



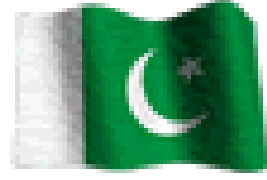
Expert Group Meeting on DIMS in South & South West Asia 16-17 April 2014 India.

Maqsood Ullah Khan, Assistant Director (IT), NDMA

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Sequence



- Pakistan's Disaster Context
- Evolution & Structure of DM System in Pakistan
- Disaster Management System In Pakistan.
- Way Forward

Disaster Context



China

Disputed Territory

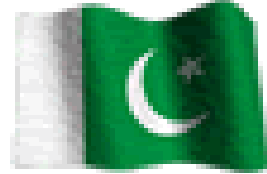
Afghanistan

Iran

India



Hazards in Pakistan



Floods



Earthquake



Avalanche



Land Slides



Hazards in Pakistan

Drought



Forest Fires



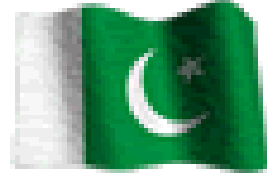
Industrial Accidents



Tsunami



Hazards in Pakistan



Oil Spills

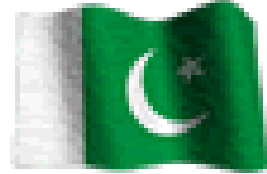


GLOF





Hazards in Pakistan

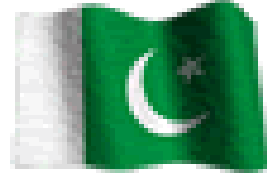


Natural

- **Floods**
- **Earthquakes**
- **Droughts**
- **Tsunami**
- **Avalanches**
- **Landslides**
- **Cyclones/Storms**
- **Glacial Lake Outbursts**

Human Induced

- **Transport Accidents**
- **Epidemics**
- **Oil Spills**
- **Urban Fires**
- **Industrial Accidents**

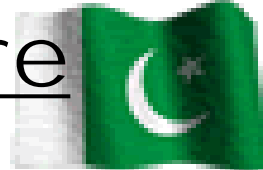


Disaster Management

System in Pakistan

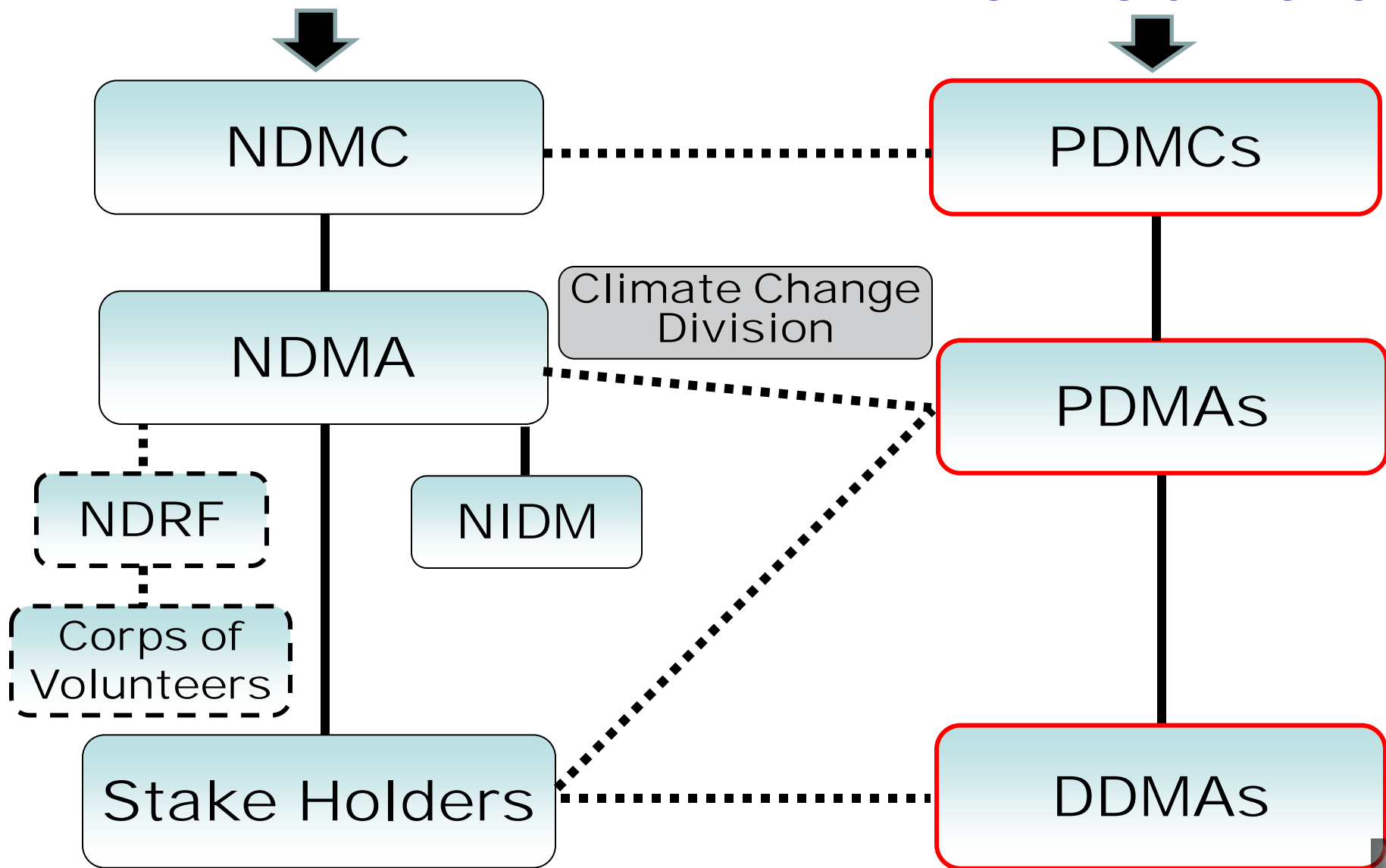


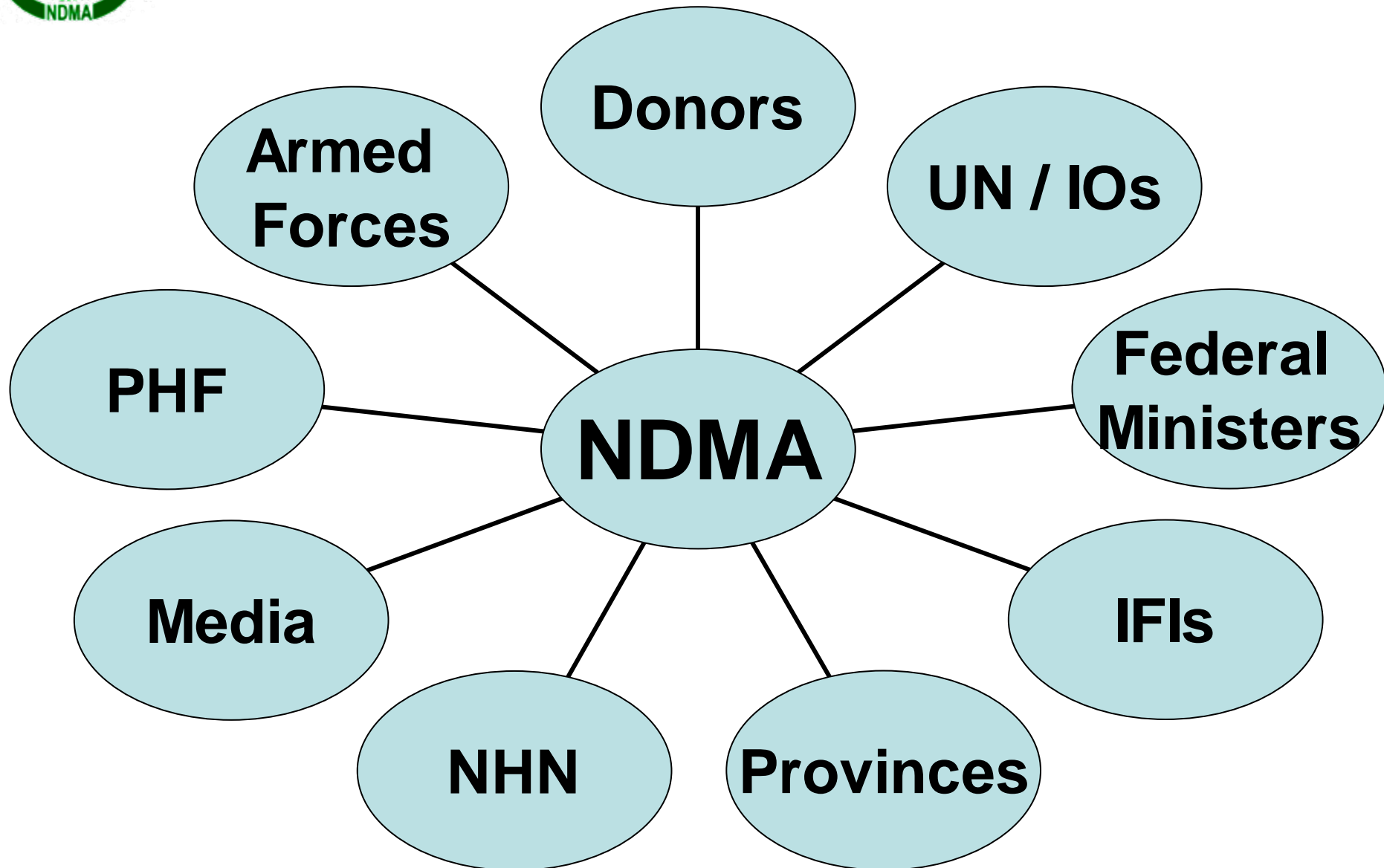
Disaster Management Structure



Federal Level

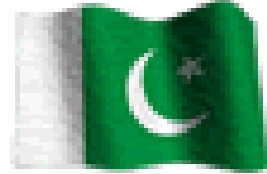
Provincial Level







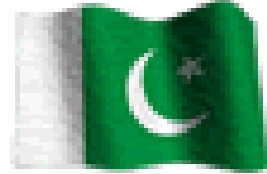
NDMC Composition



- Prime Minister - Chairperson
- Leaders of Opposition in the Senate and National Assembly
- Ministers (Defence, Health, Foreign Affairs, Social Welfare & Special Education, Communications, Finance and Interior)
- Governor Khyber Pakhtunkhwa (for FATA)
- Provincial Chief Ministers including Gilgit-Baltistan



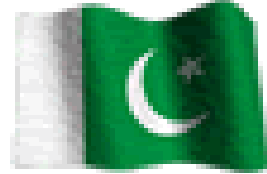
NDMC Functions



- Lay Down Policies on Disaster Management
- Approval of National Plan
- Approval of Plans Prepared by Ministries or Division in Accordance with the National Plan
- Lay Down Guidelines to be followed by Federal Government and Provincial Authority
- Arrange and Oversee Provision of Funds for Mitigation Measures, Preparedness and Response



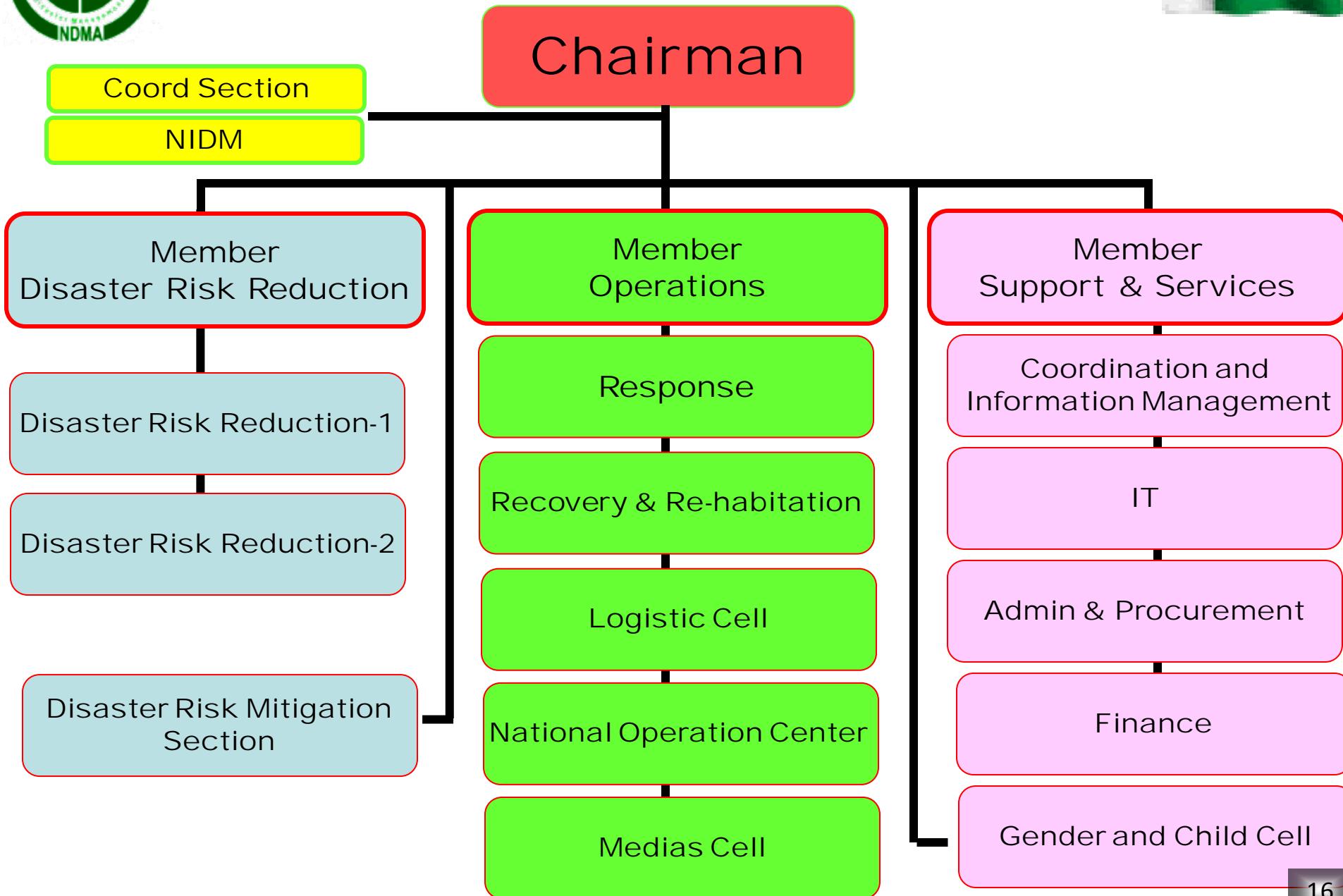
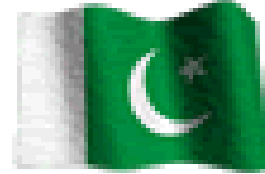
NDMC Functions



- Support to other Countries Affected by Major Disaster in line with govt decision
- Take Measures for Prevention of Disaster, Mitigation, Preparedness and Capacity Building for Dealing with Disaster

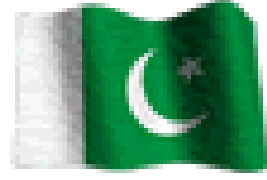


NDMA Organisation



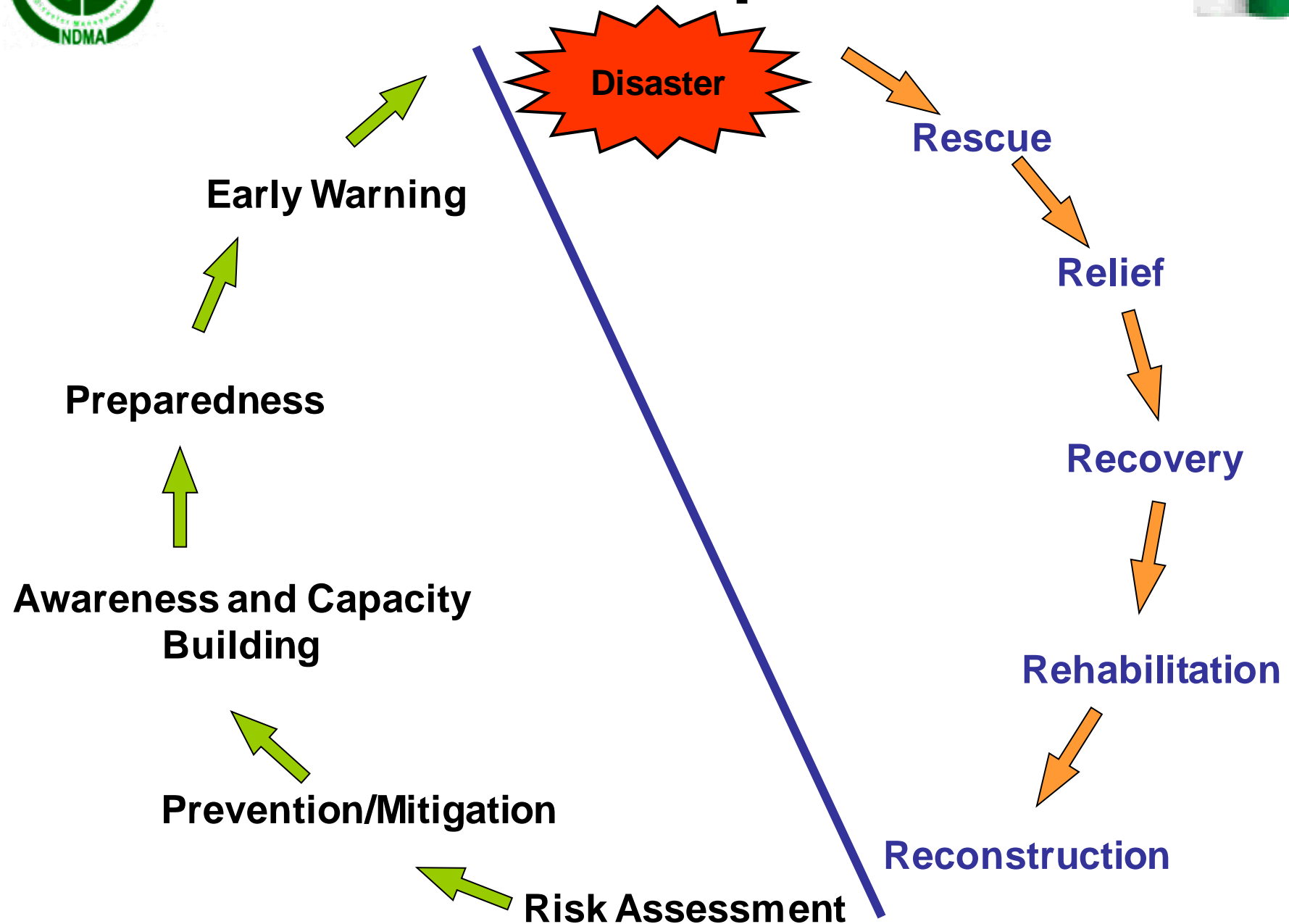


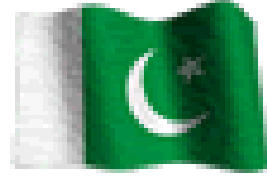
NDMA's Functions



**Policy Formulation, Coordination, Implementation
and Monitoring of the whole Spectrum of Disaster
Management**

Disaster Spectrum

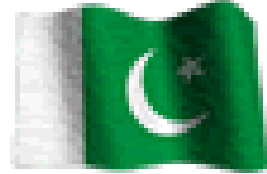




Handling Major Disasters

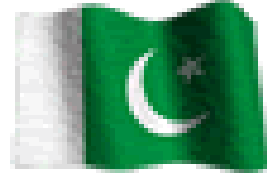


Recent Disasters



- **Since its inception in 2007, our Disaster Management System has matured by handling a variety of disasters:-**
- **Cyclones:** Yemyin-2007 & Phat-2010
- **Earthquakes:** Ziarat-2008, Dalbandeen-2010, Maskhel and Awaran 2013
- **Landslides / GLOF:** Attabad-2010, Gyari 2012, Chitral 2013
- **Floods:** 2010, 2011, 2012 and 2013

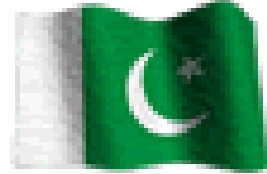
We have learnt valuable lessons during the process



Bilateral / Regional Linkages on Disaster Management



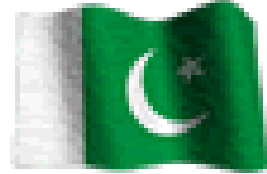
Bilateral Linkages



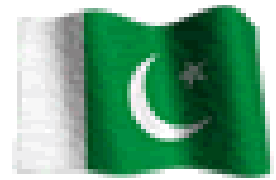
- Pakistan – Afghanistan – Turkey, Trilateral Agreement on Cooperation for Disaster Management – (Signed)
- Republic of Korea – (Signed)
- Kyrgyz Republic – (ready for signatures)
- Sri Lanka (Finalized)
- Bangladesh – (under process)
- Cuba – (under process)
- Kazakhstan – (under process)



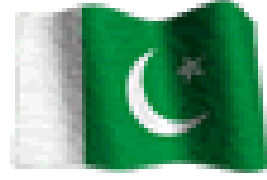
Regional Linkages



- **SAARC**
 - Natural Disaster Rapid Response Mechanism – (signed)
 - South Asian Disaster Knowledge Network (SADKN - web based portal)
- **Heart of Asia (Istanbul Process)**
- **Economic Cooperation Organization (ECO)**
- **Organization of Islamic Conference (OIC)**

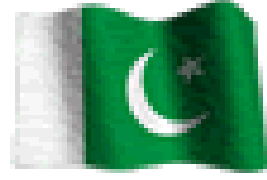


Proposed
Disaster Management Information System
(DMIS)
For NDMA



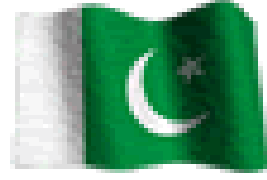
What is DisMIS

- An integrated and modern ICT based Disaster Management real-time decision support system for Pakistan.



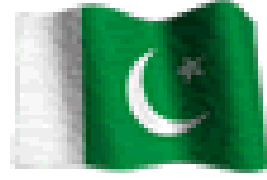
Why DisMIS

- The ICT based Disaster Management Information System (DMIS) equipped with GIS tools provides a range of solutions for Disaster Management institutions and their field workers to help them reduce the impact of disasters on community through:
 - Efficient planning,
 - Reliable Information/Data,
 - Tracking the needs of affected populations
 - Coordinate with the responding agencies for efficient use of resources



Current Scenario

- Non-existence of ICT based system for coordination, early warning, preparedness and response



DisMIS in the region

- **Indonesia** Disaster Management Information System (SIPBI): UNDP funded project
- **India**; State Level Disaster Management Communication, Network and Information System, & Vulnerability Atlas in Maharashtra
- **Philippines**: Emergency Management Information System
- **Sri Lanka** has established a disaster management information system called Social Management Information System (SOMIS)
- **Pakistan ?**

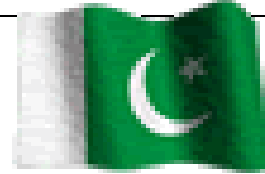
Identified Components for DisMIS



(1-10 of 20)

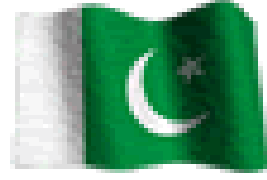
S #	Name of System	Type
1	Situation Awareness	Software
2	Missing Person Registry	Software
3	Organizational Registration System	Software
4	Camp Management System	Software
5	Request Management System	Software
6	Inventory Management System	Software
7	Traceable Transportation System	Software/Hardware
8	Volunteers Management System	Software
9	SMS Alert System	Software/ Media
10	Monitoring System	Software

Identified Components for DMIS



(11-20 of 20)

S #	Name of System	Type
11	Infrastructure	Software
12	Accounting Management System	Software
13	Training Module	Software
14	Historical facts about earlier disasters	Software
15	Early Warning System	Software/Hardware
16	Disasters Vehicle	Hardware
17	Satellite Communication System	Hardware
18	Search & Rescue Service	Hardware
19	Hierarchal Emergency Operation Centers	“ & Software
20	Dissemination (Audio visual etc)	Software



1. Situation Awareness

- Gives an overview of the event through GIS, with detailed view of each resource already mapped

Graphical View of Situation Awareness System



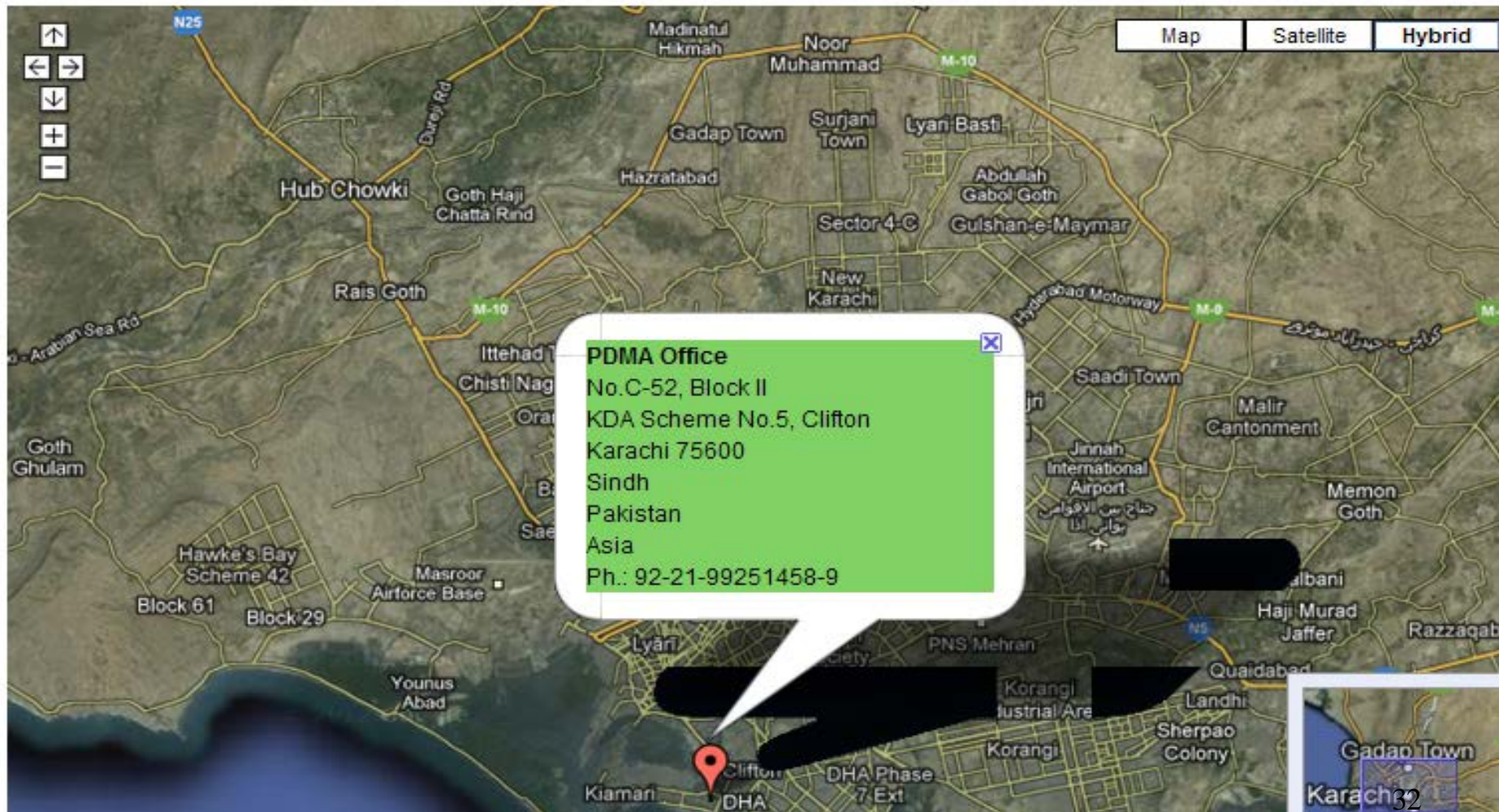
[Find Your
Distance](#)

[PRA Measurer](#)

[Conversion](#)

[Weather
Forecast](#)

[Resource Finder](#)



Graphical View of Situation Awareness System



Area of Islamabad in Sq km

[Find your position](#)

[GIS](#)

[Find Your Distance](#)

[PRA Measurer](#)

[Conversion](#)

[Weather Forecast](#)

Tools

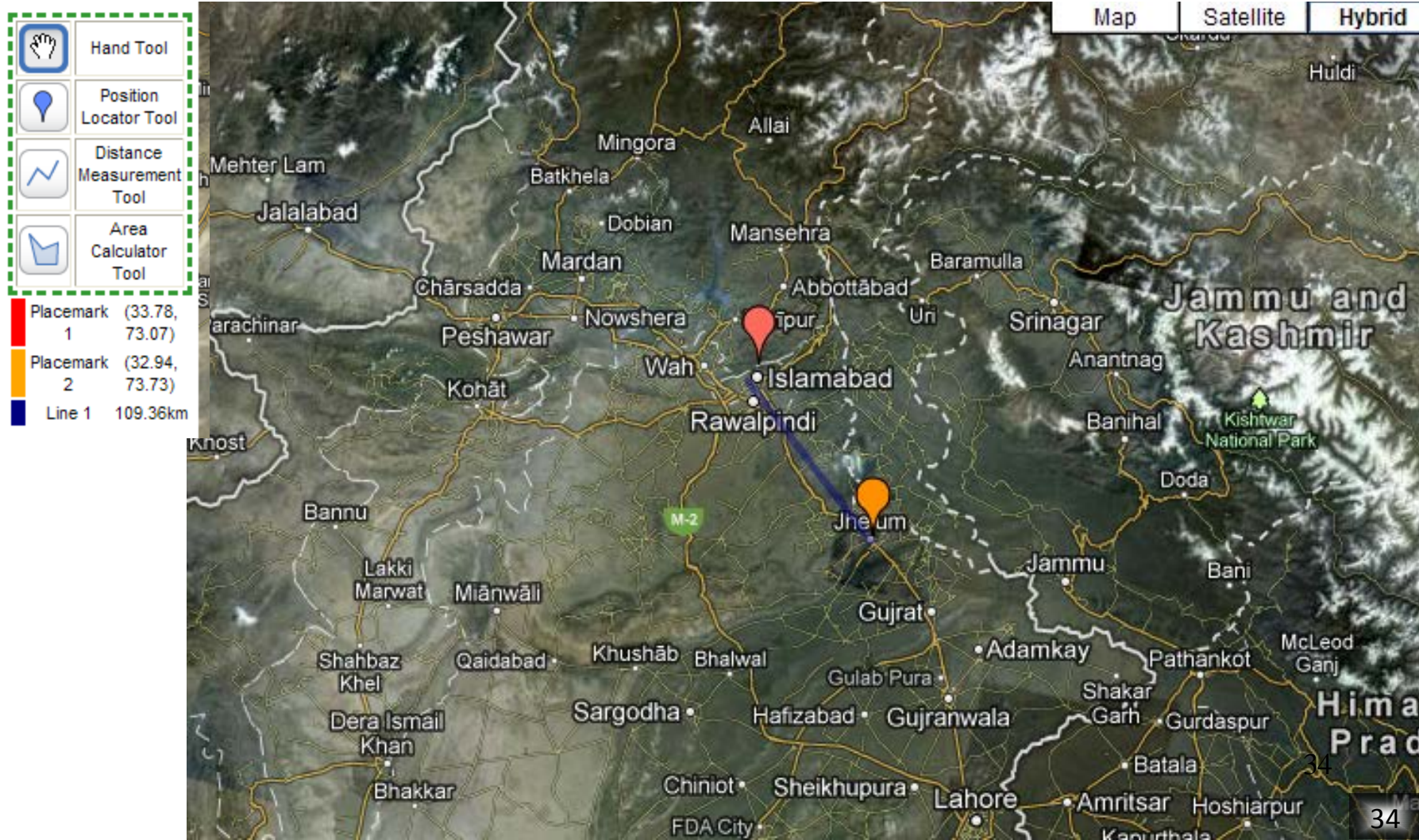


Shape 1 1015.84km²

Graphical View of Situation Awareness System



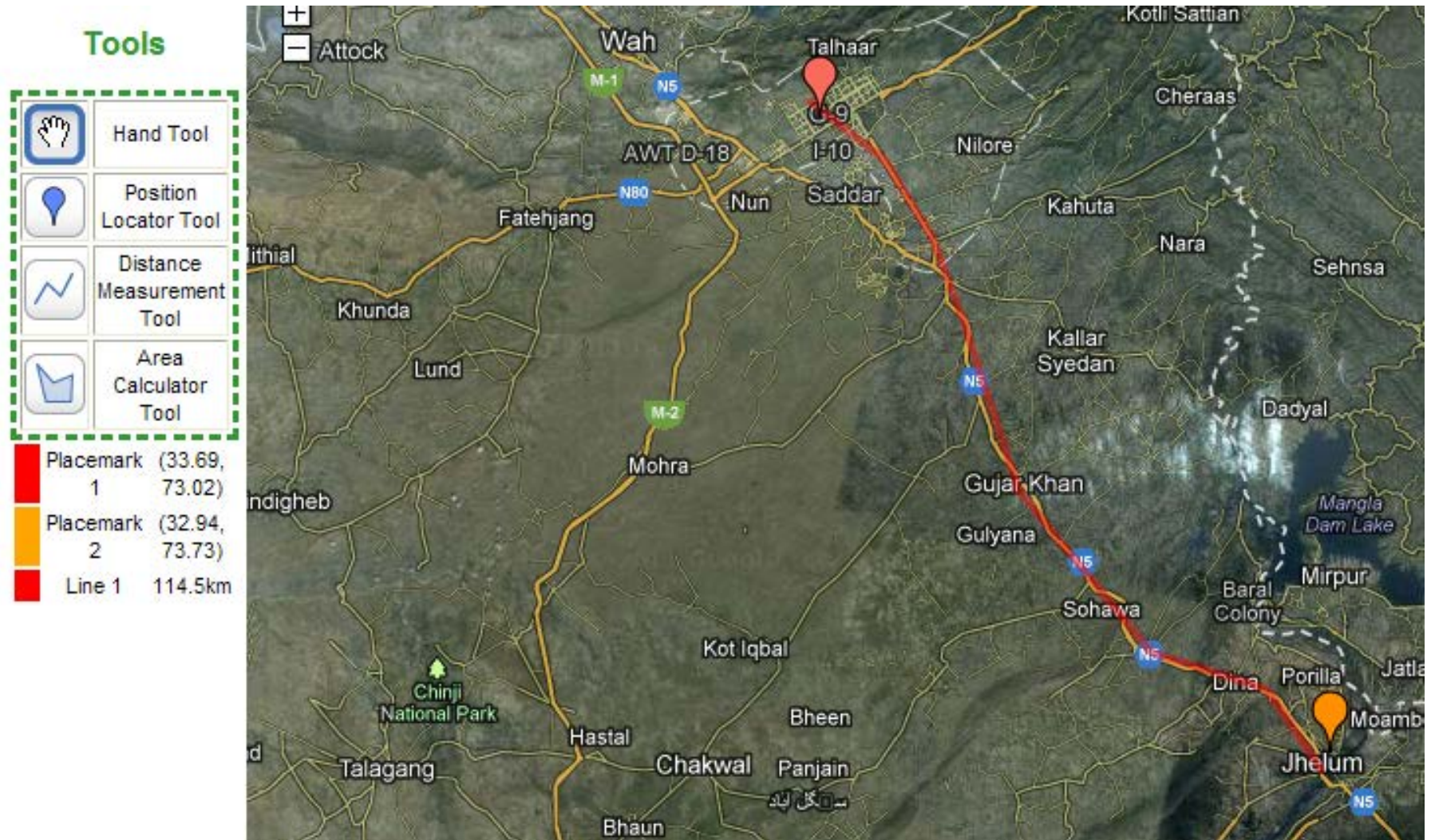
Arial Distance from Jhelum to Islamabad



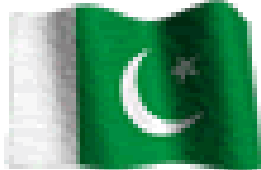
Graphical View of Situation Awareness System



Road Distance from Jhelum to Islamabad



Situation Awareness System



Conversion Calculator

Distance Conversion Calculator

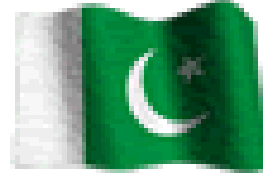
Kilometers	Meters	mm	Inches	Feet	Yards	Miles	Calibrate
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Calculate

Area Conversion Calculator

Square kilometre	<input type="text"/>	Square mile	<input type="text"/>
Hectare	<input type="text"/>	Acre	<input type="text"/>
Are	<input type="text"/>	Rood	<input type="text"/>
Square metre	<input type="text"/>	Perch (Square rod)	<input type="text"/>
Square centimetre	<input type="text"/>	Square yard	<input type="text"/>
Square millimetre	<input type="text"/>	Square foot	<input type="text"/>
		Square inch	<input type="text"/>

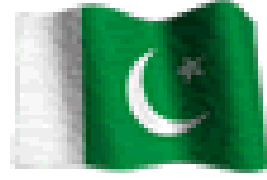
Calculate

Graphical View of Situation Awareness System



Affected areas



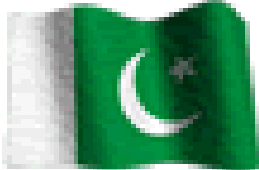


2. Missing Person Registry

- The Web based software
- Information of missing persons (Adult, Infant, Children Male/Female, Died or Alive) in the country,
- During Disaster and peace time.

Graphical View of Missing Persons Registry

(Public View)

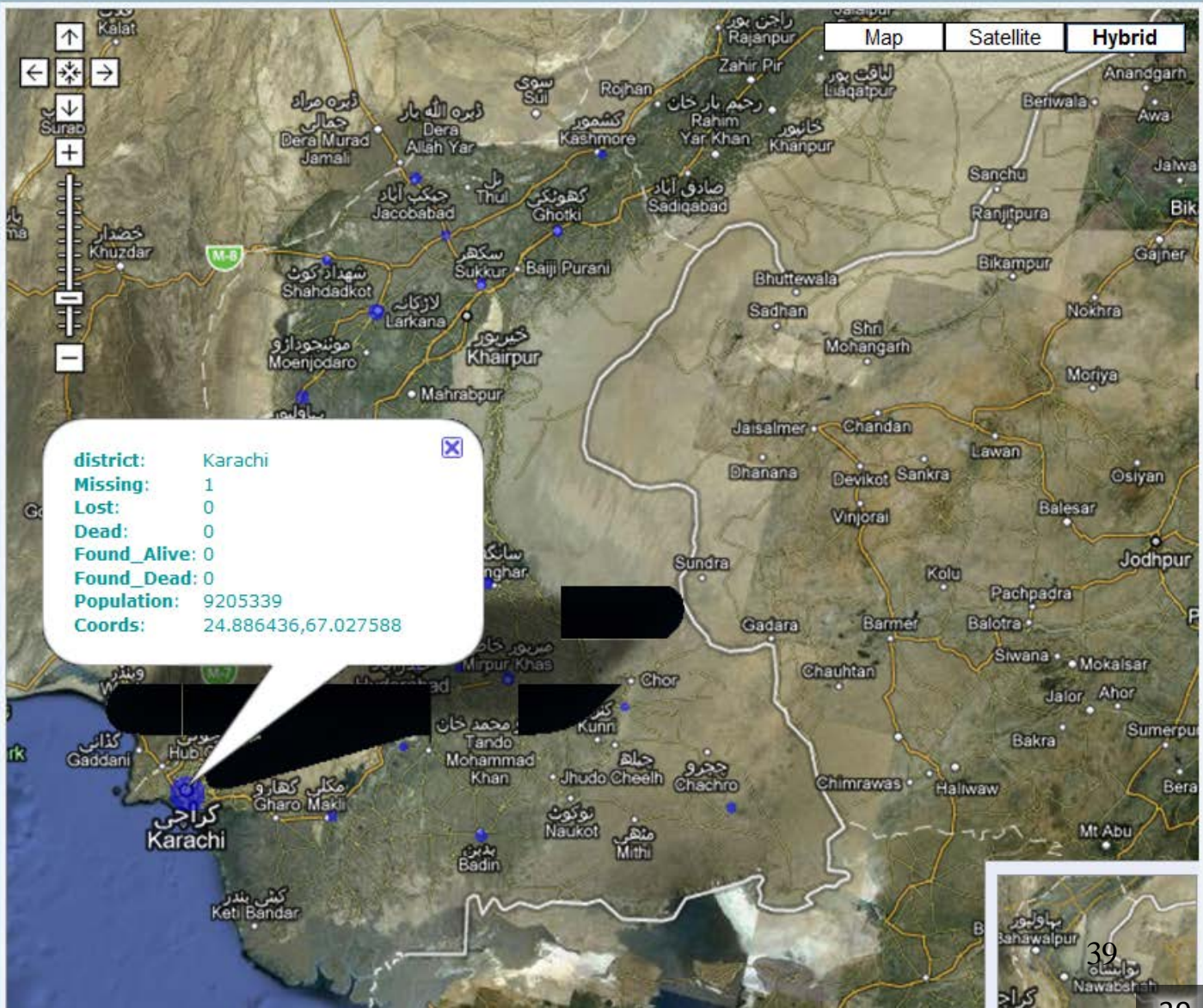


Main Menu

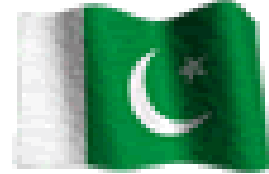
- Home
 - [Return to Home Page](#)
- GIS
 - [Complete Analysis](#)
 - [All Missing](#)
 - [All Dead](#)
 - [All Lost](#)
 - [All Found Dead](#)
 - [All Found Alive](#)

Click on each marker to get the district wise details for the number of lost, missing, dead, found-alive and found-dead people in Sindh

Complete Analysis



3. Organizational Registry System



4 Ws

(Who, What, When, Where)
by
INGOs & NGOs

- ☐ Mitigation
- ☐ Preparedness
- ☐ Response
- ☐ Recovery

Organization Registry/ Partners Registration System



Provincial Disaster Management Authority

Government of Sindh

Humanitarian Partner/Project Registration

Partner Registration

[Manual Registration Form](#) | [Overview](#) | [Policy](#) | [Login](#)



Step-1

Step-2

Step-3

Step-4

Contact Information

Name of Organization/CSR/
Project/Individual/ Philanthrop
etc.

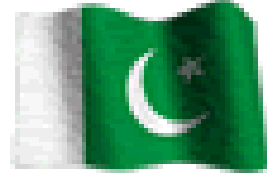
Type of Organization

Other Specify

Organizatnions Head Quarter office in Pakistan(Address)

Address

4. Camp Management System



- The hazards of establishing camps along with roads or pitched on open areas motivated to establish camp city.
- ICT provide some strong features to manage things in camps city.
 - Accurate facts and figures
 - Avoid duplication
 - No bogus entries

Camp Management System



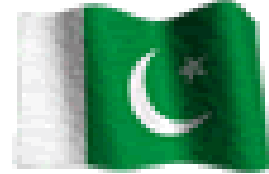
1st Response



www.shutterstock.com · 60034499



Camp Management System



Usage of Sensor Technology

- The technique used to estimate of affected community is called “Crowded estimation Technique”.
- Hover helicopter or airplane,

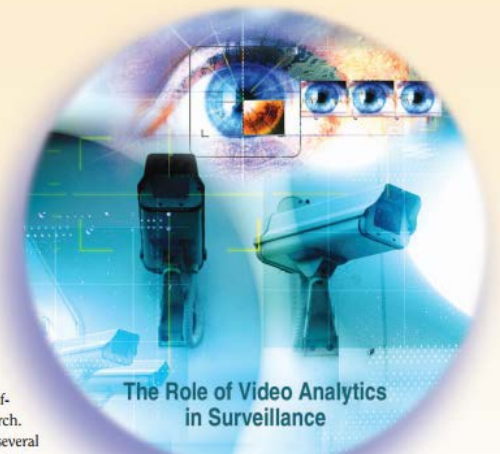
Crowd Analysis Using Computer Vision Techniques

A survey

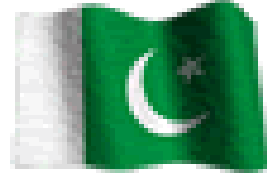
This article presents a survey on crowd analysis using computer vision techniques, covering different aspects such as people tracking, crowd density estimation, event detection, validation, and simulation. It also reports how related the areas of computer vision and computer graphics should be to deal with current challenges in crowd analysis.

INTRODUCTION AND MOTIVATION

The study of human behavior is a subject of great scientific interest and probably an inexhaustible source of research. With the improvement of computer vision techniques, several

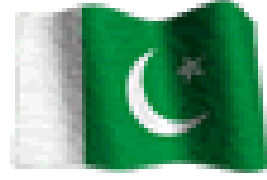


Camp Management System



Sensor data to
control room

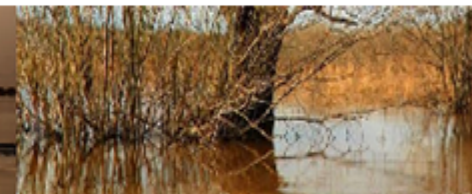




Result

- Affected people 25000
- Animals 200
- Area affected 100 SQ-KM
- Water inundated in 2200 SQ-KM area

Camp Management System



General Information



Total Camps Established



860



Total Functional Camps



0



Total Closed Camps



860



Camps Managed by Government



0



Camp Managed by Individual



0



Camps Managed by NGOs



0

Population in Camps



Total Families



Total Population



0



Male



0



Female



0

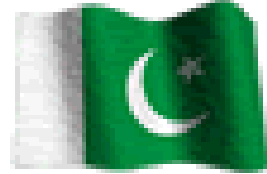


Children



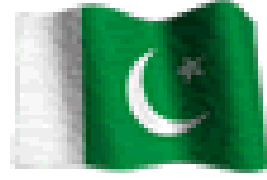
0

Camp Management System



Locations pointing where camps are established

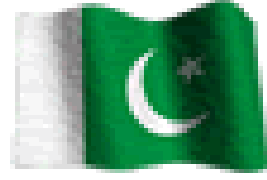




5. Request Management System

- An online system to collect requests of aid and supplies
- Data input from field
 - Authorized Version
 - Public Version

6. Inventory Management System

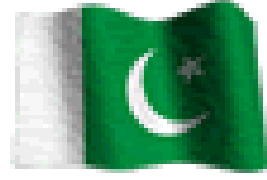


- Tracking the location, quantities, expiry of relief goods stored at NDMA, PDMAs, DDMAAs, UN Agencies, NGOs & INGOs

7. Traceable Transportation Mechanism

- Tinny trackers.

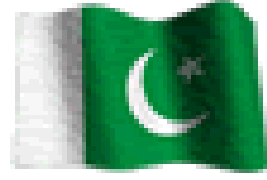
8. Volunteer Management System



- Volunteer Management System automatically assign tasks to the registered volunteers with details.
- General volunteers may seek guidelines and location regarding required services.

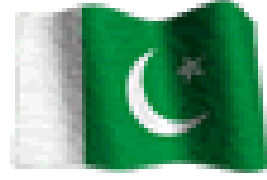


**JOIN OUR
AWESOME
VOLUNTEER TEAMS!**



9. SMS Alert System

- Early Warning
- Field workers Instructions
- Weather Advisory
- Public service messages
- A logged system

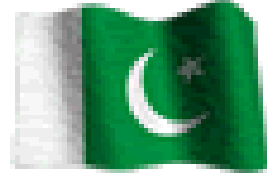


10. Monitoring System

- Evidences of Relief goods distribution
- Periodical progress reports from field
- Implementation of policies/ instructions
- Inventory status
- Preparedness activities etc

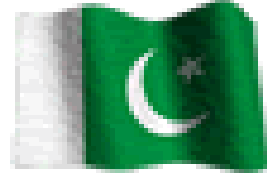
11. Infrastructure Mapping

(Grass root level)

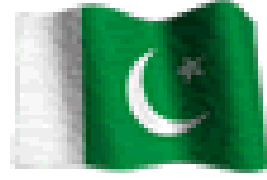


- Huge infrastructure of public & private sector
 - Police Stations,
 - Schools,
 - PHE facilities,
 - Hospitals, Dispensaries etc
 - Raised shelters, (Evacuation spots)
 - fire stations.
 - Ambulance.
 - Relief equipments
 - etc

12. Accounting Management System



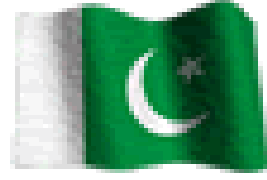
- An efficient accounting management system that provide decision makers live data about financial facts to make quick decisions on their hand held device or mobile phones.



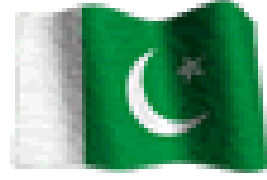
13. Knowledge Management system

- Training Portal
- National Publications
- International publications
- Disaster related statistics (Global)
- Research data
- Digital library linkage (Audio, Video, Print)

14. National Disaster facts (Historical)



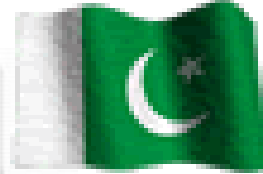
- The facts about earlier disaster graphically and statistically provide sound bases to make planning about risk mitigation , risk reduction and efficiently manage disaster during or after disaster.



15. Early Warning System

- Linkage with Met Dept. (Real-time data)
- Linkage with FFC
- Linkage with regional early warning systems
- Web TV & Web radio
- SMS Alert

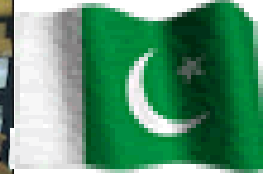
16. Disasters Vehicle

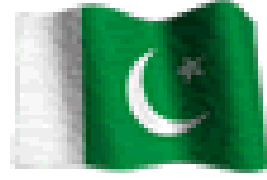


- Live coverage of disaster situation
- Linked with EOCs.
- Media may be controlled by providing a link of live coverage of disaster site and keeping all other components prohibited at location



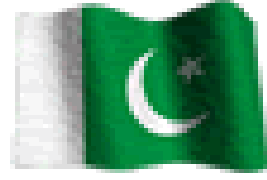
Disasters Vehicle





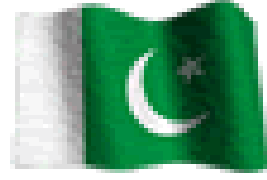
17. Communication System

- VSAT communication System
- BGAN
- Satellite Phone.
- Soft phones
- High range cordless phones
- Video Conferencing
- Landline phone. (Alternative Sticky Number)
Like 92-3003651399 Alt: +44 7031976711



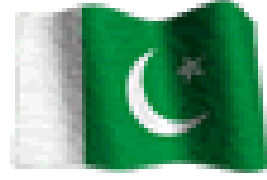
18. Search & Rescue support system

- Breathing sensing device.
- etc



19. EOCs Coordination

- NEOC
- Provincial/State Emergency Operation Centers
- District Emergency Operation Centers
- Command Control Rooms
- Temporary EOC established during disaster
- Other Emergency Centers (INGOs & NGOs)



20. Dissemination (Audio visual etc)

- Audio spots (all regional languages)
- Video Spots (all regional languages)
- Dramas & Documentaries
- Kids learning through cartoons movies



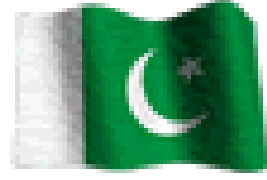
The Future Course



- **Pakistan's experience** of last three years – **Cumulative losses worth \$ 16 Billion**
- NDMA has **shifted focus** from Reactive to Pro-active policies – **Emphasis on Prevention & Disaster Risk Reduction**
 - Formulated **DRM Needs Report** through consultative process
 - Formulated **National Disaster Risk Reduction Policy 2012**
 - Formulated **National Disaster Management Plan 2012**



The Future Course



➤ **National Disaster Management Plan (NDMP) – 2012-22**

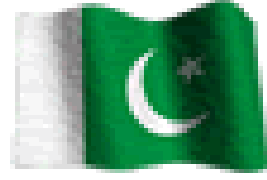
- **Addresses complete spectrum of disasters** through DRR Policies, Strategies, Measures and Actions of all stake holders
- NDMP identifies key issues and **envisages ten disaster management priority areas** to be implemented over next ten years
- **118 interventions, 41 Strategies**
- Estimated **cost \$1041 M**



The Future Course



- NDMP Priority Areas **(Aligned with HFA)**
- Establish **Institutional and Legal System** for disaster management
 - Prepare **Disaster Management Plans** at various levels
 - Undertake **National Hazard and Vulnerability Assessment**
 - Establish **Multi-hazard Early Warning and Evacuation Systems**
 - Promotion of **Training, Education and Awareness** for DRM
 - Awareness program on **Disaster Risk Reduction at local level**
 - **Infrastructure Development** for disaster risk reduction
 - **Mainstreaming Disaster Risk Reduction into Development**
 - Establish **National Emergency Response System**
 - Capacity development for **Post Disaster Recovery**



Thank You