DISASTER MANAGEMENT IN PAKISTAN

INTRODUCTION

Cataclysmic events like floods,earthquakes,droughts, cyclones and hurricanes etc. have p layed a vital role in the evolution of the Earth to its present shape.With the advent of mankind on this planet these natural phenomena have come to disrupt day to day life of people and to undo their achievements In an attempt to assume greater control of Earth the man has further compounded the situation and introduced man-made disasters like civil strifes,gas leakages etc. besides accelerating environmental degradation. But at the same time man has always tried to manage and mitigate the effects of natural as well as man-made disasters. The same is true of Pakistan.

2. Pakistan is located in South Asia where seasonal rainfall periodicity is a prevalent feature and incidences of both abnormal surpluses and deficits of rainfall are regular occurrences. The average rainfall recorded during monsoon is 200 mm. Pakistan is spread over an area of 888,000 sq.km with a population of 120 million. The temperature in the country varies from 6°C in January to 49°C in June. Pakistan is composed of a varied geographic pattern having the second highest peak in the world with major mountainous ranges of the Himalayas, the Karakuram and the Hindukush in the north and a vast hostile desert in the south. While floods occur quite frequently resulting in widespread damages,droughts in desert regions cause considerable concern and misery. However, Pakistan is lucky that it did not have to face many earthquakes of severe intensity.

3. As stated elsewhere the areas constituting Pakistan are prone to a variety of disasters like floods,droughts, earthquakes landslides,avalanches and cloudbursts etc. While devastating earthquakes are a rare phenomenon,floods occur quite frequently and cause widespread damage too.Disaster management has therefore remained an important discipline in Pakistan.

DISASTER MANAGEMENT

4. Every calamity,big or small, leaves behind a trail of misery seriously affecting the social,cultural and economic order which calls for an effective planning at pre-disaster and post disaster stages. Unless the managing body is well organised and alert it may cause widespread panic and misery. How promptly the order is restored is the test of the working machinery. It,therefore, becomes imperative that the emergency management services are well organised having essential infrastructure on the ground,adequately equipped and trained to handle emergency situation effectively.

DISASTER ORGANIZATION

5. Due to shortage of resources, developing countries like Pakistan cannot afford to maintain large permanent establishments in the relief set ups. The provision of relief to the calamity stricken people is primarily the responsibility of ProvincialGovernments and local administration. The National Calamities(Prevention and Relief) Act,1958 confers special powers on Relief Commissioners enabling them to expeditiously and effectively discharge their duties during calamatic emergencies. There are separate disaster plans at Provincial and District levels specifying duties to be performed by the various Government departments. While the Provincial Governments and the local administration discharge their relief duties at the site of disaster, the Federal Government is there to assist them if resources are not compatible with the calamity. The organizational model being practiced in Pakistan is given

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in Table 1.

Table 1 : Disaster Organization

Federal Disaster Management
(Cabinet Division/ERC)

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Provincial
Disaster Management
(Relief Commissioner)

Divisional
Disaster Management
(Commissioners)

District
Disaster Management
(Deputy Commissioner).

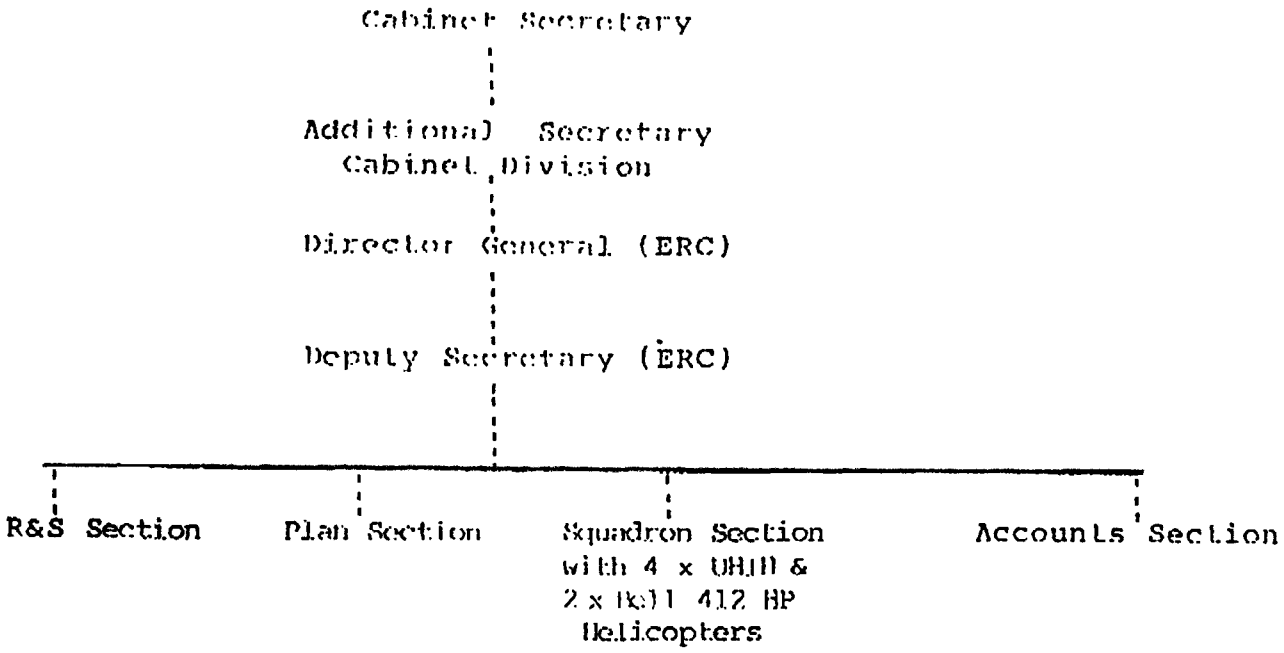
Sub-Divisional
Sector Disaster Management
(Asst.Commissioner)

NATIONAL DISASTER PLAN

6. The Emergency Relief Cell prepared a disaster relief plan titled "National Disaster Plan" in 1974 under guidance of Mr.Gerhard Svedlund,Consultant, United Nations Disaster Relief Organization. The purpose of the disaster plan was to establish procedures, prescribe organization set-up,fix primary responsibilities and support functions of implementing agencies involved, and standardize procedures for the monitoring of disaster operations. The plan embraced all disaster situations and envisaged the use of all vaailable resources, governmental,semi-governmental and non-governmental. Being action oriented, functional, and flexible, the plan is capable of meeting disaster situations of various intensity as well as multiple contingencies.The Disaster Management is organized at National/Provincial/District/Sub-Divisional levels by designating the officials as Coordinators/Managers.

EMERGENCY RELIEF CELL

7. The history of Emergency Relief Cell at the federal level dates back to 1970 when the catastrophic cyclone caused widespread devastation in former East Pakistan in 1970. To accomplish the mission the 'Emergency Relief Cell' of the Cabinet Division is organised as under:-



FUNCTIONS OF EMERGENCY RELIEF CELL

8. The main functions of the Emergency Relief Cell are as under:-

a) Provide policy guidance on disaster prevention and disaster operations, formulate long range plans and Preparedness Program, Alert and Warning System, rescue, relief

b) Determine and assess the requirements of major disasters.

c) Coordinate the activities of the Federal Divisions, of the Provincial Governments, of governmental, semi-governmental, international and national aid-giving agencies, in the conduct of disaster operation.

d) Coordinate and integrate the prevention and mitigation measures of the Provincial Governments.

e) Integrate the plans of the implementing governmental agencies, and the cooperating non-governmental aid-giving agencies.

f) Maintain contact with UNDRO and international aid-giving agencies, semi-governmental and voluntary agencies and with representatives of donor countries.

g) Establish procedures to make efficient use of international aid in cash and kind, in particular by international participation in disaster prevention and operations.

h) In cooperation with appropriate national and international agencies, collect relevant disaster data and information for management operational use.

i) Establish an emergency fund upon declaration of the whole or any part of the country as calamity affected area.

j) Prepare a report of each major disaster for the Government.

k) Stockpile certain items of basic necessity and establish central inventory of resources.

l) Draw up guidelines for training programmes at Federal and Provincial level for all personnel likely to have a sepcific duty in disaster situations.

EMERGENCY CONTROL ROOM.

9. As soon as a disaster takes place, and during the flood season the emergency control room in the Cabinet Division goes into operation. It maintains constant liaison with the Engineer Dte. Pakistan Army, Provincial GOvernments/Relief Commissioners and Officers at the scene of disaster. Daily situation reports are received from the calamity stricken areas through the Provincial Governments and the concerned federal agencies and compiled, and a central situation report is issued to all concerned depicting a country-wise position. This helps in taking major decisions by the Cabinet and towards formulation of a national policy to meet the challenge.

COORDINATION OF EFFORTS

10. In the process of relief management and assistance a number of Ministries, departments and agencies come into play apart from the local administration which necessitates requirement of focal point or a coordination headquarters. As explained in the 'National Disaster Plan' the ERC shall be assisted in coordinating disaster operations by personnel and resources from the following Implementing Federal Divisions and Agencies:-

a) Aviation Division
b) Commerce Division
c) Communications Division
d) Defence Division
e) Economic Affairs Division
f) Eduction Division
g) Finance Division
h) Food, Agriculture & Rural Development Division.
i) Fuel, Power & Natural Resources Division
j) Health Division
k) Industries Division
l) Information & Broadcasting Division
m) Interior Division
n) Labour & Local Bodies Division
o) Planning & Development Division
p) Production Division
q) Statistics Division
r) Works & Rehabilitation Division
s) National Social Welfare Orqanizations
t) International Social Welfare Organizations
u) Pakistan Meteorological Department
v) Foreign Affairs Division
w) Livestock Division
x) Pakistan Army

WAREHOUSE

11. The Emergency Relief Cell has Warehouses, at Islamabad and Karachi for stock-piling of essential relief items to be used during emergencies. These Warehouses have basic non-perishable medicines and non-perishable goods like blankets, clothing and tents which can be rushed to the affected areas at a short notice.

R.G.D.O

12. The Relief Goods Despatch Organizations located at Karachi and Islamabad are controlled by the Emergency Relief Cell. The purpose is to make arrangements for receipt and despatch of all relief goods from foreign and local agencies in the event of a disaster. The Relief Goods Despatch Organizations are responsible for clearance and flight arrangements at Airport, Seaport, Re-fuelling of planes, reception of crew, custom clearance and other formalities.

RELIEF ASSISTANCE TO FRIENDLY COUNTRIES.

13. At international level, the Emergency Relief Cell is responsible for sending relief assistance to friendly countries when they are struck by a disaster. Requests by friendly countries for assistance are routed through the Ministry of Foreign Affairs and decision taken by the Government. Special Funds are provided for such relief assistance by the Finance Division.

ACHIEVEMENTS OF ERC

14. The Emergency Relief Cell of the Cabinet Division undertook a number of relief operations and assistance programmes within the country as well as at international level. A few are listed below:-

a) Floods during 1973,1975,1976,1988 and 1989

b) Pattan Earthquake - NWFP 1974.

c) Drought in Thatta 1984-87.

d) Bangladesh Cyclones 1987,1988,1991

e) Earthquake in Soviet Armenia,1988

f) Earthquake in Iran in June,1990

g) Repatriation of 65,000 Pakistanis and foreign nationals from Kuwait in August,90-Jan,1991.

h) Earthquake in NWFP, 1st February,1991

i) Severe storm in Maldives,May,1991

j) Floods in China,July-August,1991

k) Earthquake in India October,1991

l) Floods in 1992,1994 and 1995.

EARTHQUAKES

15. Earthquakes occur very rarely in Pakistan but take a heavy toll in terms of loss of life and property. Before the creation of Pakistan an earthquake of severe intensity(Magnitude 7.5)struck Quetta city in 1935 killing 35,000 people. The region is still an active seismic area. Since its creation in 1947 Pakistan has faced five major earthquakes. The severest of these earthquakes(magnitude 6.00) hit Swat,Hazara and Kohistan regions of North West Frontier Province in the Karakuram range(about 6600 k.ms) on the 28th December 1974.The shock of the earthquake was felt

over an area of 300,000 sq.kilometers but the resultant devastation was confined to the area around Pattan, the administrative centre of the region and a large village. The epicentre of the earthquake was about 20 kilometers north west of Pattan with local depth of 10 to 15 kilometers. The epicentral location indicated more than one active fault in a zone approximately 30 milometeres long and less than 30 kilometers deep. The earthquake was not preceded by any foreshocks but it was followed by a number of after shocks. The earthquake killed about 1,000 people and permanently disabled 1,845 people while 17,677 houses were completely demolished and 2,313 houses partly damaged in addition to the loss of 63,393 cattles. The Karakuram Highway alongside Indus was severely damaged due to rockfalls, landslides or subsidence at many placed. Improvised irrigation channels were destroyed and most of the springs went dry.

16. A survey of the damages caused by the Pattan earthquake indicted that the main factors responsible for damage to property were inferior construction of houses, use of mud mortar instead of lime or cement, and closely and haphazardly built houses. The buildings in the earthquake areas could be broadly categorised as privately owned buildings constructed with the help of local materials according to traditional style and the Government owned buildings constructed according to prescribed architectural standards. While the private buildings constructed with poor mortar and without vertical supporting elements could not withstand the earthquake shocks and were partly damaged, the better built structures with light roofs and dressed masonry walls and better mortar suffered no damage from shaking.

17. While it is humanly not possible to ckeck earthquake from taking place, efforts can be made to mitigate their effects by getting advance information as far as possible. Pakistan has therefore set up a chain of 6 seismological stations with the headquarters at Quetta. The network is controlled by the Pakistan Meteorological Department. A seismic observatory also functions at Tarbella. For quick analysis of data and prompt dissemination of earthquake information strong motion seismographs and accelerographs

would be required besides the heavy machinery for the removal of debris in mountainous areas.

18. It would not be out of place to state here that a high intensity earthquake which hit different parts of NWFP on 1st February,1991 measured 6.8 richter scale had caused widespread damage in Malakand and Hazara Divisions as under:-

i)	Persons dead	-	169
ii)	Persons injured	-	739
iii)	Houses demolished	-	6,892
iv)	Houses damaged	-	57,916
v)	Cattle lost	-	5,302

In order to provide relief to the affected people the Federal Government provided cash grants of upto Rs 225 million in addition to the relief assistance provided in kind.

19. As already stated, in Pakistan, earthquakes have mostly affected the less developed mountainous areas almost inaccessible through ordinary means of communication even under the normal circumstances due to extremely difficult terrain and severely cold weather during winter. The use of heavy machinery in the removal of debris is therefore rendered impossible which also adversely affects the relief and rescue operations.

F L O O D S

20. Pakistan has been regularly hit by rains/floods in the monsoon season. In the recent past, the floods in 1992 and 1995 caused huge damage to life and property throughout the country. In order to mitigate the devastating effects of floods, the Federal Flood Commission and Provincial Governments adopt all possible preventive measures within the available resources.

FEDERAL FLOOD COMMISSION

21. While the coordination of the flood relief work as in other disasters, is the functionof the Emergency Relief Cell of the Cabinet DIvIison, the technical aspects of flood control are required to be looked after by the "Federal Flood Commission" which include the preparation of National Flood Protection Plan and the planning and coordiantionof flood protection works such as embankments etc. and provisionof funds for such schemes.

22. Since the inception of Federal Flood Commission in 1997 a total number of 350 spurs in the four provinces alongwith Federal Agencies(AJ&K,NA and FATA) have so far been completed,130 more spurs will be constructed by December,1996 under the National Flood protection Plan. Alongwith that bunds have also been constructed about 3,474 KM in length, a major portion of which is located in the Province of Sind and Punjab. In Sind province, the bund ystem has also been equipped with 2nd line of defence bunds downstream Guddu Barrage. This system is fully capable to pass very safely the super flood in the Indus River, the practical demonstration of which has been experienced during the floods of 1992,1994 and 1995.

23. Flood plain mapping of the river Indus and its main tributaries is being carried out.The work is likely to be completed in 1996. This would facilitate nationwide planning for management of floods, preparation of guidelines for flood fighting (rescue and relief),appropriation of structural and non-structural measures and establishment of an effective flood forecasting and warning system. In order to effectively monitor approaching rainstorms over the catchments and make reliable flood forecast, a 10 cm S-Band weather radar is being installed at Lahore Meteorological Station during the year 1995. This radar will monitor rainfall in the catchment areas of Sutlej,Beas,Ravi and a part of Chenab River. It s effective radius will be about 430 KM. It would provide means of reliable flood forecasting for these rivers. Indus Basin Flood Forecasting and Warning System is being developed. The overall objective is to improve the country's flood forecasting and warning

capability. The weather radar and the rehabilitated and improved gauging and telemetry system will become effective after the 1996 flood season. Short-term measures and activities are being carried out during the year 1995. to ensure that a minimum flood forecasting system is maintained until the time the major improvements are implemented. Pre-feasibility studies for management of severe floods have been initiated. These studies have been necessitated due to the fact that the existing capacities of most of the barrages and bridges constructed across the rivers are inadequate to pass the severe flood flows. The operation of breaching sections often becomes invitable to safeguard the structures in case of a peak exceeding the maximum discharge capacity. FIve most severe problem sites would be identified during this study and proposals for afe passage of floods through these structures will be prepared.

24. Hill torrents in various parts of Pakistan drain about 50 percent area of the country. Unmanaged flood flows of the hill torrents inflict heavy monetary losses during minor floods. Since independence, the composite flood damages due to hill torrents alone are estimated to be over Rs 60 billion. Under the FPSP-1, 13 dispersion structures have been constructed on Kaha hill torrent in D.G.Khan. In addition, flood management works in Kalapani Nullah in Mardan, NWFP and for management of hill torrents in QUetta, Balochistan, have been implemented under the FPSP-1. The Government of Japan is funding a pilot project for management of Mithawan hill torrent whereas watershed management studies for upper Kaha hill torrent are presently in progress under Swedish grant. Master Feasibility Studies for harnessing of flood flows of hill torrents of Pakistan are presently in progress and are expected to be completed in September,1996.

25. A Second Flood Protection Sector Project will be started at the conclusion of ongoing Flood Protection Sector Project (jointly funded by ADB and GOP) under which 280 new spurs/bunds in the sum of Rs 8,500 million will be constructed alongwith remodelling of some already constructed bund systems in the four provinces and Federal agencies. This will further strengthen the flood forecasting Warning equipment i.e(10 cm radars,HF Radios etc) has also

been proposed to be installed under Second Flood Protection Sector Project. The project is expected to be started in January,1997.

RAINS/FLOOD DAMAGES 1992 & 1995

26. The statement showing the losses and damages which occured in Pakistan during floods of 1992 & 1995 are annexed at Annex A & B respectively.

Annex A.

T O T A L S U M M A R Y

LOSSES / DAMAGES

RAIN/FLOOD

STATISTICAL STATEMENT A PROGRESSIVE TOTAL

AS ON 27.10.1992

PROVINCES	VILLAGE AFFECTED	PERSONS AFFECTED	HOUSES DAMAGED Katcha	HOUSES DAMAGED Pacca	HOUSES DEMOLISHED Katcha	HOUSES DEMOLISHED Pacca	PERSONS DIED	CATTLE HEAD LOST	RELIEF CAMPS ESTB.	REMARKS
PUNJAB	6474	4192930	145222	67099	108451	38264	381	39126	314	
SINDH	5033	3233103	251951	-	276369	-	223	85337	397	
N.W.F.P	945	120010	8360	1065	13047	419	386	5464	4	
BALUCHISTAN	5	-	-	2	-	-	-	2	-	
A J & K	261	35164	12342	1945	4138	1340	304	5425	-	
NORTH AREAS	-	42800	5762	-	8561	-	37	26292	-	
ISLAMABAD CAPITAL TERRITORY	57	1347	436	39	29	17	1	4	-	
TOTAL	12775	7625354	424095	79710	410595	40040	1332	161687	715	

Addition to the Pakistan Country Report

SUMMARY

Annex-B

DETAILS OF HUMAN/PROPERTY LOSSES DUE TO RAINS/FLOODS
AS ON 04/12/1995

CE	VILLAGE AFFECTED	PERSONS AFFECTED	AREA AFFECTED (ACRES)	CROPS AFFECTED (ACRES)	HOUSES DAMAGED		HOUSES DEMOLISHED		PERSON DIED	CATTLE HEAD LOST	RELIEF CAMPS ESTAB	PERSONS I RELIEF CAMPS
					KACHA	PUCCA	KACHA	PUCCA				
	4912	1638131	3449486	1381805	41068	8176	36292	2784	179	574	268	-
	647	511149	676529	88914	30741	-	33474	-	58	5150	112	77595
	62	4475	-	3711	10982	917	1017	12	160	889	22	-
	1060	72285	663514	134023	15338	126	8362	13	95	11355	23	-
	295	34300	5500	1095	4050	2900	650	355	61	1250	-	-
S	226	19251	1450	6798	1755	1336	4026	296	14	8051	8	-
	28	219	7211	3292	931	-	77	10	35	656	1	-
	7230	2279810	4803690	1669638	104865	13455	83898	3470	602	27925	434	77595

S OF LIVES LOST (EW & NEW)

B)	EW= 90	NEW= 89	TOTAL=179
	EW= 45	NEW= 13	TOTAL= 58
	EW= 47	NEW=113	TOTAL=160
HISTAN)	EW= 25	NEW= 70	TOTAL= 95
	EW= 45	NEW= 16	TOTAL= 61
AS)	EW= 9	NEW= 5	TOTAL= 14
	EW= 5	NEW= 30	TOTAL= 35
	266	336	602