Dadu, Jamshoro and Thatta on the

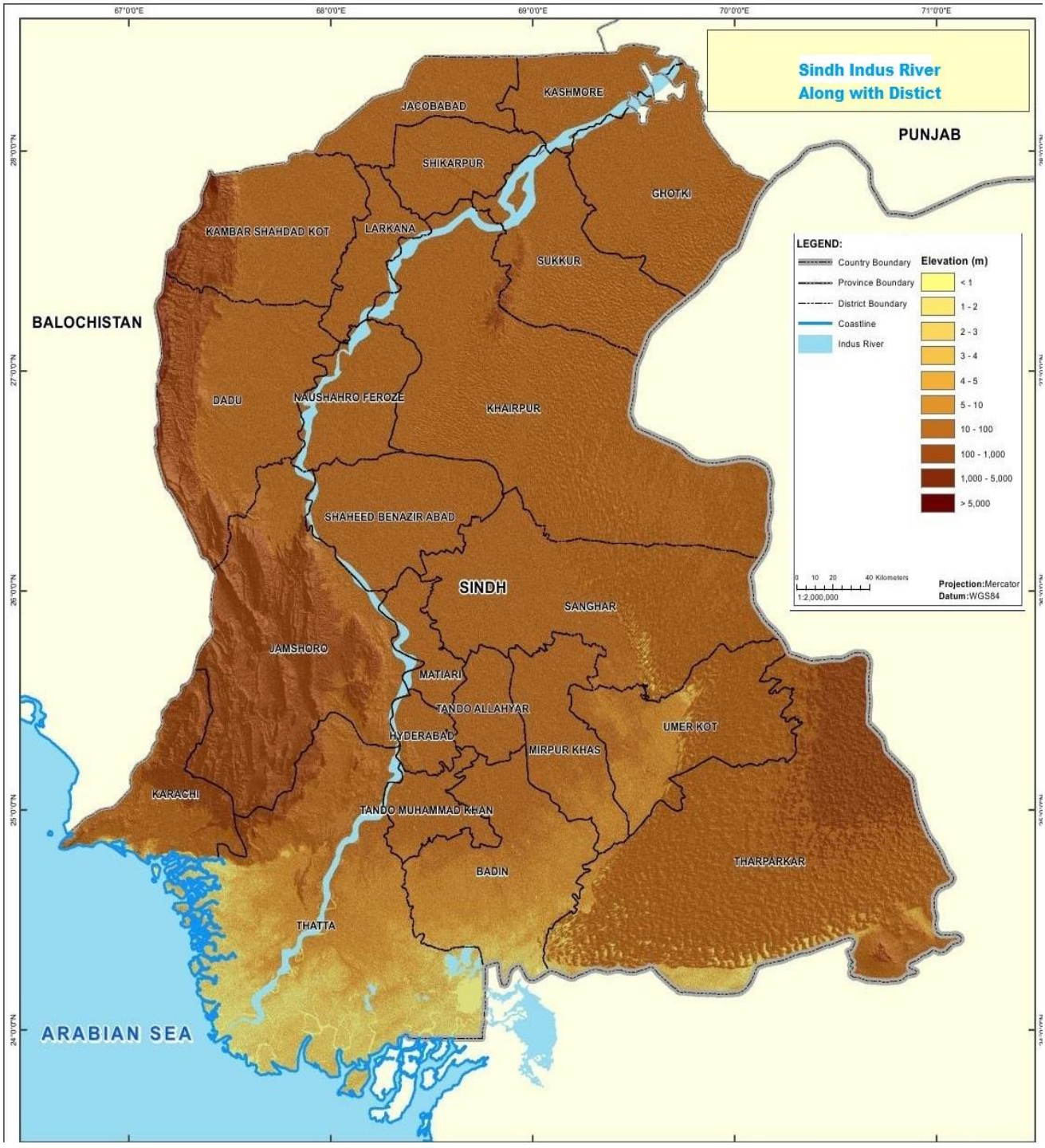
right bank of River Indus and Tando Muhammad Khan, Matiari, Hyderabad and Sujawal on the left bank. The length of River Indus through the province is 750 kms.

Districts of Jacobabad, Kambar @ Shahdadkot, Larkana, Dadu, Jamshoro and Karachi East District, are also vulnerable to hill torrents which cause flash flooding, the early warning possibility for which is very minimal.

Monsoon hazards in Sindh emerge as a result of heavy precipitation and subsequent high floods at Panjnad in Indus river and through flash flooding in numerous hill torrents on the Southern part of the Province. The Province is also vulnerable to precipitation generated flash flooding and urban flooding because of cloud burst. In fact historical evidence suggests that natural and man-made disasters have a significant toll in human lives in Karachi alone. Given the complexity, the simultaneous occurrence of riverine and flash floods, heavy precipitation and cloud burst phenomenon can worsen the impacts of monsoon generated disasters in the province.

1.3 MAP WITH FLOW OF RIVER INDUS ALONG DISTRICTS OF SINDH

Fig.1 Flow of River Indus



1.4 CHANGES IN THE RIVER MORPHOLOGY

The unprecedented nature of 2010 Floods caused occurrence of unregulated river flow patterns resulting in widened spans and erosions at various places. During Monsoons these trends are likely to render populations residing close-by at risk; undermining the effectiveness of the protective arrangements; and, risk severance of bridges and communication infrastructure; therefore, river training or regulating river flows to defined channels is considered essential for flood impact mitigation.

1.5 PERFORMANCE OF WATER REGULATORY INFRASTRUCTURE

The unprecedented floods of 2010 in, addition to their colossal humanitarian impacts exposed the water regulatory infrastructure to tremendous pressures. The water which flowed surpassed the earlier records by manifolds; a detailed comparison is given in the table below. Moreover, the Schematic Model of flood routing of River system also shown below depicts that average travel time between the three hydraulic structures (Guddu, Sukkur and Kotri) is 24 hours; thus necessitating to put in place an effective and prompt decision making.

1.5.1 WATER FLOW COMPARISON

Barrage	Design Capacity (in cusecs)	Maximum Recorded (in cusecs)	Year	2010 Floods (in cusecs)	Comparison with Earlier Record (Ratio)	Comparison with Design Capacity (Ratio)
Guddu	1,200,000	1,199,000	1976	1,148,000	0.96	0.95
Sukkur	900,000	1,166,000	1976	1,130,000	1.295	1.25
Kotri	875,000	980,000	1956	964,000	0.98	1.10

Table 1: Water Flow Comparison

1.5.2 FLOOD ROUTING MODEL

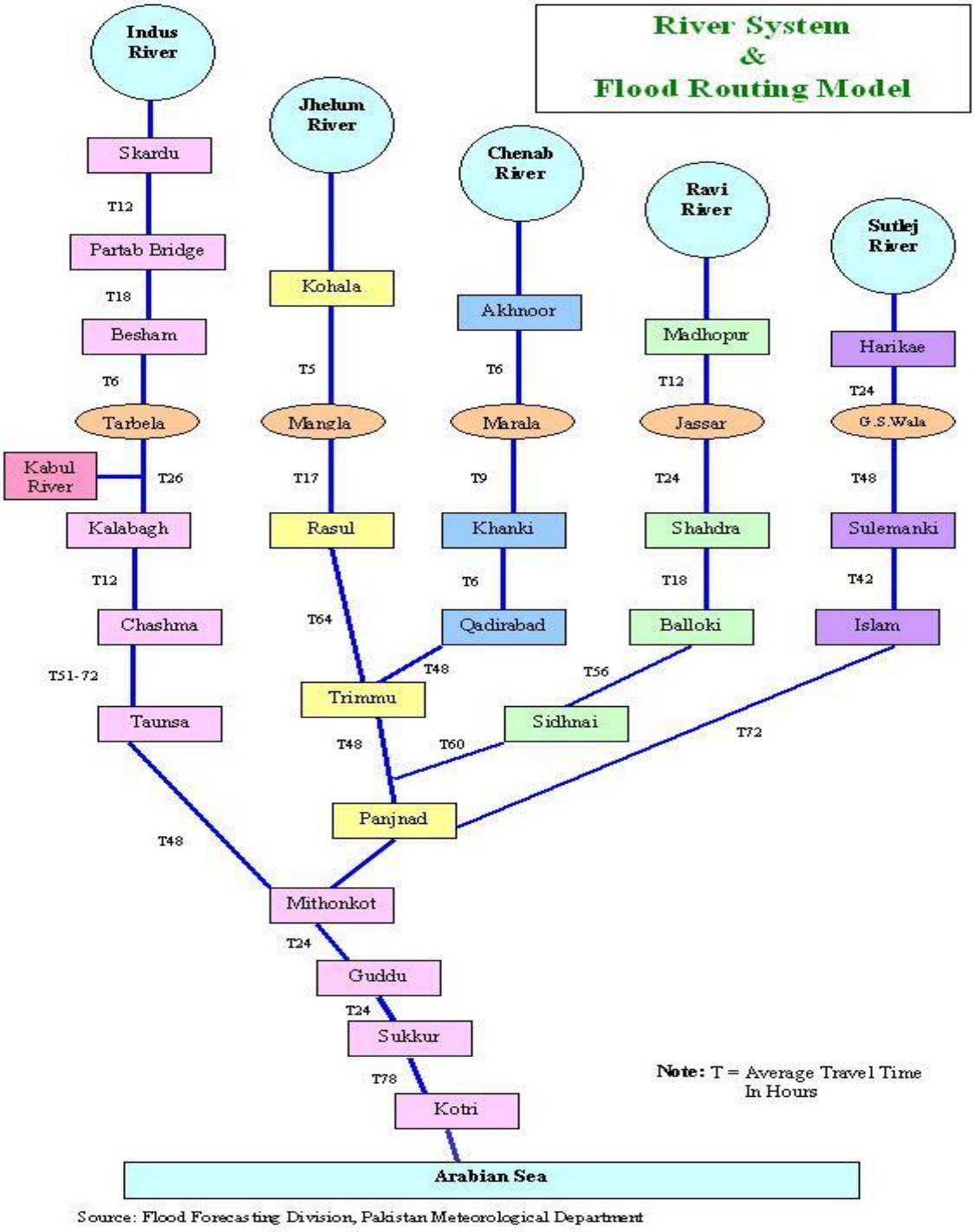


Fig. 2 Flood Routing Model

1.6 LATENT VULNERABILITIES

Some of underlying vulnerabilities which increase the threat of Monsoon hazards in Sindh are chalked out as under:

- New areas of Eastern Baluchistan and Northern Sindh have been impacted by floods in recent years consecutively, thereby compounding their vulnerabilities.

- 2011 monsoon rain induced floods in Southern Sindh, which does not directly fall in monsoon zone, had exposed a large segment of population, who were traditionally considered to be safe from adverse effects of monsoon, to the devastation of life and property.

- Population pressures have resulted in encroachments on river flood plains, thereby enhancing risks and vulnerabilities.

- Rapidly increasing population at urban cities and encroachment at Nallahs

- Detailed flood plans' mapping covering entire Indus River System, its Tributaries, and Nallahs is yet to be done; this has been identified as a priority area in the Provincial Disaster Management Plan on the basis of which land use planning and demarcation of waterways would be done to reduce risks from flood hazard.

- Widespread Environmental Degradation had reduced the flood water absorption capacities of catchment regions and accentuated downstream vulnerabilities.

- Limited capacity in weather and flood forecasting, particularly for flash floods, necessitates preparedness to meet unpredictable challenges.

- Ensure cleaning and de-silting of all main Nallah and drains in the urban centres of Sindh.

- Installation of de-watering pumps along with continuous supply of electricity at low lying areas to avoid urban flooding during rains.

- Establish strong coordination mechanism among multiple stakeholders so that the emergency can be handled amicably. Especially in Karachi where there are more than 16 territories under control of different stakeholders.

1.7 DATA OF HISTORICAL FLOOD EVENTS

The historical data of losses from floods in Sindh shared by relief department have been covered in table attached at **Annex-A**

1.8 WEATHER OUTLOOK FOR SUMMER MONSOON 2021

Pakistan Meteorological Department has issued **"Outlook for Monsoon 2021 (Jul-Sep)"** on **11th June, 2021 (Annex-I),** which has been reproduced as under:

Synoptic situation:

The ENSO and IOD are prevailing in neutral phase and will continue in the same phase during Monsoon season 2021. Based on the global and regional circulation patterns mentioned above, the outlook for the Monsoon 2021 in Pakistan is as under:

Seasonal Outlook:

Monsoon rainfall is expected to remain **near to normal during July to September 2021** in Pakistan. The upper half of Punjab, northern Balochistan

and Kashmir are likely to receive moderately above normal rainfall during the season.

Onset of the monsoon is expected during last week of June, expected dates would be **27-30 June.**

Area weighted **normal rainfall** of Pakistan during Jul – Sep is **140.8 mm**.

Impacts:

- Flash flooding in hill torrents of Punjab, AJK and KP, also urban flooding in major plain areas of Punjab, Sind and KP cannot be ruled out.
- Due to extreme hydro-meteorological events over catchments, riverine floods may occur.
- Above normal temperatures in high altitudes are likely to increase rate of snowmelt in the Northern Areas subsequently increasing the chances of base flow in the Upper Indus basin.
- Sufficient water availability for irrigation and power sectors will be a good impact

South Asian Climatic Outlook Forum (SASCOF-19)

Normal to above normal rainfall is most likely during the 2021 southwest monsoon season (June – September) over most parts of South Asia. Geographically, above normal rainfall is most likely over some areas of the North West, along the foothills of Himalayas and North East parts of the region, and many areas of central part of the region. However, the seasonal rainfall is most likely to be below normal over many areas over extreme northwest, north East and some areas over north-eastern parts of the region. The seasonal rainfall is most likely to be normal or of climatological probabilities over the remaining areas.

During the season, minimum temperatures are likely to be above normal over most areas of west, northwest, north and north eastern parts of the South Asia. The minimum temperatures are most likely to be below normal over east-central and south western areas of the region. The seasonal minimum temperatures are likely to be normal or of climatological probabilities over

remaining parts of the region. The maximum temperatures are likely to be below normal over most of the central parts of South Asia. The maximum temperatures are likely to be above normal over northwest and northern areas of northeast of the region. Maximum temperatures are likely to normal or of climatological probabilities over remaining parts of the region **(Annex-J).**

1.9 MONSOON 2021 PREPAREDNESS CONSULTATIONS

The monsoon preparedness was initiated in the Month of February. Detailed guidelines were shared with the District Administration and line departments with the request to prepare the District Contingency Plan 2021 keeping in view the guidelines shared.

Moreover, during multiple meetings held in March and April 2021, the District Administrations were also sensitized for Monsoon 2021 preparations. Accordingly, all the district administrations prepared comprehensive District Monsoon Contingency Plan and shared the same with this Authority. Subsequently, the Provincial Monsoon Contingency Plan 2021 has been prepared in-line with the data provided by the District Administrations.

CHAPTER – 2

POSSIBLE IMPACTS OF FLOODS & HEAVY RAINS AT DIVISION

2.1 SCENARIOS

The Scenario has been considered for the purpose of calculating caseloads for the Provincial Contingency Plan as under:

2.1.1 LIKELY SCENARIO

While the possibility of riverine floods, flash flooding and urban flooding cannot be ruled out, keeping in view the Monsoon Outlook issued by Pakistan Meteorological Department which indicates that monsoon rainfall is expected to remain near to normal during July to September 2021. The inflow of Indus basin is likely to increase due to moderately above normal rainfall in upper half of Punjab and Kashmir during the season. Moreover, the anticipated caseload has been prepared based on the recent monsoon experiences of high temperatures being experienced in pre-monsoon coupled with isolated heavy rains, causing possibility of riverine / flash floods and urban flooding in urban centres.

Therefore, the caseload is primarily based on anticipated displacement from low lying areas and katcha areas.

2.1.2 WORST CASE SCENARIO

The Monsoon Disasters during recent decade has almost affected whole Province of Sindh which reflects that worst scenario could be a combination of isolated heavy rains in upper and lower catchment areas. High releases of water from Dams coupled with heavy falls over hills. Such a scenario can never be ruled out and the population affected could be 30-40% of the total population of the province with almost all of the districts affected.

2.2 OVERVIEW OF DIVISIONAL PLAN

2.2.1 LARKANA DIVISION

Larkana Division is prone to both Riverine and Flash Floods, 02 out of 05 Districts .i.e. Jacobabad and Kamber are prone to Flash Floods due to water gushing from hill torrents of Baluchistan, whereas Larkana Kashmore and Shikarpur are prone to Riverine floods.

Fig. 3 Map of Larkana Division

The plans anticipated the likely caseload based on the population to be possibly affected due to riverine and flash flooding. The anticipated vulnerable population is **43,010** (approx.: 7168 families) in likely scenario case of Larkana Division. The caseload is calculated on 5.5% of the total population of Katcha area and 0.5% of flash flood areas i.e. Kambar and Jacobabad.

District	Likely
Larkana	10,555
Kambar	7,284
Kashmore	9,832
Shikarpur	9,873
Jacobabad	5,466
Total Pop:	**43,010**
Total Families	**7,168**

Early warning system has been specified and safe evacuation sites have been identified along with evacuation plans for vulnerable districts in accordance to their vulnerability. Moreover, an elaborated coordination mechanism has been worked out in which roles and responsibilities of government departments/ offices have been identified in detail. Various committees have also been constituted at district level.

However, preparations are based on worst case scenario in the light of experiences and lessons learnt from unprecedented floods and heavy monsoon rainfalls witnessed in the past.

2.2.2 SUKKUR DIVISION

The entire Sukkur Division is prone to Riverine Floods. All Districts of the Division are highly prone to Riverine floods due to passage of River Indus.

Fig. 4 Map of Sukkur Division

The plans anticipated the likely caseload based on the population to be possibly affected due to riverine floods. The anticipated vulnerable population is 40,771 (approximately 6,795 families) in likely scenario case of Sukkur Division. The caseload is calculated on 5.5% of the total population of Katcha area.

District	Likely
Sukkur	14,550
Khairpur	13,570
Ghotki	12,651
Total Pop:	**40,771**
Total Families	**6,795**

Early warning system has been specified and safe evacuation sites have been identified along with evacuation plans for vulnerable districts in accordance to their vulnerability. Moreover, an elaborated coordination mechanism has been worked out in which roles and responsibilities of government departments/ offices have been identified in details. Various committees have also been constituted at district level.

However, preparations are based on worst case scenario in the light of experiences and lessons learnt from unprecedented floods and heavy monsoon rainfalls witnessed in the past.

2.2.3 HYDERABAD DIVISION

The Hyderabad Division is prone to multiple monsoon hazards i.e. riverine, flash, urban and LBOD floods.

- Hyderabad District is prone to both Riverine and Urban Flooding;
- Dadu and Jamshoro are prone to Riverine and Flash Flooding;
- Thatta, Sujawal, Matiari and Tando Muhammad Khan District are prone to Riverine
- Low lying areas of Tando Allahyar district is prone to Urban Flooding.
- Badin is prone to LBOD flooding

The plans anticipated the likely caseload based on the population to be possibly affected due to riverine flooding. The anticipated vulnerable population is **80,548** (approximately 13,425 families) in likely scenario case of Hyderabad Division. The caseload is calculated on 5.5% of the total population of Katcha area.

District	Likely
Hyderabad	7,217
Dadu	8,016
Jamshoro	15,562
Matiari	14,644
Thatta	16,974
T.M Khan	5,004
Sujawal	13,132
Total Pop:	**80,548**
Total Families	**13,425**

Early warning system has been specified and safe evacuation sites have been identified along with evacuation plans for vulnerable districts in accordance to their vulnerability. Moreover, an elaborated coordination mechanism has been worked out in which roles and responsibilities of government departments/ offices have been identified in detail. Various committees have also been constituted at district level.

However, preparations are based on worst case scenario in the light of experiences and lessons learnt from unprecedented floods and heavy monsoon rainfalls witnessed in the past.

2.2.4 SHAHEED BENAZIRABAD DIVISION

The Shaheed Benazirabad division is a new division recently notified by the Government of Sindh. Three districts constitute this new division i.e. Shaheed Benazirabad, Sanghar and Naushahro Feroze districts.

Shaheed Benazirabad and Naushahro Feroze districts are prone to riverine flooding and Sanghar district is prone to LBOD Flooding.

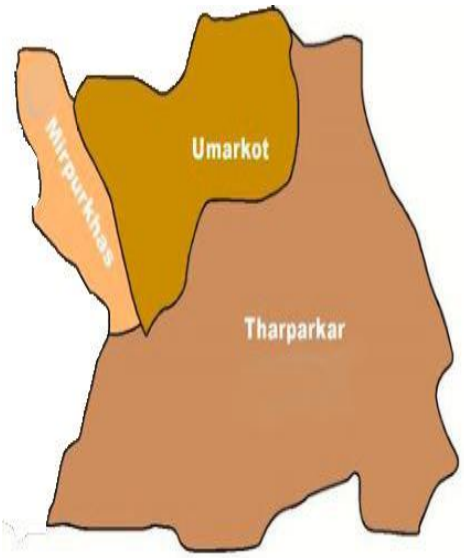
The plans anticipated the likely caseload based on the population to be possibly affected due to riverine flooding. The anticipated vulnerable population is **25,079** (approximately 4,180 families) in likely scenario case of Shaheed Benazirabad Division. The caseload is calculated on 5.5% of the total population of Katcha area.

District	Likely
Shaheed Benazirabad	9,732
Naushahro Feroze	15,348
Total Pop:	**25,079**
Total Families	**4,180**

Early warning system has been specified and safe evacuation sites have been identified along with evacuation plans for vulnerable districts in accordance to their vulnerability. Moreover, an elaborated coordination mechanism has been worked out in which roles and responsibilities of government departments/ offices have been identified in details. Thus various committees have also been constituted at district level.

However, preparations are based on worst case scenario in the light of experiences and lessons learnt from unprecedented floods and heavy monsoon rainfalls witnessed in the past.

2.2.5 MIRPURKHAS DIVISION



The Mirpurkhas division comprises of three districts namely i.e. Mipurkhas, Umerkot and Tharparkar.

All three districts of Mirpurkhas division are prone to Heavy Rains, which was also witnessed in monsoon-2020.

The plans anticipated the likely caseload based on the population to be possibly affected due to heavy monsoon rains. The anticipated vulnerable population is **23,624** (approximately 3,937 families) in likely scenario case of Mirpurkhas Division. The caseload is calculated on 0.5% of the total population.

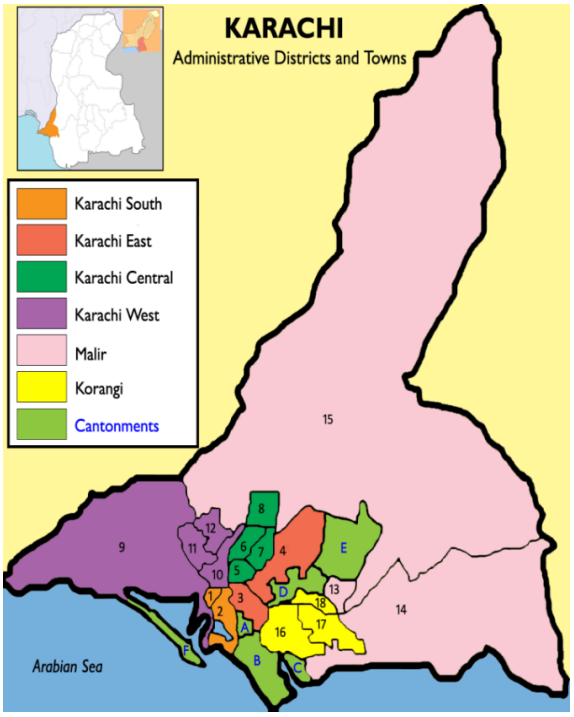
District	Likely
Mirpurkhas	8,420
Umerkot	5,992
Tharparkar	9,212
Total Pop:	**23,624**
Total Families	**3,937**

Early warning system has been specified and safe evacuation sites have been identified along with evacuation plans for vulnerable areas in accordance to their vulnerability. Moreover, an elaborated coordination mechanism has been worked out in which roles and responsibilities of government departments/ offices have been identified in details. Thus various committees have also been constituted at district level.

However, preparations are based on worst case scenario in the light of experiences and lessons learnt from unprecedented heavy monsoon rainfalls witnessed in the past.

2.2.6 KARACHI DIVISION

The Karachi is the Mega City of Pakistan with a population of approx: 16 million (as per census 2017) and is the Industrial Hub. The entire Division is prone to Urban Flooding as witnessed in some areas during 2017 & 2020. The two Rivers namely River Malir and River Lyari flow through the division.



Karachi division and surroundings are cris-crossed by many Nallahs which generally flow from North East to South West. These Nallahs act as Natural drains and carry storm water from Kirthar Range down till sea. The major rivers in the area are Malir River in the East and Layari River in the West, which further have their own small tributaries (Nallahs), which originates from Khirthar Range, as identified which caused flooding in Karachi Division. Based on the experience of urban floods of 2013 and 2017, it can be generally concluded that the drainage of Karachi is dependent on three Rivers/ Nallahs, which may cause Flooding, due to overflow. These are Malir River in the East, Wateen Wari Nallah in the middle and Layari River in the West. The population is **125,484** (approximately 20,914 families) in likely scenario case of Karachi Division. The caseload is calculated on 0.7% of the total population.

District	Likely
East	22,729
West & Keamari	30,604
Malir	15,705
Korangi	19,208
Central	23,231
South	14,007
Total Pop:	**125,484**
Total Families	**20,914**

In order to mitigate and minimize the impacts of urban flooding, it is important to take pre-emptive measures such as:

1. All agencies mandated to ensure smooth flow of drains and Rivers needs to de-silt and clean the water passage.
2. There is a dire need to remove encroachment and permanent settlements at Nallahs and Rivers as this has been a major hurdle / obstruction witnessed during rains resulting in increase the possibility of urban flooding
3. The situation during recent urban flooding in Karachi worsened due to electricity failure at Pumping stations. In order to avoid similar situations in future it is important that K-electric ensure un-interrupted supply of electricity along with provision of alternate in case electricity failure.
4. Establish strong coordination mechanism among multiple stakeholders so that the emergency can be handled amicably. Especially in Karachi where there are more than 16 territories under control of different stakeholders.
5. All future constructions should be made as per the master plan so that encroachments and illegal settlements can be avoided resulting in minimizing the impacts of urban flooding.
6. All civic agencies should ensure availability and functionality of de-watering pumps along with its operators as well as its placement at vulnerable points.

2.2.7 EXPECTED CASELOAD IN LIKELY SCENARIO

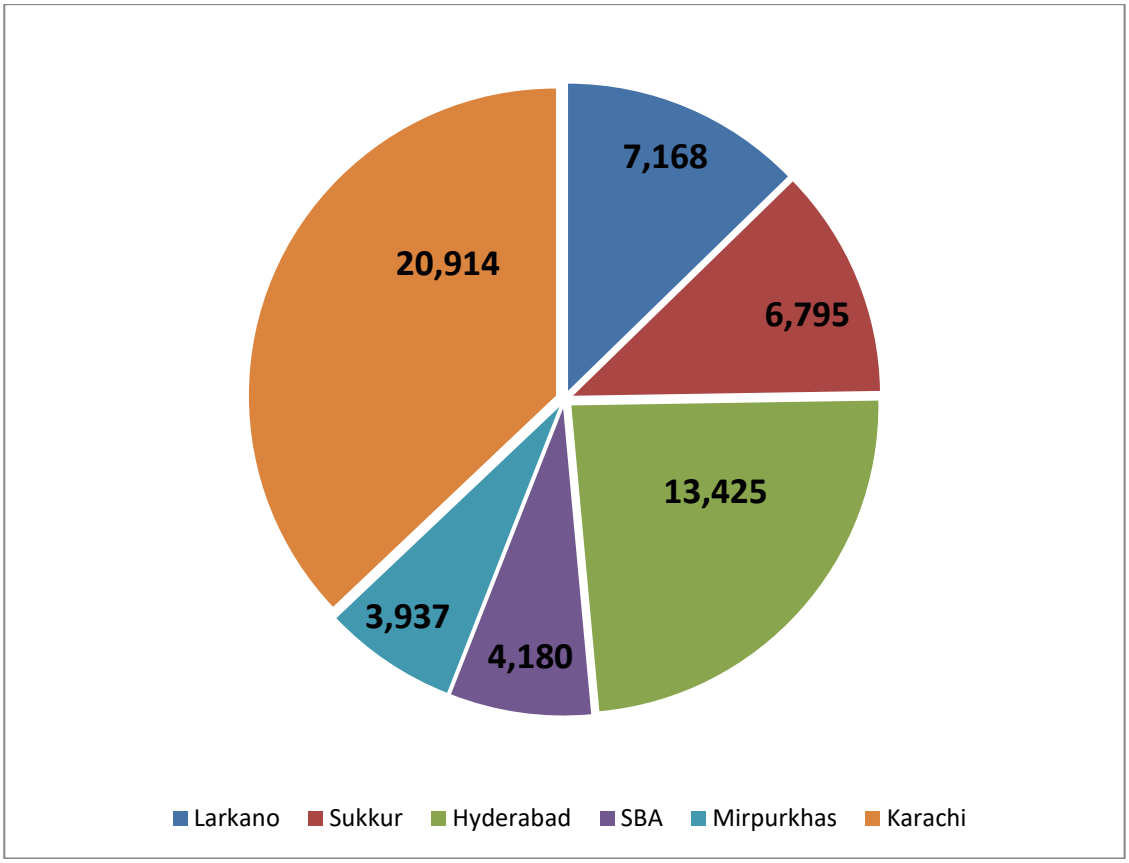


Fig. 9 Caseload in Likely Scenario

2.3 PLANNING PARAMETERS

Preparedness measures have been made/ carried out in the light of following observations:

- Possibility of heavy rain induced emergencies, especially due to hill torrents from Koh-e-Suleman and Khithar range cannot be ruled out.
- Level of preparedness of flood protection structure, as indicated by Irrigation Department has improved manifolds.
- Level of preparedness of Disaster Management Authorities, especially of Districts that are vulnerable to floods / urban flooding have been improved through capacity building programs.
- Division / Districts are expected to meet the needs of their respective caseloads, for the likely scenario from within their own resources. PDMA

and other agencies will facilitate in generating additional resources in case the magnitude of disasters exceeds local capacities.

- The contingency planning will cater for the humanitarian needs of the affected population for four weeks i.e. the time required to mobilize additional resources, if needed.
- The preparatory measures on DRR, undertaken so far, are likely to considerably reduce / mitigate the likelihood of floods and its adverse consequences.

2.4 STOCKING LEVELS NEED AND GAP ANALYSIS FOR RELIEF

The gap for Relief has been calculated on the basis of Relief Stores available with PDMA on the onset of Monsoon 2021. The following relief stores will be available with PDMA.

2.4.1 LIKELY SCENARIO

Caseload 56,419 families

S. NO.	Items	Available	Need	Gap
1	Shelters/ Tents	8,845	56,419	47,574
2	Food Baskets	-	56,419	56,419
3	Mosquito Nets	10,278	56,419	46,141
4	Blankets	57,758	56,419	-

Inventory of stocks available with PDMA and the other relief items / heavy machinery, earth moving equipment held by Districts Administrations are at **Annex- B and C** respectively.

2.5 URBAN FLOODING

Urban Flooding is caused by heavy downpour due to sudden cloudburst, high density of population, large impervious areas, clogging of drainage systems

resulting in loss of high economic values of properties and infrastructures, etc. Impacts due to urban floods are significant but not limited to in terms of economic losses both direct and indirect, it further causes physical, economic, social and environmental damages. Damages in urban context are more complex. In addition to the vulnerability, the magnitude of the damage depends on the flood type especially in terms of depth, flow velocity and duration. One of the major factors for the rise in urban flood damages is simply the increasing number of population and assets that are physically exposed to floods in cities. Cities in many developing countries are growing rapidly. Unprecedented migration from rural areas to cities has led to uncontrolled urban sprawl with increasing human settlements, industrial growth and infrastructure development. Often, urban growth in flood plain expands over some flood ways, hence reducing its flood drainage capacity which can be witnessed specially in Karachi, where most of the nallahs and rivers are encroached.

2.5.1 URBAN FLOODING IN SINDH

The Sindh Province consist of 6 Urban Cities which are Karachi, Hyderabad, Mirpurkhas, Sukkur, Shaheed Benazirabad and Larkano. The sudden heavy downpour in these cities can turn the rains into urban flooding which was observed in Karachi division whose surroundings are covered by many Nallahs which generally flow from North East to South West. These Nallahs act as Natural drains and carry storm water from Khirthar Range down till sea. The major rivers in the area are Malir River in the East and Lyari River in the West, which further have their own small tributaries (Nallahs), which originates from Khirthar Range, as identified which caused flooding in Karachi Division. Based on the experience of recent urban floods, it can be generally concluded that the Drainage of Karachi is dependent on Rivers/ Nallahs, which may cause Flooding, due to overflow.

2.5.2 MAJOR CAUSES OF URBAN FLOODING IN SINDH

- Heavy Rainfall / Flash floods Water concentrates and flows quickly through urban paved area and impounded in to low lying area raising the water level.

- Silting of the drains carry large amounts of sediments and deposited in the lower courses making beds shallower thus channel capacity is reduced.
- Poor Water and Sewerage Management / Old drainage and sewerage system.
- Lack of attention to the nature of hydrological system.
- Lack of flood control measures.
- Multiple authorities in a city but owning responsibility by none.
- Non-functioning of De-watering machines installed at major junctions.

2.6 BROAD CONTOURS OF THE PLAN

Respective DDMAs, backed by PDMA would be the first responders in case of flood situation.

- Early warning of approaching weather system will be provided by PMD/ FFD and communicated to all concerned by DDMAs. DDMAs are expected to translate weather forecast and flood warnings into usable early warning for vulnerable communities and ensure its timely dissemination to all concerned.

- In case, there is continuous rise in river water level, the people residing in Katcha Areas will be evacuated to the safer places, which is estimated to be 2.6 million as of the report of 2014. The details are at **Annex – D.**

- Threatened population will be evacuated by DDMAs as per prepared plan.

- DDMAs would be responsible for provision of search and rescue, medical and emergency responses.

- Camps will be established at pre-selected sites by DDMAs.

- All Division / Districts must be ready to handle the initial caseloads within their own mechanism and resources.

- DDMAs would be responsible for effective and transparent relief distribution including relief provided by PDMA, NDMA and other Humanitarian Agencies.

- All stakeholders would take necessary actions to facilitate early recovery and rehabilitation of affected population.

- In case, the districts fall short of meeting the humanitarian needs, PDMA will assist by making available the required stocks. In case, when disaster exceeds capacities of the Provincial Government, NDMA will be requested to make available the additional stocks from national reserves, prepositioned across the Country.

- When required, Armed Forces may be requested for assistance by PDMA Sindh at any stage, particularly for rescue, evacuation and emergency relief phases. Thus, the DDMAs will have to submit the request to PDMA for assistance of armed forces in aid of civil administration.

- Special requirements of Aviation / Naval support by any agency will be coordinated by PDMA.

- Resources of Government Departments and Agencies such as, Pakistan Red Crescent Society and domestic philanthropy may be requisitioned, if the intensity of the situation so entails for an effective response.

CHAPTER-3

COORDINATION MECHANISM

PDMA will coordinate with key National Stakeholders including PMD, FFC, Armed Forces, Federal Agencies, DDMAs and Line Departments for management of the entire spectrum of Provincial Disaster Response. System of coordination of PDMA is depicted below.

3.1 MITIGATION

3.1.1 MINISTRY OF WATER AND POWER

The ministry is responsible for the overall flood management and impact mitigation efforts through its attached departments (FFC, WAPDA, PCIW and IRSA). The Ministry deals with monitoring of preventive and preparedness measures as well as resource allocation for the protection works.

Federal Flood Commission implements Flood Risk Mitigation Projects which include flood protection works as well as flood forecasting/ warning system improvements. As part of preparedness measures for Monsoon Season. FFC undertakes the following:-

- Countrywide monitoring of flood works.
- Comprehensive Flood Management Plan for 10 years initiated.
- In case of Exceptionally High Floods, parts of the discharges are managed by breaching the bunds on the pre-determined sites for safety of the main Hydraulic Structures (Bridges & Barrages) and main cities.

3.1.2 WATER & POWER DEVELOPMENT AUTHORITY

WAPDA reinforces floods impact mitigation through operational management of major water reservoir i.e. Tarbela, Mangla Dams and Chashma

Barrage. It strengthens national flood early warning system through deployment of flood telemetry system.

3.1.3 INDUS RIVER SYSTEM AUTHORITY (IRSA)

IRSA defines the dam/water storage and release policy as part of its mandate during the Rabi and Kharif season.

3.1.4 IRRIGATION DEPARTMENT

It undertakes implementation of flood protection works, monitor flow in flood prone rivers and water channels, reinforce floods early warning and execute technical responses, O&M of existing flood protection infrastructure besides restoration and repair of damaged flood protection works.

3.2 EARLY WARNING

3.2.1 PAKISTAN METEOROLOGICAL DEPARTMENT (PMD)

PMD has a broad mandate of supporting agro-based economic activities, air and maritime traffic safety, disaster mitigation efforts and disseminating weather forecast to numerous end users. PMD will ensure the following during monsoon season:

- Inform public on the weather forecast and issue warning in case of potential threat.
- Collect rain data on a regular basis, consolidate and share it with all concerned.
- Disseminate flood information to the NDMA/ PDMA on a daily basis during flood season.
- Share weather forecasts and early warning information with NDMA, FFC PDMAs, and the Media on a regular basis in the monsoon period.

- Coordinate with FFC, WAPDA, PCIW, FFD, and SUPARCO in the Monsoon period to generate flood warning where wanted.

3.2.2 FLOOD FORECASTING DIVISION (FFD)

FFD is an affiliated organization of PMD. It disseminates flood early warning and river flow updates to relevant National, Provincial and District Governments and National Response Agencies, especially in the context of Monsoon Season.

3.2.3 PAKISTAN SPACE & UPPER ATMOSPHERE RESEARCH COMMISSION (SUPARCO)

SUPARCO deploys its satellite imagery capacities for disaster impact mitigation and also for early warning of disaster occurrence and trends monitoring. SUPARCO will play the following role during monsoon season:-

- Provide remote sensing and satellite maps before and during disasters in order to show their impact.
- Provide remote sensing and satellite maps for hazard risk zones to enable relevant agencies to take measures for minimizing damage to population and property.
- Assist post-disaster damage assessment.

3.3 RESPONSE AGENCIES (FEDERAL GOVERNMENT)

3.3.1 NATIONAL DISASTER MANAGEMENT AUTHORITY (NDMA)

- National Emergency Operation Center (NEOC) is activated in NDMA, Islamabad for monitoring of the situation and coordination of possible response during monsoon season 2021 on 24/7 basis. The NEOC will always be manned by a Duty Officer who functions under the overall supervision of Director (Response), NDMA.
- Coordinates emergency response of the Federal Government in the event of a National level Disaster through the NEOC.

- Require any Government Department or Agency to make available such staff or resource that are available for the purpose of emergency response, rescue and relief.
- Organize initial and subsequent assessment of disaster affected areas and determine the extent of loss/damage and volume of relief required.
- Coordinate and inform all concerned Department to get prepared for emergency response.
- Coordinate with Armed Forces, INGOs, UN Bodies and Philanthropist Organizations for resource mobilization.
- Mobilize and deploy resources e.g. search and rescue medical teams in the affected areas.
- Supply of food, water, medical supplies and NFIs to the affected population.
- Prepare a transition plan from relief to recovery program.

3.3.2 ARMED FORCES

The Armed Forces mobilize and deploy resources when called upon by District / Provincial / National DMAs and provide assistance in Search and Rescue, Evacuation, Camps Establishment and Management, provision and distribution of relief to the affected populations and provision of emergency medical services. The flood control centers will also be established from 15th June, 2021. Army, Pakistan Navy and Pakistan Air Force, which will also share information on resource deployment and flood management with respective PDMAs/ NDMA on daily basis. The summary of flood relief equipment of Government of Sindh available with HQ Corps 5 is at **Annex- E.**

3.3.3 PAKISTAN COAST GUARDS

Pakistan Coast Guards augment coastal search & rescue and relief operations on required basis.

3.3.4 NATIONAL HIGHWAYS AUTHORITY (NHA)

NHA is responsible for building and maintaining highways and motorways in Pakistan. It ensures road access during monsoon season.

3.3.5 PAKISTAN RAILWAYS

Pakistan Railways is an important organ which ensures access during monsoon season. To deal with a possible flood Situation, Flood Emergency Centers will be established as usual in 7 – operating Divisions of Pakistan Railways (Peshawar, Rawalpindi, Lahore, Multan, Sukkur, Quetta and Karachi).

3.4 RESPONSE AGENCIES (PROVINCIAL GOVERNMENT)

3.4.1 PROVINCIAL DISASTER MANAGEMENT AUTHORITY SINDH

Pre-Disaster

- DG PDMA in consultation with Chief Secretary Sindh will be responsible for response & relief operations. Director General PDMA on his behalf will head a Composite Team (comprising representatives of Lead Agencies/ Departments and focal persons of support organizations) to coordinate response & relief operations.
- Provincial Emergency Operation Centre has been made operational from the 2nd week of June 2021, so as, to make all arrangements for receiving forecast data from PMD and its dissemination.
- The PEOC will be functional till the termination of monsoon season / emergency.
- The PEOC shall receive and transmit flood/ water level information thrice in flood season and on hourly basis during emergency.
- Identification of available resources i.e. machinery, tents etc., and Gaps.

- Contingency planning as to identify role of each stakeholder during emergency.
- Ensuring coordination between line departments & other stakeholders for any emergency, through workshops, trainings tec.
- Assisting DDMAs in provisions of adequate required resources for monsoon season.
- An inventory of NGOs working in these areas will be prepared prior to the crisis, in order to mobilize them quickly in case of emergency.

During-Disaster

- The coordination and collection of information and resources to support disaster/emergency incident management activities.
- The PEOC will be a central coordination, command and control facility responsible for carrying out emergency preparedness and emergency management functions at a strategic level in an emergency situation, and ensuring the continuity of response operations.
- Tents, Plastic Sheets, Mosquito Nets, De-watering Pumps, Water Purifying Filters, Jerry Cans and boats, are being procured to be placed at the disposal of DDMAs.
- The PDMA will arrange the transportation of food and other relief items to the Flood Displaced Persons (FDP) for further distribution. District Administration will be requested to distribute the relief goods.
- PDMA shall undertake need based coordination with all UN agencies and other humanitarian partners to fill in the response and relief gaps before, during and after floods.
- PDMA has coordination with all UN agencies and humanitarian partners to maintain a stock (food and NFI including shelter).
- Prepare daily situation reports and circulate to all concerned as per **Annex- F.**

Post-Disaster

- The PDMA in collaboration with partners will have to closely monitor the situation on regular basis. Logistic arrangement should be done in advance keeping in view the positions available in the case of crises. An initial rapid assessment will be carried out to identify the areas and targeted beneficiaries.
- Continue with relief and early recovery operation till affected people are settled back to their original abode and economic activity is resumed.

3.4.2 DISTRICT DISASTER MANAGEMENT AUTHORITY

- DDMAs shall activate District Emergency Operation Centers (DEOCs)
- In the event of a disaster, organize emergency response through the District Emergency Operation Center (DEOC)
- Setup early warning mechanisms and dissemination of proper information to public, prepare district level response, plans and guidelines, establish stockpiles of relief and rescue material; provide information to PDMA on different aspects of Disaster Management.
- Inform / update PDMA regarding the overall situation.
- Organize evacuation on priority basis.
- Conduct initial and subsequent assessment of disaster affected areas and determine the extent of loss and damage.
- Collect information on damage status and promptly plan for the resources requirement for relief operation and share it with the PDMA.
- Provide food, drinking water, medical supplies and NFIs to the affected population
- Preferably set up tent cities/ relief camps on open land and provide relief to the affectees in camps **(Annex-H).**
- Coordinate with PDMAs to deploy resources for emergency response.
- Mobilize community volunteer groups and civil defence for emergency operations.

- Forward timely situation reports (SITREP) and Rainfall Report (as per **Annex-F** & **Annex-G** respectively) on daily basis to PDMA for its timely dissemination to concerned quarters.
- Ensure registration of all relocated population in the camps and overall affected population on gender segregated basis.
- Prioritize vulnerable segments of society in their relief operations.
- Facilitate early return of relocated population and help in restoring their livelihoods.

3.4.3 HEALTH DEPARTMENT

Pre-Disaster

- Provide specific information required regarding precautions for epidemics
- Establish a health mobile team in district & town headquarter hospital
- Setup an Information Center to collect and share information amongst relevant stakeholders.
- Collaboration with relevant organizations/partner NGOs.
- Stocking of life saving drugs and vaccines.

During-Disaster

- Providing emergency treatment to the affected
- Provision of First-aid & water testing kits, chloramines and anti-snake venom serum & other emergency support
- Deployment of mobile medical teams & health staff
- Collaboration with all relevant stake holders

Post Disaster

- Establishment of medical camps, vaccination, ensuring safe food & water in camps
- Conduct impact assessment on health, intervene to stop outbreak of diseases
- Rehabilitation of health infrastructure

3.4.4 EDUCATION DEPARTMENT

Pre-Disaster

- Providing the necessary information, training to teachers & students regarding disasters with tips to save their families & themselves during disaster.
- In collaboration with Civil Defence and Boy Scouts / Girl Guides Association and gear up the volunteers force.
- Educate students about Health care Precautions

During-Disaster

- Mobilize the human resources for intervention during disaster
- Arrangement for evacuees to setup relief & temporary shelter camps
- Deployment of volunteers for camp management & emergency support

Post-Disaster

- Assessment of damages & needs of affected educational institutes
- Rehabilitation of affected educational institutes
- Continuing Education of children at camps and helping them to recover from shock by providing toys etc.

3.4.5 AGRICULTURE DEPARTMENT

Pre-Disaster

- Assessment of high risk prone areas and estimation of possible damage
- Create community Seed Bank at UC level
- Regular surveillance of Irrigation water supplies
- Close coordination with Meteorological Department & other stakeholders for weather information.
- Testing, functioning and pre-positioning the available machinery.

During-Disaster

- Immediate mass awareness and update of situation
- Arrangements for relief & temporary shelter camps in canal rest houses
- Vigilance for protection of Agriculture crops.
- Immediate activation of machinery and equipment.

Post-Disaster

- Assessment of damages & needs of affected crop area and submit to DDMA
- Assistance in repair & rehabilitation of Irrigation Systems.
- Timely compensation to affected farmers
- Mass awareness campaigns regarding epidemics & diseases to crops
- Inform the affected population regarding the land use and crop management on damaged / devastated areas.

3.4.6 LIVESTOCK AND FISHERIES DEPARTMENT

Pre-Disaster

- Estimation of possible damage
- Mass Awareness regarding precautions
- Close coordination with Agriculture, Irrigation, Meteorological Department & other stakeholders.
- Vaccination of livestock.
- Stocking of fodder and vaccines.

During-Disaster

- Update local communities of ongoing situation.
- Provide livestock vaccination
- Arrangements for relief & transportation of livestock.
- Provision of fodder for livestock in affected area.

Post-Disaster

- Assessment & submission of damages & need of affected livestock to DDMA
- Timely compensation to affected livestock owners
- Mass awareness campaign regarding epidemics & diseases to livestock

3.4.7 PLANNING & DEVELOPMENT BOARD

Pre-Disaster

- Gathering statistical data regarding possible damages & recovery needs from all relevant departments
- Plan & identify potential resources
- Facilitation to other department in planning

Post-Disaster

- Gathering statistical data regarding actual damaged & recovery needs from all relevant departments
- Plan & Identify potential resources
- Facilitation other departments in planning and execution of rehabilitation in cost effective manner
- Coordinate with all line departments

3.4.8 REVENUE DEPARTMENT

Pre-Disaster

- Assessment of high risk prone areas and estimation of possible damage and needs for recovery.
- Arrangement of financial resources.
- Identification of high grounds for establishment of tent cities.

During-Disaster

- Establish relief distribution centers/ camps and accept relief donation/ relief support
- Timely release of funds to DDMA.

Post-Disaster

- Assessment of damages of Industrial/ Business, Crops and Livestock and Settlement of applicable taxes accordingly
- Support PDMA in conduct of authentic damage assessment and compensation need.

3.4.9 POLICE DEPARTMENT

Pre-Disaster

- Information dissemination through "15 helpline Service" to local residents
- Prepare Contingency Plan, Teams & their training for emergency intervention.
- Deploying and give security cover to government agencies which are working / preparing for the monsoon season in areas where Law and Order is not good.

During-Disaster

- Rescuing affected, shifting, to hospitals and corpse disposal
- Providing easy access & security to rescue & relief teams.
- Maintain law & order and divert traffic on alternative safe routes as and when necessary.
- Maintaining Law and Order and provide security to relief stock piles and camps.

Post-Disaster

- Ensure security to workers of NGOs/INGOs
- Provide security in Un-safe areas
- Facilitation to institutions/NGOs/INGOs which focus on rehabilitation activities.

3.4.10 CIVIL DEFENCE

Pre-Disaster

- Information sharing regarding technical and personnel expertise with PDMA and DDMAs.
- Conduct training for volunteers in first aid & other activities
- Effectively train & mobilize volunteers and initiate mass awareness regarding necessary first aid-rescue activities

During-Disaster

- Deployment of volunteers at the disposal of DDMA for Rescue, Evacuation and initiate basic first aid.
- Communicate to DEOC any additional resources required for performing Rescue and Evacuation Activities
- Taking precautionary measures to stop Fire-incidents in camps and perform Fire fighting in emergency.
- Management of relief camps where required.

Post-Disaster

- Identify gaps, make future plan to overcome weaknesses
- Assisting District Administration and other Line Departments in Rehabilitation works

3.4.11 SCOUTS

Pre-Disaster

- Nominate the Scouts District wise from Riverine Districts which can be trained to handle flood emergencies
- Training will be imparted in the Scouts regarding Boat Handling and first response to the affectees during the emergency.

During-Disaster

- Trained scouts will be deployed / placed at the disposal of Deputy Commissioner
- The Scouts will perform the duties as per training and will report to respective Deputy Commissioner

Post-Disaster

- The trained Scouts would continue to impart the training in other scouts and volunteers in their respective districts.

3.5 STANDARD OPERATING PROCEDURES (SOPs)

- All the departments shall immediately prepare a comprehensive and up-to-date Contingency Plan for combating expected heavy rains and carrying out the Rescue and Relief work including the details of available staff, vehicles, machinery equipments and other resource in close coordination with PDMA, These all must be kept ready to mobilize / use to combat any emergency during the Monsoon season 2021.
- The Deputy Commissioners shall keep close liaison with all departments like Local Government, Health, Agriculture, Civil Defence, Irrigation, Works & Services, Education & Literacy, Police & other Law enforcement Agencies. Meetings in this regard are to be held on regular basis with concerned departments and minutes are to shared with other Divisional Commissioners and PDMA.

- If there is likelihood of heavy rains and flood emergency would be declared in the District and all Government functionaries and NGOs would be kept on high alert.
- Control Rooms would be established at District and Taluka level in the offices of the Deputy Commissioners. Assistant Commissioner, Mukhtiarkars (Revenue) and all other line departments during the Rain/Flood emergency. These Control rooms shall function round the Clock.
- The Executive Engineers Irrigation will establish round the clock control rooms in their offices for making liaison with all concerned & activate contingency Plan of the department. They shall identify the vulnerable points of the LBOD Sim-Nalahs / and all other irrigation canals and intimate PDMA before 30th June. They will be in touch with PDMA and the Meteorological Department & inform the concerned agencies about any development emergency. They will make special arrangements for watching and patrolling of vulnerable points and ensure that embankments remain in stable condition.
- Immediate arrangements for necessary machinery, sand bags and other material to be used for strengthening of embankments of canals and plugging breach shall be ensured and availability of communication network must be made at all vulnerable points.
- The Executive Engineers Irrigation / LBOD shall ensure regular, timely and proper de-silting of all canals, distributaries, drains, sub-drains and submit a certificate to his higher authorities with an information copy to PDMA. .
- The Deputy Commissioners shall ensure activation of Central District Control Rooms and already established control rooms at each Mukhtiarkar (Revenue) Offices round the clock, under the supervision of Assistant Commissioner concerned. They shall also ensure preparedness at proposed relief camps and also ensure immediate evacuation of people residing in low-lying areas to safer place/ relief camps, if required. He shall

also make immediate arrangements for the availability of sufficient quantity of relief Material like food, blankets, tents- plastic sheets etc.

- The Deputy Commissioners shall constitute Supervisory Committees for relief works at district level.
- The Deputy Commissioner must further ensure that special attention is given to the disabled people and women and children and extra ordinary measures are taken for such purpose.
- The Deputy Commissioner shall nominate the Assistant Commissioner as focal persons to coordinate with the Taluka and Town level local councils for drainage of accumulated rain water during monsoon season-2021.
- The Assistant Commissioners of the sub-division/ Taluka shall be focal persons in Talukas for the entire operations of rescue and relief. They must ensure the respective arrangements for tractor trolleys and manpower in coordination with Civil Defence, Boy Scouts Association and Police Department if needed and mobilize the village staff in the pre-and-post emergency work. They shall also ensure proper distribution of relief material among the actual needy persons.
- The Executive Engineer Drainage Division (LBOD), Irrigation Department shall ensure availability of bulldozers, excavators and earthmoving machines in sufficient number .and in proper working and ready to use condition in case of emergency.
- The Director Agriculture shall make arrangement for protection of standing crops from damages and diseases that may be caused from the stagnant rainwater in the fields. He shall manage required machinery from mechanical wing and must have the inventory of such machinery and equipment.
- The Deputy District Officer, Animal Husbandry Livestock and his staff shall ensure safety of livestock from flood diseases and losses and Veterinary Officers shall ensure regular and timely vaccination of cattle in the districts. They shall make all necessary arrangements for fodder for

the livestock to be shifted from marooned areas.

- The Deputy Controller, Civil Defence should ensure the enrolment of volunteers as early as possible in order to avoid any chaotic situation during emergency. He will continuously remain updated of weather forecast reports and with meteorological departments and will make arrangements for warnings in emergency situation through sirens, loudspeakers and media at Taluka and village level. He shall ensure presence of the Razakars / volunteers and scouts for rain relief and rescue activities in case of any emergency.

- The Deputy Director Food shall ensure availability of sufficient stock of wheat and other grains and shall coordinate with Deputy Commissioners for supply of ration/ food grains from local Food Grains dealers in case of need. He will also ensure that no stocks of government wheat, placed at depots, are damaged due to water accumulation, fire or rioting.

- The Executive Engineer K-Electric / HESCO / SEPCO, shall ensure that no case of electrocution occurs due to negligence of their respective departments and no loose wires are suspended from the electric poles. In case of any breaking of live electric wires immediate steps shall be taken for repair, Inspection of transformers.

- The Divisional Engineer Telephone, ensure full function-ability of telephones all over the district and provide assistance to all departments on demand at the, time of need.

- The Zonal Manager Sui-Southern Gas company ensure continuous supply of gas and proper safety of gas lines throughout its network in the districts of his Division / Zone. He shall ensure immediate repair work in case of any damage to the gas lines.

- The Deputy Commissioners shall ensure mobilization of the NGOs and business community in the rescue and relief activities in case of emergency

and shall depute volunteers on different emergency tasks.

- The Regional Director, Information shall keep close liaison with all control rooms of the division to provide correct and exact information to media regarding emergency. He shall also arrange briefings about the latest situation in case of emergency.

- The Red Crescent Society and other welfare associations and NGOs of the district shall provide food packets and other required material to the affected persons in relief camps in case of emergency.

- Proper arrangement for lifting of trees fallen due to heavy rain and gusty winds from the main Highways / Roads shall be made by the Executive Engineer, Provincial. Highways department.

- The incharge Utility Store Corporation shall ensure the availability of sufficient stock of edible items in case of need.

- The Revenue Department shall also conduct the survey of any loss of life houses, cattle, standing crops and other infrastructure after the rains/ floods-2021. In case of the highest degree of emergency, Pakistan Army may be requested for helping the district Administration in rescue and relief Operations.

3.6 IMPORTANT CONTACT NUMBERS

Annexed at K.

Annex – A

HISTORY OF PAST FLOOD EVENTS

Year	Deaths	Injured	Houses Destroyed	Houses Damaged	People Affected	Cattle Lost	Villages Affected
2013	47	43	14095	21400	534834	88	3068
2012	280	3687	116849	247851	3088970	849	12915
2011	462	756	608579	694519	8634995	104277	36008
2010	475	837	372089	245872	8065846	398769	13649
2008	40	29	3583	13026	0	219	0
2006	162	0	0	113475	1570881	5	95
2003	407	235	0	246464	831157	3618	3243
1995	114	0	21189	0	504455	1397	823
1994	264	0	129387	355554	690035	6090	7894
1992	232	0	239238	269085	0	66512	0
1988	8	0	0	16445	175000	25	1

ANNEX-B

STOCK AVAILABLE AT PDMA SINDH

S.#	ITEMS	Total
1.	Tents	8845
2.	Water Purifier	1633
3.	Blankets	57,658
4.	Mosquito Nets	10,278
5.	De-watering Pumps	74
6.	Rescue Boats	62
7.	Life Jacket	3,062
8.	Plastic Mats/ Chatai	648
9.	Generators 3KVA	08
10.	Generators 6.5KVA	35
11.	Generators 35KVA	1
12.	Generator 100KVA	1
13.	Generator 50KVA	2
14.	First Aid Kit	4,814
15.	Kitchen Sets	3,498
16.	Hygiene Kit	10,248
17.	Jerry Can	6,748
18.	Life Straw Purifier	3,072
19.	Life Ring	127
20.	Hand Fan	23,749
21.	Water Cooler	7,641
22.	Sleeping Bags	339
23.	Portable Washroom	2,223
24.	Hospital Tent	26
25.	Pedestal Fan	2,798

Annex-C

Machinery Available with Districts

	Districts	De-watering Machine	Dumper	Buildozers / Dozers	Excavator	Fire Brigade / Engine/ Tender	Tractor / Trolley / Blade\	Vehicle / Bus/ Van/Truck/	loader	shawal	Diesel / Petrol Engine	Cess Pool	Water Tanker	Tralor	Water Bozer
Hyderabad Division	Hyderabad	307	10	2	8	1	28	47	5	1	-	2	7	-	-
	Jamshoro	41	-	-	-	-	-	1	-	-	-	-	-	-	-
	Thatta	24	-	-	-	3	10	2	-	-	-	-	2	-	-
	Badin	70	2	-	-	-	14	86	-	-	-	-	-	-	-
	Dadu	24	-	-	-	6	11	-	-	-	-	-	-	-	-
	T.M Khan	56	1	-	-	2	1	-	1	-	-	-	-	-	-
	T. Allahyar	24	-	-	-	5	8	-	4	-	-	-	1	-	1
	Sujawal	-	-	-	-		96	-	-	-	-	-	-	-	-
	Matiari	33	-	-	-	1	4	1	4	-	-	-	4	-	-
Mirpurkhas	Mirpurkhas	40	-	-	-	7	16	-	-	-	-	-	-	-	-
	Tharparkar	26	-	3	-	10	15	1	-	-	-	-	7	-	-
	Umerkot	23	-	-	-	11	17	-	-	-	-	-	6	-	-
SBA	SBA	100	-	14	-	-	-	28	-	-	-	-	-	-	-
	Sanghar	76	-	-	-	8	16	-	-	-	-	-	-	-	1
	N. Feroze	78	-	9	-	10	15	50	-	-	189	-	3	-	-
Sukkur	Sukkur	10	-	1	6	12	13	6	4	-	-	-	-	-	1
	Ghotki	26	-	5	-	6	4	40	8	-	22	-	-		-
	Khairpur	3	9	-	1	17	134	82	10	-	-	-	5	-	2
Larkana	Larkana	32	1	2	-	2	16	10	-	10	2	-	-	-	2
	Kashmore	15	-	6	-	4	14	-	1	-	-	-	-	-	-
	Kamber	26	-	6	-	20	18	-	5	-	-	-	-	8	-
	Shikarpur	15	-	13	-	3	4	3	10	-	-	-	-	-	-
	Jacobabad	9	-	-	-	-	-	22	-	-	-	-	-	-	-
Karachi	East	5	2	-	-	-	-	3	5	-	-	-	2	-	-
	West	35	2	-	1	14	7	14	7	-	-	-	-	-	-
	Central	-	17	-	-	3	53	-	6	-	-	-	2	-	5
	Malir	28	25	-	-	-	-	-	16	5	-	-	-	-	-
	South	9	-	-	-	-	1	7	-	-	-	1	2	-	-
	Korangi	9	17	-	-	-	11	13	3	4	-	-	-	3	-
	Keamari	5	-	-	-	-	-	-	-	20	-	-	-	-	-

*** The Details of Machinery provided by Districts.**

Districts	Ambulances	Crane	Snorkel	Mech. Street Sweeper	Refuse Van	Garbage Van	Fumigation Machine	Riksha Container	Boats	Emergency Staff Kits	Rescue Drivers (Life Guards)	Life Saving Jackets	Rope	Solar Lights	Search Lights
Hyderabad	55	-	-	1	1	4	-	-	-	-	-	-	-	-	-
Jamshoro	24	-	-	-	-	-	-	-	5	-	-	-	-	-	-
Thatta	12	-	-	-	-	-	-	8	9	-	-	-	-	-	-
Badin	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dadu	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-
T.M Khan	12	-	-	-	-	-	-	4	10	-	-	-	-	-	-
T. Allahyar	19	-	-	-	3	1	2	4	-	-	-	-	-	-	-
Sujawal	-	-	-	-	-	-	-	-	102	-	-	-	-	-	-
Matiari	19	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Mirpurkhas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tharparkar	19	-	-	-	-	-	-	16	-	-	-	-	-	-	-
Umerkot	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SBA	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanghar	-	-	-	-	5	-	2	-	-	-	-	-	-	-	-
N. Feroze	31	-	-	-	5	-	-	12	4	-	-	-	-	-	-
Sukkur	11	-	-	-	-	-	-	3	-	-	-	-	-	-	-
Ghotki	26	-	-	-	-	-	-	-	13	-	-	-	-	-	-
Khairpur	62	1	-	-	-	-	-	60	-	-	-	-	-	-	-
Larkana	-	-	-	-	1	-	-	-	52	-	-	10	2	-	5
Kashmore	7	-	-	-	2	-	-	-	1	-	-	100	-	100	-
Kamber	15	-	-	-	7	-	-	-	-	-	-	-	-	-	-
Shikarpur	27	-	-	-	-	-	-	4	-	-	-	-	-	-	-
Jacobabad	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-
East	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
Malir	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Korangi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Keamari	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

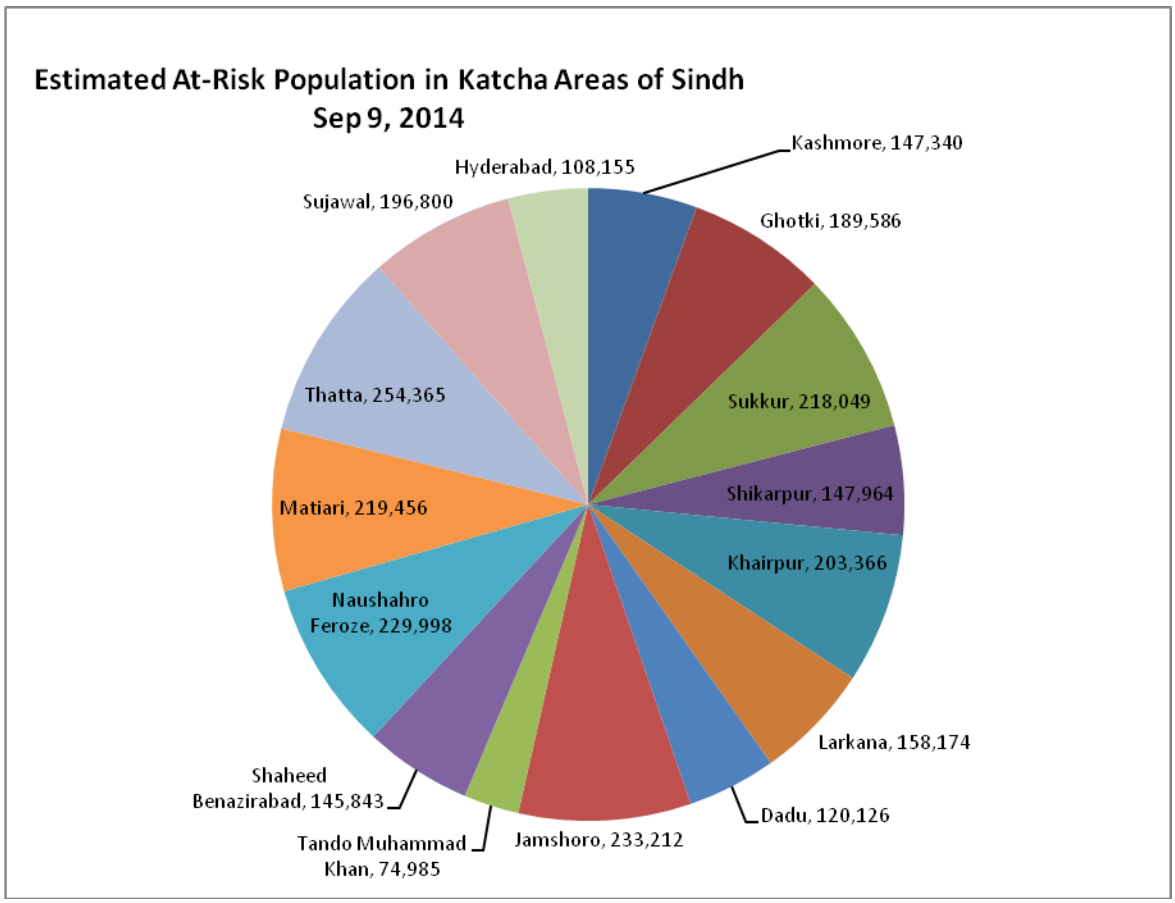
Districts	Megha Phones	Power Generators	Oxygen Gas Cylinder & Kit	Heli Basket	First Aid Box	Sand Bags	Sucker Machine	winch Machine	Garbage Bin	Tents	Mosquito Nets	Water Filter	Electirc Motrs	Jerry Can
Hyderabad	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Jamshoro	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thatta	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Badin	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dadu	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T.M Khan	-	2	-	-	-	-	-	-	-	-	-	-	-	-
T. Allahyar	-	3	-	-	-	-	-	-	-	-	-	-	2	-
Sujawal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Matiari	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mirpurkhas	-	-	-	-	-	-	-	-	-	-	-	-	17	-
Tharparkar	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Umerkot	-	9	-	-	-	-	-	-	-	-	-	-	-	-
SBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanghar	-	2	-	-	-	-	-	-	-	-	-	-	-	-
N. Feroze	-	-	-	-	-	-	-	-	-	150	-	100	-	100
Sukkur	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Ghotki	-	2	-	-	-	-	-	-	-	-	-	-	14	-
Khairpur	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Larkana	-	3	-	-	10	-	2	-	-	-	-	-	-	-
Kashmore	-	-	-	-	-	-	1	-	-	10	30	100	-	30
Kamber	-	11	-	-	-	-	-	-	-	-	-	-	-	-
Shikarpur	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Jacobabad	-	-	-	-	-	-	-	-	-	-	-	-	-	-
East	-	-	-	-	-	-	-	-	-	-	-	-	-	-
West	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malir	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Korangi	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Keamari	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Districts	Electric Van	Arm Roll	Mono Block	Sky Lift	Oil Engines	Earth Levelers	Fogging Van	Plastic Sheets	Succking Machine	Sprayers	Bobcat	Compactor	Tikan	Hand Moving Trolleys
Hyderabad	-	-	-	-	-	-	-	-	-	-	4	-	-	-
Jamshoro	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thatta	-	-	-	-	-	-	-	-	-	3	-	-	-	-
Badin	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dadu	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T.M Khan	-	-	-	-	-	-	-	-	-	-	-	-	-	-
T. Allahyar	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sujawal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Matiari	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mirpurkhas	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tharparkar	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Umerkot	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sanghar	-	-	6	-	-	-	-	-	-	-	-	-	-	-
N. Feroze	-	-	-	-	-	-	-	23	-	-	-	-	-	-
Sukkur	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Ghotki	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Khairpur	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Larkana	-	-	-	-	-	-	-	-	-	258	-	-	-	-
Kashmore	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Kamber	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shikarpur	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jacobabad	-	-	-	-	-	-	-	-	-	-	-	-	-	-
East	1	-	-	-	-	-	-	-	-	-	-	-	-	-
West	2	-	-	-	-	-	-	-	-	4	-	-	-	-
Central	5	16	-	-	-	-	-	-	-	-	8	1	-	-
Malir	-	3	-	-	-	-	-	-	-	-	3	-	-	-
South	-	23	-	-	-	-	2	-	-	-	1	5	-	-
Korangi	-	-	-	1	-	-	-	-	-	-	2	-	-	-
Keamari	1	-	-	-	-	-	-	-	-	-	-	-	-	-

ANNEX – D

Estimated Population at Risk in Katcha Areas of Sindh; (Reported as of Sep 9, 2014)

District	At Risk Pop
Kashmore	147,340
Ghotki	189,586
Sukkur	218,049
Shikarpur	147,964
Khairpur	203,366
Larkana	158,174
Dadu	120,126
Jamshoro	233,212
Tando Muhammad Khan	74,985
Shaheed Benazirabad	145,843
Naushahro Feroze	229,998
Matiari	219,456
Thatta	254,365
Sujawal	196,800
Hyderabad	108,155
Total	**2,647,419**



S.No	District	Taluka	Vulnerable Union Councils	At-Risk Population in Katcha Areas
1.	Kashmore 147,340	Kandhkot	Dari (Ghouspur)	17404
			Haibat	18963
		Kashmore	Gublo	16440
			Badani	18494
			Gihalpur	20167
			Sodhi	20383
			Kashmore Colony-1	20239
			Khewali	15250
2.	Ghotki 189,586	Ghotki	HussainBeli	18775
			Kadirpur	26993
			Bagodeho	21246
			Ruk	17346
		Ubauro	Ranwat	30791
			Langho	23534
			WastiJiwan Shah	25364
			Khambra	25537
3.	Sukkur 218,049	New Sukkur	Bagerji	15551
			Arain	15431
			Tamachani	12,240

	PanoAqil	Sadhuja	18014
		Nauraja	19215
		Sangi	21364
		Hingoro	15875
	Rohri	Ali Wahan	16115
		Arore	18620
		Panhwar	24009
		LoungBhatti	22567
		Patni	19048
4. Shikarpur 147,964	Khanpur	GarhiThegho	19930
		MehmoodaBagh	19742
	Lakhi	Sehwani	18759
		Chak	17746
		Lakhi	16117
		Jehan Khan	11056
	GarhiYasin	Mirzapur	15850
		Amrote	16447
		JindoDero	12317

S.No	District	Taluka	Vulnerable Union Councils	At-Risk Population in Katcha Areas
5.	Khairpur 203,366	Sobodhero	Sagyoon	21580
			Pir Hayat Shah	19438
		Gambat	Agra	21479
			Ripri	15289
			Beharlo	19045
			Khemat	14138
		Kingri	Hadal Shah	21649
			Priyalo	24358
			Kot Mir Muha	21956
		Khairpur	Baberilo	24434
6.	Larkana 158,174	Ratodero	Bahman	23196
			Banguldero	24106
		Larkana	Akil	22178
			Phul	23098
		Bakrani	Purano Abad	20956
		Dokri	Bagi	24093
			Karani	20547
7.	Dadu 120,126	Dadu	Pat	22354
			Allahabad	19278
			Phulji Station	19153
			Monder	19877
			Sial	20749
		Mehar	Nao Goth	18715
8.	Jamshoro 233,212	Sehwan	Talti	22684
			Channa	19607
			Sehwan	19638
			Sehwan 1	18702
		Manjhand	Amri	18329
			Sann	18098
			Lakh	17547
			Manjhand	24951
		Kotri	Allah BachayoShoro	20954
			Jamshoro	20042
			Unerpur (Petaro Proposed)	13618
			Kotri	19042

S.No	District	Taluka	Vulnerable Union Councils	At-Risk Population in Katcha Areas
9.	Tando Muhammad Khan 74,985	Bulri Shah Karim	Saeedpur	22004
			MullanKatira	27292
			JahanSoomro	25689
10.	ShaheedBenazirabad 145,843	Kazi Ahmed	ShahpurJahania	19312
			Dulatpur	20956
			Said Kando	18043
			That	19965
		Sakrand	Gohram Mari	12134
			Bhura	8129
			Mahrabpur	24740
			Mariv	22564
11.	NaushahroFeroze 229,998	Kandiaro	MohabatDero	22076
			Kamaldero	21412
			Abad	21460
			Dabhro	24844
			Bhorti	19604
		NaushahroFeroze	Mithiani	22453
		Moro	Depareja	20942
			Lalia	27351
			FatooBalal	22814
			Gachero	27042
12.	Matiari 219,456	Saeed Abad	Saeed Abad	28991
		Hala	Bhanoth	25572
			Karam Khan Nizamani	26676
			Hala Old	26472
			Hala-2	23537
		Matiari	Sekhat	30531
			Matiari	26797
			Shah Alam Shah	30880

S.No	District	Taluka	Vulnerable Union Councils	At-Risk Population in Katcha Areas
13.	Thatta 254,365	Thatta	Jhurruck	17755
			Jimpir	20614
			Sonda	17897
			Chuto Chand	21264
			KalanKot	1867
			Thatta 1	20002
			Domani	19657
		KetiBander	KetiBander	25700
		Kharochan	Kharo Chan	25666
		Ghorabari	Khan	22008
			Kotri Allah Rakhio Shah	19309
			Mahar	21490
			Udassi	21136
14	Sujawal 196,800	MirpurBathoro	BachalGugo	17996
			Bano	19032
			Liakpur	18592
		Shah Bander	JongoJalbani	20207
			DoulatPur	19267
			Goongani	20362
		Jati	MureedKhoso	20101
		Sujawal	Bijora	20504
			Belo	22272
			Ali Bahar	18467
15.	Hyderabad 108,155	Hyderabad	MasuBhurgari	24362
			Hatri	29719
		Qasimabad	Qasimabad 4	25159
		Latifabad	Latifabad 5	28915

Total 2,647,419

ANNEX-E

FLOOD STORES WITH HQ ENGINEER 5 CORPS

S.#	ITEMS	QTY.
1.	Fiber Glass Boats	138
2.	Pneumatic Boats	10
3.	OBM 30 HP	80
4.	OBM 40 HP	53
5.	Life Jackets (All Types)	2000
6.	Search Light	10
7.	De-watering Pumping Set (All Types)	60
8.	Anchors	142
9.	Life Ring/ Buoy	173
10.	GPS	70
11.	Generator Sets	20
12.	Walkie Talkie Sets (ICOM)	10
13.	Water Proof Torch	215
14.	Paddles	318
15.	Rope 25 m roll	6300 m

ANNEX-E1

FLOOD RELIEF EQUIPMENTS PROVIDED TO PAKISTAN NAVY AND COMCOAST

S.No.	Equipment	Navy	COMCOAST	Total
1	Combo (Fish Finders / GPS Gram 421S)	02	--	02
2	Camera – COOLPIX AW110)	01	--	01
3	Goggles / Black Color	07	--	07
4	Fins (Pairs)	07	--	07
5	Under Water Flash Lights	04	--	04
6	Air Cylinder (Diving Cylinder 15 litres)	04	--	04
7	Regular (Diving Regular P-Synchro)	04	--	04
8	Pressure Gauge (Pressure Gauge Console 2)	04	--	04
9	Wet Suit (Body Fit)	04	--	04
10	Budy Lines	02	--	02
11	Jacket Master	04	--	04
12	Weight Belt with pockets	04	--	04
13	Diver Weight (soft weights)	04	--	04
14	Diver Hood (Standard)	04	--	04
15	Diver Gloves	04	--	04
16	Diver Boots	04	--	04
17	Diving Rope (Nyclone)	120 Ft.	--	120 ft.
18	Fiber Glass Boats (14 feet)	--	10	10
19	OBM 30 HP	--	10	10
20	De-Watering Machines	--	05	05
21	Generator	--	02	02

ANNEX-F

GOVERNMENT OF SINDH
PDMA / RELIEF DEPARTMENT

SUMMARY OF LOSSES / DAMAGES DUE TO RAIN / FLOOD - 2021

Date at ----------hours

Sr.	District	Talukas Affected	Villages Affected	Population Affected*	Displaced Persons (DPs) **				Relief Camps Established	Persons in Relief Camps				Crops Area Damaged (Acres)	Persons Died				Persons Injured				Cattle Head Perished	Houses Damaged		
					Male	Female	Childern	Total		Male	Female	Childern	Total		Male	Female	Childern	Total	Male	Female	Childern	Total		Partially	Fully	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1								-					-					-				-				-
2								-					-					-				-				-
3								-					-					-				-				-
	GRAND TOTAL:				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*** The population affected is the over all affected population of the district.**
**** The Displaced persons are those who depend upon government assistance but do not reside in relief camp.**

Annex-G

DISTRICT _____

Three Hourly Rainfall Report

Dated: _____

Sr.	Taluka/ Area	Rainfall (09:00am-12:00pm)	Rainfall (12:00pm-03:00pm)	Rainfall (03:00pm-06:00pm)	Rainfall (06:00pm-09:00pm)	Rainfall (09:00pm-12:00am)	Rainfall (12:00am-03:00am)	Rainfall (03:00am-06:00am)	Rainfall (06:00am-09:00am)	Accumulative Rainfall (09:00am-09:00am)
1										
2										
3										
TOTAL IN DISTRICT:										

Duty Officer

ANNEX – H

DETAILS OF RELIEF CAMPS

S. No.	Division	District	Number of Relief Camps
1	Hyderabad	Hyderabad	29
2		Thatta	99
3		Dadu	104
4		T.M Khan	33
5		Tando Allahyar	73
6		Matiari	33
7		Jamshoro	43
8		Sujawal	57
9		Badin	19
Total			**490**
10	Mirpurkhas	Mirpurkhas	164
11		Umerkot	25
12		Tharparkar	102
Total			**291**
13	Sukkur	Sukkur	15
14		Khairpur	23
15		Ghotki	23
Total			**61**
16	Larkana	Larkana	48
17		Shikarpur	53
18		Kamber	08
19		Kashmore	43
20		Jacobabad	18
Total			**170**
21	Shaheed Benazirabad	S. Benazirabad	71
22		Sanghar	-
23		N. Feroze	207
Total			**278**
24	Karachi	South	35
25		Malir	6
26		West	26
27		Korangi	19
28		East	-
29		Central	281
30		Keamari	10
Total			**377**
Grand Total			**1667**

(-) Districts not provided relief camp information.

Annex-I

Government of Pakistan
Cabinet Secretariat (Aviation Division)
Pakistan Meteorological Department
Sector: H-8/2, Islamabad.

Tel:051-9250364
Fax:051-9250368

Date: 11th June 2021

Outlook for Monsoon 2021 (Jul –Sep)

Synoptic situation:

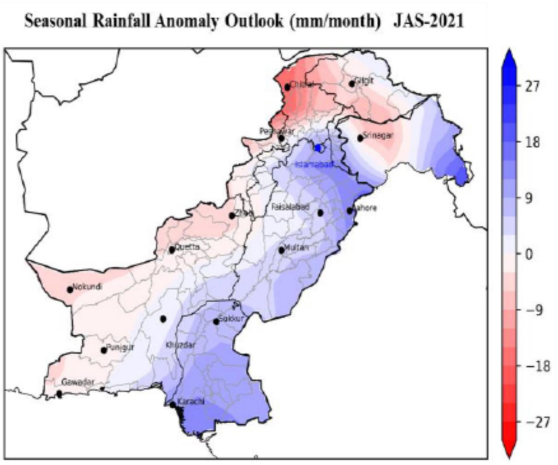
The ENSO and IOD are prevailing in neutral phase and will continue in the same phase during Monsoon season 2021. Based on the global and regional circulation patterns mentioned above, the outlook for the Monsoon 2021 in Pakistan is as under:

Seasonal Outlook:

Monsoon rainfall is expected to remain **near to normal during July to September 2021** in Pakistan. The upper half of Punjab, northern Balochistan and Kashmir are likely to receive moderately above normal rainfall during the season.

Onset of the monsoon is expected during last week of June, expected dates would be **27-30 June**.

*Area weighted **normal rainfall** of Pakistan during Jul - Sep is **140.8 mm**.*



Impacts:

- Flash flooding in hill torrents of Punjab, AJK and KP, also urban flooding in major plain areas of Punjab, Sind and KP cannot be ruled out.
- Due to extreme hydro-meteorological events over catchments, riverine floods may occur.
- Above normal temperatures in high altitudes are likely to increase rate of snowmelt in the Northern Areas subsequently increasing the chances of base flow in the Upper Indus basin.
- Sufficient water availability for irrigation and power sectors will be a good impact.

Note: Keeping in view the rapid changes in climate system dynamics, the above outlook will be updated on monthly basis during the first week of each month.

Annex-J

Nineteenth Session of South Asian Climate Outlook Forum (SASCOF-19) & Climate Services Users Forum

Online Session, 26-28 April 2021

Consensus Statement on the Seasonal Climate Outlook over South Asia for the 2021 Southwest Monsoon Season (June – September)

Summary

Normal to above normal rainfall is most likely during the 2021 southwest monsoon season (June – September) over most parts of South Asia. Geographically, above-normal rainfall is most likely over some areas of the North West, along the foothills of Himalayas and North East parts of the region, and many areas of central part of the region. However, the seasonal rainfall is most likely to be below normal over many areas over extreme northwest, north East and some areas over north-eastern parts of the region. The seasonal rainfall is most likely to be normal or of climatological probabilities over the remaining areas.

During the season, minimum temperatures are likely to be above normal over most areas of west, northwest, north and north eastern parts of the South Asia. The minimum temperatures are most likely to be to be below normal over east-central and south western areas of the region. The seasonal minimum temperatures are likely to be normal or of climatological probabilities over remaining parts of the region. The maximum temperatures are likely to be below normal over most of the central parts of South Asia. The maximum temperatures are likely to be above normal over northwest and northern areas of northeast of the region. Maximum temperatures are likely to normal or of climatological probabilities over remaining parts of the region

This regional climate outlook for the 2021 southwest monsoon season over South Asia has been collaboratively developed by all nine National Meteorological and Hydrological Services (NMHSs) of South Asia with the support from international experts at the nineteenth session of the South Asian Climate Outlook Forum (SASCOF-19) conducted online. The process involved an expert assessment of the prevailing global climate conditions and forecasts from different climate models from around the world. The moderate La Niña conditions that prevailed over the Pacific since July 2020 have weakened to borderline La Niña to ENSO neutral conditions in the month of April 2021. Based on the global climate model forecasts, there is strong consensus among experts that the ENSO neutral conditions are likely to prevail during the southwest monsoon season. It is recognized that the global climate model predictions prior to and during the spring season generally have noticeable uncertainty due to spring barrier in the seasonal predictability. It is also recognized that other regional and global factors as well as the intra-seasonal features of the region can also affect the seasonal climate patterns over the region.

For more information and further updates on the southwest monsoon outlook on national scale, the respective National Meteorological and Hydrological Services (NMHSs) may be consulted.

Introduction:

The climate outlook for the 2021 southwest monsoon season (June to September) was finalized during the nineteenth session of the South Asian Climate Outlook Forum (SASCOF-19) held during 26-28 April 2021 via video conferencing in the backdrop of the current extraordinary circumstances of Covid-19 pandemic prevailing in the world since early 2020. The session was attended by experts representing the National Meteorological and Hydrological Services (NMHSs) of eight South Asian countries as well as those representing several global and regional climate agencies including World Meteorological Organization (WMO), WMO Regional Climate Centre (RCC) Pune, Indian Institute of Tropical Meteorology (IITM), International CLIVAR Monsoon Project Office (ICMPO), Met Office (UKMO), International Research Institute for Climate and Society (IRI), Regional Integrated Multi-hazard Early-warning System (RIMES), Japan Meteorological Agency (JMA), WMO Lead Centre for Long Range Forecasts Multi-Model Ensemble (LC-LRFMME), Korea Meteorological Administration (KMA) etc. The online forum deliberated on various observed and emerging climatic features that influence the performance of the southwest monsoon, such as the El Niño-Southern Oscillation (ENSO) conditions over the equatorial Pacific, Indian Ocean Dipole (IOD), winter and spring Northern Hemisphere (NH) snow cover and land surface temperature anomalies. The key features of these conditions are as follows:

ENSO Conditions over the Pacific Ocean

The ENSO is one of the global scale climate phenomena that have significant influence on the year-to-year variability of the monsoon over South Asia. La Niña conditions (colder than normal SSTs over the equatorial Pacific) were developed during second part of the previous year, which peaked in November. However, La Niña conditions over the equatorial Pacific started weakening in the early part of 2021 and conditions are now moving towards ENSO neutral conditions. Subsurface temperatures over the equatorial Pacific have substantially warmed and atmospheric patterns reflect neutral ENSO conditions. The latest global model forecasts indicate further warming trends and ENSO neutral conditions are likely to prevail during the upcoming monsoon season.

ENSO neutral conditions are generally associated with normal southwest monsoon over the region. However, in a few cases other regional factors such as Indian Ocean conditions may play a more dominant role in influencing monsoon performance.

Conditions over the Indian Ocean

In addition to ENSO conditions over the Pacific, other factors such as Indian Ocean SSTs also have influence on the South Asian southwest monsoon. A positive (negative) IOD is associated with a stronger (weaker) than normal monsoon over the region. At present, neutral Indian Ocean Dipole (IOD) conditions are prevailing over the Indian Ocean. The recent forecasts from coupled global models suggest that these neutral IOD conditions are likely to continue during the monsoon season. However, few climate models indicate development of weak negative IOD conditions during the monsoon season.

Snow Cover over the Northern Hemisphere

The snow-covered area over Northern Hemisphere as well as Eurasia was below normal during last few months (December 2020, January and March 2021). The Northern Hemisphere snow cover areas during February and March 2021 were 33rd and 11th lowest ever during the respective months in the last 55 years. On the other hand, the Eurasian snow cover area was 13th lowest ever during the respective months in the last 55 years. Winter and spring snow cover extent has a general inverse relationship with the subsequent Asian summer monsoon rainfall.

Regional Outlook for the 2021 Southwest Monsoon Rainfall over South Asia:

A regional climate outlook for the 2021 Southwest monsoon season rainfall over South Asia was prepared based on the expert assessment of prevailing large-scale global climate indicators mentioned above, experimental models developed during capacity-building workshops conducted for the South Asian countries in association with the previous SASCOF sessions, and experimental as well as operational long-range forecasts based on statistical and dynamical models generated by the NMHSs in the region and various other operational and research climate centres of the world.

There is a strong consensus among the experts that border line La Niña to ENSO neutral conditions are prevailing over the equatorial Pacific and that neutral ENSO conditions are likely to prevail during the southwest monsoon season. Further, it is well-known that ENSO predictions at this time of the year generally have substantial uncertainty due to the so-called spring barrier in seasonal predictability. It is also recognized that in general neutral ENSO conditions are favourable for the normal southwest monsoon rainfall over most part of South Asia. However, it is important to note that ENSO status is not the only factor that determines the performance of Southwest monsoon over the region. Other relevant climate drivers such as the state of the Indian Ocean Dipole, tropical Atlantic sea surface temperatures, Eurasian land heating etc. are also important. The relative impact of all these parameters needs to be considered to determine the expected state of the monsoon over the region which are implicitly considered by the dynamical climate models that underpin the present outlook.

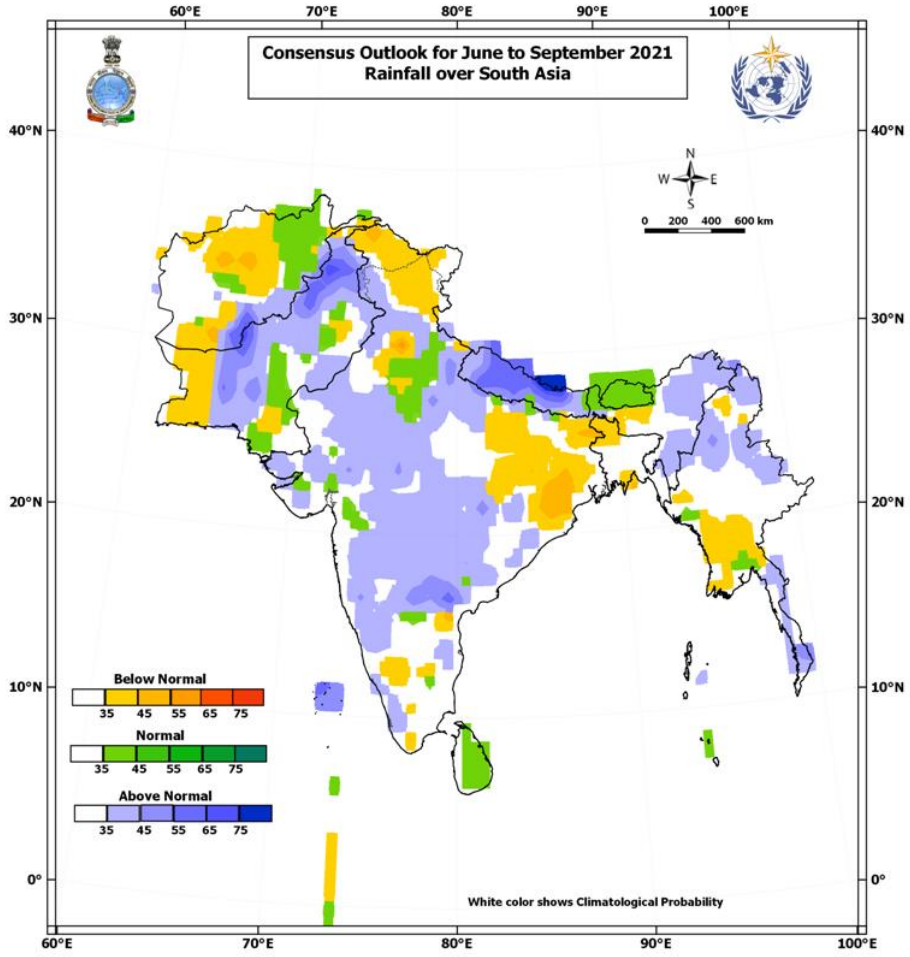


Fig.1a. Probability of the most likely tercile category for the 2021 southwest monsoon rainfall over South Asia. White areas within the land regions indicate tercile categories of equal climatological probabilities of 33.33% each.

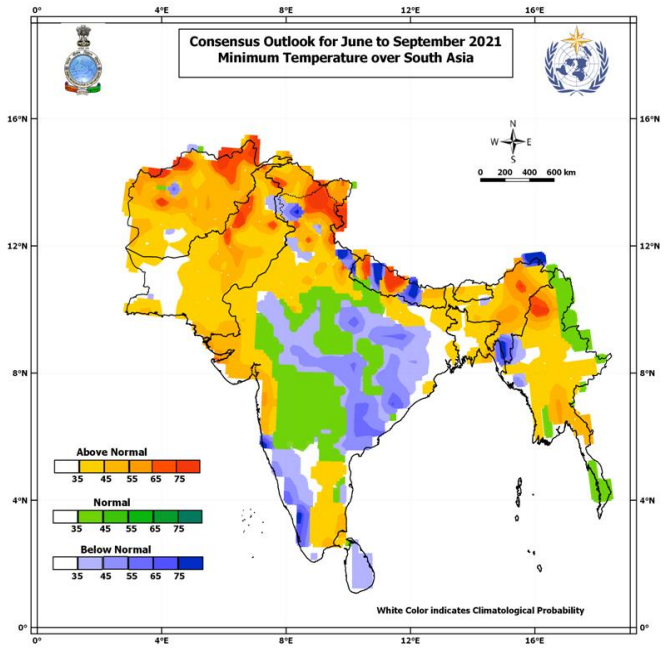


Fig.1b. Probability of the most likely tercile category for the 2021 southwest monsoon season (June to September 2021) Minimum Temperature and over South Asia. White areas within the land regions indicate tercile categories of equal climatological probabilities of 33.33% each.

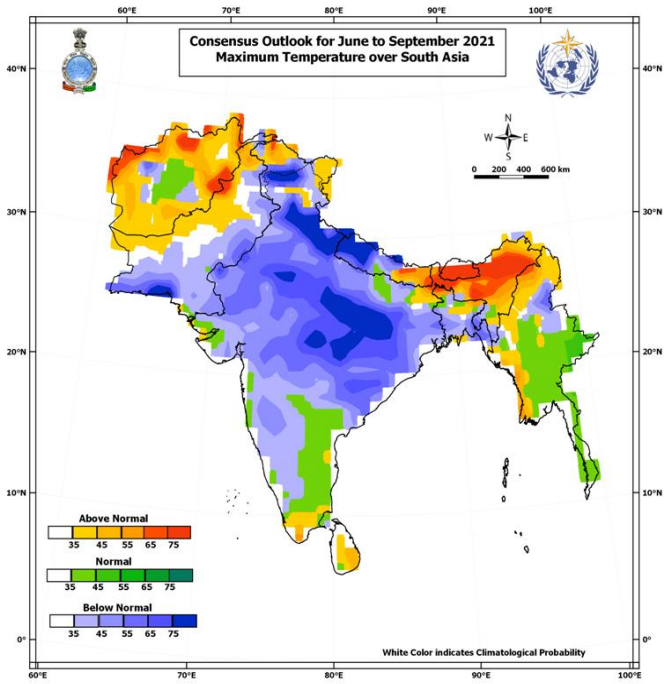


Fig.1c. Probability of the most likely tercile category for the 2021 southwest monsoon season (June to September 2021) Maximum Temperature and over South Asia. White areas within the land regions indicate tercile categories of equal climatological probabilities of 33.33% each.

The outlook for the southwest monsoon rainfall and Temperature (Minimum and Maximum) for the season (June to September) as a whole over South Asia is shown

in Fig. 1**a-c.** The Figure illustrates grid wise most likely tercile category as well as its probability for each of the 1^{o} latitude x 1^{o} longitude spatial grid boxes over the region. The box-wise tercile probabilities were derived by a synthesis of the available information and expert assessment. It was derived from an initial set of gridded objective forecasts and was iterated through collaborative assessment to synthesize predictive signals coming from reliable multiple sources.

The outlook suggests that the rainfall for the season as a whole is most likely to be normal to above normal during the 2021 southwest monsoon season (June – September) over most parts of South Asia (Fig.1a). Above-normal rainfall is most likely over some areas of the North West, along the foothills of Himalayas and North East parts of the region, and many areas of central part of the region. However, the seasonal rainfall is most likely to be below normal over many areas over extreme northwest, north East and some areas over north-eastern parts of the region. The seasonal rainfall is most likely to be normal or of climatological probabilities over the remaining areas.

Consensus outlook on minimum temperatures for June to September 2021 season suggests that minimum temperatures are likely to be above normal over most areas of west, northwest, north and north eastern parts of the South Asia. The minimum temperatures are most likely to be to be below normal over east-central and south western areas of the region. The seasonal minimum temperatures are likely to be normal or of climatological probabilities over remaining parts of the region.

Consensus outlook on maximum temperatures for June to September 2021 season suggests that the maximum temperatures are likely to be below normal over most of the central parts of South Asia. The maximum temperatures are likely to be above normal over northwest and northern areas of northeast of the region. Maximum temperatures are likely to normal or of climatological probabilities over remaining parts of the region

As the rainfall and Temperature during the southwest monsoon season depicts strong intra-seasonal variability, it is advised to watch the extended range forecasts along with updated seasonal forecasts for better decision making. The extended range forecasts for rainfall, temperature, cyclone genesis, MJO etc. over the region can be obtained from RCC, Pune website (http://rcc.imdpune.gov.in/exrange.html). These forecasts are updated every week.

Verification of rainfall outlook for JJAS2020 issued by SASCOF-16

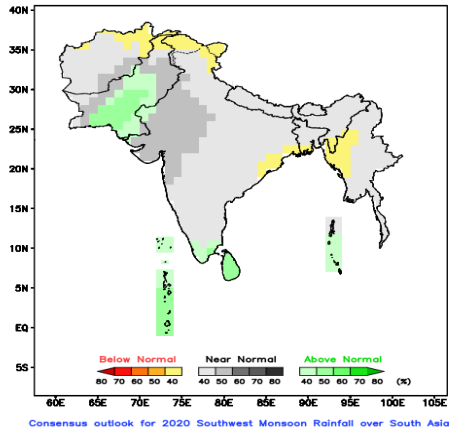


Fig 2a. Consensus outlook map for 2020southwest monsoon rainfall over South Asia

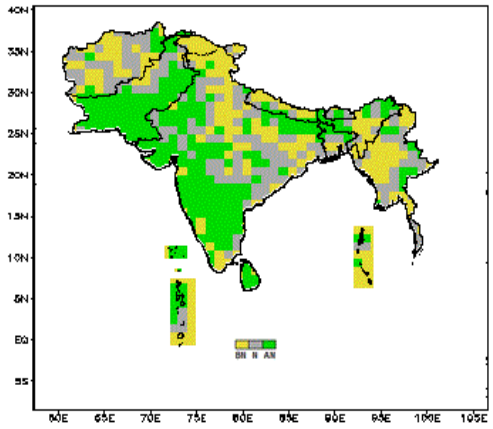


Fig 2b. Observed rainfall distribution during 2020southwest monsoon season over South Asia expressed as the grid point rainfall tercile categories (base period 1982 to 2010). (Merged data set created using various gridded data sets like CHIRPS,IMD, BMD etc.)

The outlook for the 2020 southwest monsoon season (June to September) showed in Fig.2a suggested normal rainfall over most parts of South Asia. However, above normal rainfall was forecasted over the southern part and some areas of north-western parts of the South Asia. Below-normal rainfall was forecasted for over land areas around north Bay of Bengal and northern most parts of South Asia. Normal rainfall was forecasted for the remaining areas of the region.

Fig.2b shows the observed rainfall distribution during the 2020 southwest monsoon season expressed in terms of tercile categories. It is seen that normal to above normal rainfall was experienced over most parts of the region. The above normal rainfall observed over the north-western parts of South Asia and some parts of southern region matched very well with forecast. The below normal rainfall observed over some areas around north Bay of Bengal and northern most parts of South Asia also matched with the forecast. However, there were differences between the observed and forecasted rainfall patterns over the areas along foothills of Himalayas, some parts of extreme north-western region and central part of the region where normal rainfall was forecasted.

Background of SASCOF

Climate predictions are of substantial benefit to many parts of the world in risk management and adaptation to the impacts of climate variability and change, and it is considered useful for countries having common climatological characteristics to come together and collaboratively assess the available prediction information to develop consensus outlooks. Recognizing this, regional climate outlook forums (RCOFs) were conceived with an overarching responsibility to produce and disseminate a joint assessment of the state of the regional climate for the upcoming season. Built into the RCOF process is a regional networking of the climate service providers and user sector representatives. In Asia, China has been coordinating the 'Forum on Regional Climate Monitoring, Assessment and Prediction for Regional Association II' (FOCRA II) since 2005, covering the entire Asian continent.

Asia is a large continent with large differences in the climatological settings on sub-regional scales. Therefore, WMO's Regional Association II (Asia) recommended sub-regional RCOFs devoted to specific needs of groups of countries having similar climatic characteristics. Implementation of the South Asian Climate Outlook Forum (SASCOF) in 2010 is a step in that direction with specific focus on the climate information needs of nations affected by the Asian southwest monsoon climate. The first three sessions of the SASCOF were held at Pune, India (during April) and its 4th session was held in April 2013 at Kathmandu, Nepal. SASCOF-5 (April 2014) was again held in Pune, India.

SASCOF-6 (April 2015) was held in Dhaka, Bangladesh along with Climate Service User Forum (CSUF) for water sector. SASCOF-7 (October 2015), which was the first forum that focused on the winter season, was held in Chennai, India in conjunction with the first CSUF-Agriculture. SASCOF-8 (April 2016) was held in Colombo, Sri Lanka along with CSUF Water and CSUF-Health in parallel sessions. SASCOF-8 was also preceded by a capacity building training workshop on seasonal prediction for the operational climate experts of the South Asian countries. SASCOF-9 (September 2016) was held in Nay Pyi Taw, Myanmar in September 2016, in conjunction with the second CSUF-Agriculture.SASCOF-10 was held in Thimphu, Bhutan (April 2017) and SASCOF-11 was held in Male, Maldives (September 2017).

The SASCOF-12 (April 2018) and associated training workshop on Climate Data Base Management and seasonal prediction were held in Pune, 2018. SASCOF-13 (September 2018) was held in Colombo, Sri Lanka. The SASCOF-14 and associated Pre-COF training workshop on seasonal prediction and CSUF was held in Katmandu, Nepal and hosted by Department of Hydrology and Meteorology (DHM). India Meteorological Department (IMD), World Meteorological Organization (WMO), Met Office, UK and Regional Integrated Multi-hazard Early-warning System (RIMES) co-sponsored the event held during 18-23 April, 2019.The SASCOF-15 and associated Pre-COF training workshop on seasonal prediction and CSUF was held in Thiruvananthapuram, India and hosted by India Meteorological Department (IMD). India Meteorological Department (IMD), World Meteorological Organization (WMO), Met Office, UK and Regional Integrated Multi-hazard Early-warning System (RIMES) co-sponsored the event held during 23-25September 2019.

The sixteenth session of the SASCOF (SASCOF-16) & Climate Service User Forum (CSUF) was held during 20-22 April 2020 via video conferencing in the backdrop of the extraordinary circumstances of Covid-19 pandemic prevailing in the world. The session was jointly conducted by Bangladesh Meteorological Department (BMD), India Meteorological Department (IMD), World Meteorological Organization (WMO), Met Office, UK and Regional Integrated Multi-hazard Early-warning System (RIMES). SASCOF-16 session was also held on 8th June to issue update to the outlook issued in April.

The seventeenth session of the SASCOF (SASCOF-17) & Climate Service User Forum (CSUF) was held during 23-24 and 28thSeptember 2020being held online due to continuing COVID-19 pandemic. The session was jointly conducted by India Meteorological Department (IMD), World Meteorological Organization (WMO), Met Office, UK and Regional Integrated Multi-hazard Early-warning System (RIMES).

The eighteenth session of the SASCOF (SASCOF-18) was held during 28th November 2020being held online due to continuing COVID-19 pandemic. The session was jointly conducted by India Meteorological Department (IMD), World Meteorological Organization (WMO), Met Office, UK and Regional Integrated Multi-hazard Early-warning System (RIMES).

The present and nineteenth session of the SASCOF (SASCOF-19) and Climate Service User Forum (CSUF) is again being held online due to continuing COVID-19 pandemic. The session was jointly conducted by Meteorological Department (IMD), World Meteorological Organization (WMO), Met Office, UK and Regional Integrated Multi-hazard Early-warning System (RIMES).

For preparing the consensus forecasts, the forecast products from various centres such as RCC Pune, JMA, CMA, WMO's Lead Centre for Long Range Forecasting –Multi-Model Ensemble (WMO LC-LRFMME), National Centre for Environmental Prediction (NCEP), USA, Météo France, Met Office UK, European Centre for Medium Weather Forecasting (ECMWF), Canadian Meteorological Centre (CMC), Bureau of Meteorology (BoM), Australia, International Research Institute for Climate and Society (IRI), APCC, and CPTEC, Brazil etc. were also considered.

The long-term historical patterns of the southwest monsoon rainfall over South Asia (Fig.3), characterized by remarkable spatial variability, provide the general reference points at the respective locations for the rainfall anomalies indicated in the outlook.

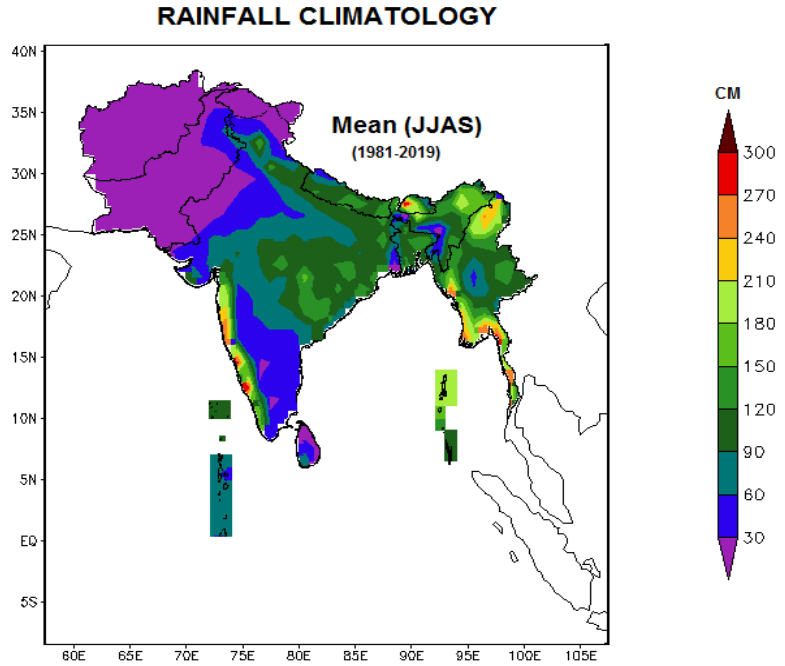


Fig.3 Rainfall climatology for the period 1981-2019 over South Asia (Source: Merged rainfall data over South Asia of RCC, Pune)

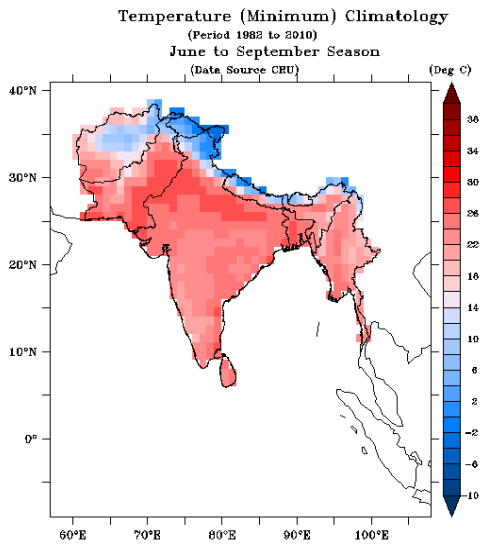


Fig.4 (a) Minimum Temperature climatology for the period 1982-2019 for June to September Season over South Asia

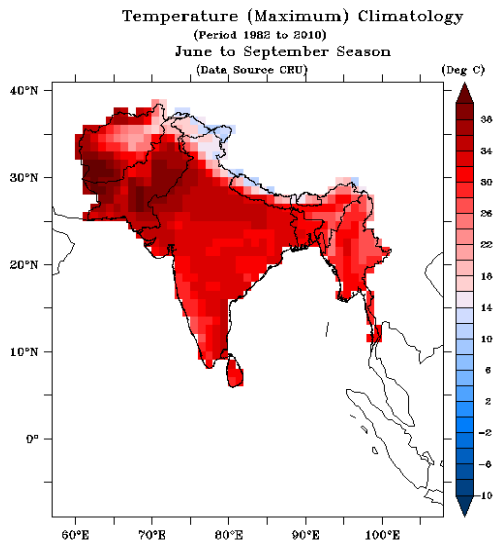


Fig.4 (b) Maximum Temperature climatology for the period 1982-2019 for June to September Season over South Asia

The long-term historical patterns of the Temperature (Minimum and Maximum) over South Asia during June to September (Fig.4 a & b), characterized by large spatial variability, provide the general reference points at the respective locations for the temperature anomalies indicated in the outlook.

LIST OF DIVISIONAL COMMISSIONER / DEPUTY COMMISSIONER IN SINDH (Annex-K)

S.#	Name	DESIG.	District	Cell No.	P.S	Tel . Off	Tel. Res.	Fax.
Commissioner Karachi Division								
1	Mr.Naveed A. Shaikh	Commissioner	Karachi	0333-2127535	Mr.Ahmer Pasha 03452501767		9205610- 14 9205607	99205652 99205639
1	Syed Muhammad Ali Shah	Deputy Commissioner	(East)	0333-8243333	Mr.Abid 0321-2569717	99231214 99231215		99230994
2	Mr.Saleemullah Odho	Deputy Commissioner	(west)	0300-3117083	Mr.Sajid 0300-2316508	99333177 99333172		99333173
3	Mr. Mukhtar Ali Abro	Deputy Commissioner	(Keamari)	0311-3233070				
4	Mr.Irshad Sodhar	Deputy Commissioner	(South)	0333-7549025	Mr. sheraj 0345-3529616	99205644		99202296
5	Dr. Muhammad Bux Raja Dhareio	Deputy Commissioner	(Central)	0334-4094772	M.Farhat 0300-2782112	99260037 99260038		99260036
6	Mr. Shehzad fazal abbasi	Deputy Commissioner	(Malir)	0321-2017728		99333785-6	Camp Office 99248100	35001301
7	Mr.Irfan saleem	Deputy Commissioner	(Korangi)	0321-2579970	M. Amanullah Khan 0321-2613487	99333922		99333923
Commissioner Hyderabad Division								
2	Muhammad Abbas Baloch	Commissioner	HYDERABAD 022	0300-2282356	M.Niaz. 0333-2688946	9200112- 9200113	9200115 9200116	9200114 R.9201316
1	Mr. Fuhad Ghaffar Soomro	Deputy Commissioner	HYDERABAD 022	0333-2273831	M.Ghulam Asghar 0315-5955190	9200244	9200570	9200976
2	Capt. Rtd Fareeduddinn	Deputy Commissioner	JAMSHORO 0223	0321-5222344	Mr.Ali Rajat 0302-3047710	870135 871942- 44	871199 870135	871199 871954
3	Mr.Samiullah Nisar Ali Shaikh	Deputy Commissioner	DADU 025	0333-2646555	Mr.Shah Zaman 0300-3069240	9200250- 9200251	9200251	9200252
4	Syed murtaza Ali	Deputy Commissioner	MATIARI 022	0300-8255104	Mr. Kamran Khaskheli 0300-3099687	2760033 2760032	022-2760929	2760011
5	Mr. Rashid Ahmed Zardari	Deputy Commissioner	TANDO A YAR 022	0300-9372704	Mr. Abdul Rehman Jawar 0302-3046933	9250702-3	3891299	9250703
6	Mr.yasir Bhatti	Deputy Commissioner	T.M.KHAN 022	0333-5727565	Mr. Azad Burti 0300-3070168	9260701-2-9	42160	9260709
7	Mr. Usman Tanveer	Deputy Commissioner	THATTA 0298	0321-8800022	Mr.Riyaz Shah 0333-2577734	920061 770359	920056 920057	R:920058 O:920069
8	Mohd Ismail Memon	Deputy Commissioner	SUJAWAL 0298	0300-8998118	Mr.jameel Memon 0315-3238883	510051	510178 510179	510051
9	Mr.Agha Shahnawaz Babar	Deputy Commissioner	BADIN 0297	0300-2003636	Mr.Ali Nawaz Kaimkhani 0333-1222767	920013	861151 861048	861471 920021
Commissioner Sukkur Division								
3	Mr.Shafiq Ahmed Mahesar	Commisioner	SUKKUR	3002551877	Mr.Allah Dino 0334-3286825	9310834 9310835	9310617 9310618	O:9310837 R:9310619
1	Mr.Javed Ahmed	Deputy Commissioner	SUKKUR 071	0333-7536576	Mr.Intizar 0300-2670508	9310601 9310600	9310601	9310602
2	Mr.Raja Tariq Hussain	Deputy Commissioner	KHAIRPUR 0243	0333-7551535	Mr.Sikander Ali Shah 0333-7595139	9280200 9280201	9280200 9251009	9280202
3	Mr.Muhammad Usman Abdullah	Deputy Commissioner	GHOTKI 0723	0345-5289861		661616 661675	661762	(Of)661677 (Re)651628
Commissioner Shaheed Benazirabad Division								
4	Syed Mohsin Ali Shah	Commisioner	Benazirabad	0300-2435098	Mr.Imad Kundhar 0300-3214184	9370333 381069	PS M Qasim 03003028432	9370392 381068

LIST OF DIVISIONAL COMMISSIONER / DEPUTY COMMISSIONER IN SINDH (Annex-K)

S.#	Name	DESIG.	District	Cell No.	P.S	Tel . Off	Tel. Res.	Fax.
1	Mr.Abrar Ahmed Jaffer	Deputy Commissioner	SBA 0244	0333-7920911	Mr.Zubair Mallah 0348-2376430	381494 9370337	9370334 -7 9370337	9370338
2	Capt. Bilal Shahid	Deputy Commissioner	N. FEROZE 0242	0311-1451678	Mr.Abdul Aziz Ansari. 0300-2141493	920101 448256	920111 PS Ansari 03002141493	920103
3	Mr.Imran ul Hassan Khwaja	Deputy Commissioner	SANGHAR 0235	0321-3443440	Mr.Mazhar Qureshi 0315-3635550	920116-7	541781	920101
	Commissioner Larkana Division							
5	Mr.Shafiq Ahmed Mahesar	Commissioner	LARKANA 074	0300-2551877	Mr.Ghulam Sarwar 0331-3450923	9410244 9410245	9410294 9410295	(R)9410293 (O)9410394-5
1	Mr.Tariq Manzoor Chandio	Deputy Commissioner	LARKANA 074	0333-3792314	Mr.Mahesh Kumar 0333-7575682	9410318 9410243	9410337	9410336 9410293
2	Mr.Qamar Raza Baloch	Deputy Commissioner	QAMBER SHAHDADKOT 074	0300-3060245	Mr.Abbas 0333-7552830	9411100	9411111	9411102 9411108
3	Dr. Kashif Nabi	Deputy Commissioner	SHIKARPUR 0726	0332-2348078	Mr.Ghulam Sarwar 0345-6389798	920200 920201	920203 920201 920204	920202
4	Mr.Hafeez Ahmed Siyal	Deputy Commissioner	JACOBABAD 0722	0300-8379253	Mr.Abdul Whab 0300-3177187	921201-2	652020 653720	921003
5	Mr.Munawwar Mithani	Deputy Commissioner	KASHMORE 0722	0300-3415399	Mr.Ahmed Khoso 0333-7316644		570904 35843006	570902
	Commissioner Mirpurkhas Division							
6	Syed Ejaz Ali Shah	Commisioner	MIRPURKHAS	0331-2865628	Mr.Ghulam Mustafa 0333-3924644	9290052 9290053	9290057-4	9290055-59
1	Mr.Salamat Ali Memon	Deputy Commissioner	MIRPURKHAS 0233	0300-3064490	Mr.Khalid 0334-3131260	9290069 9290070	9290070	9290254
2	Mr. Nadeem-ur-Rehman	Deputy Commissioner	UMERKOT 0238	0300-8377697	Mr.Rafi 0346-2125642	920019-20	920059 920060	920020
3	Mr.Muhammad Nawaz Soho	Deputy Commissioner	THARPARKAR 0232	0307-8223844	Mr.Ashraf 0333-2512488	920667 920825	920925 03332512488 Ashraf	920818