Geospatial Database for the GeoDRM System

Integration of geo-referenced information platform to existing DRM portals

Nitin Kumar Tripathi, PhD
IDD Consultant, ESCAP
Coordinator, Remote Sensing and GIS FoS,
Asian Institute of Technology
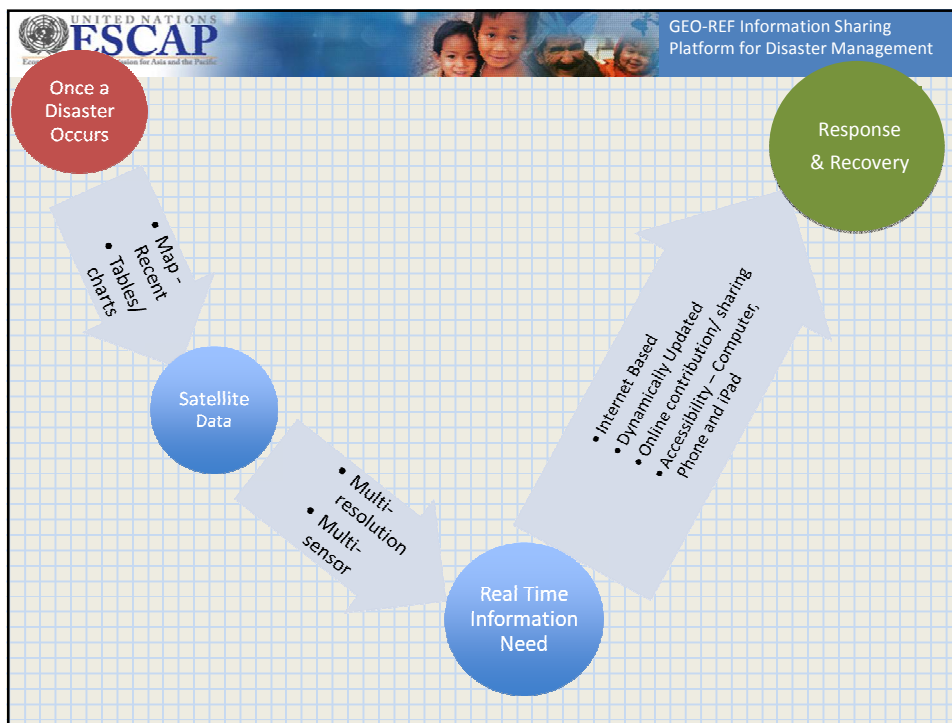Thailand   nitingeo77@gmail.com

Content

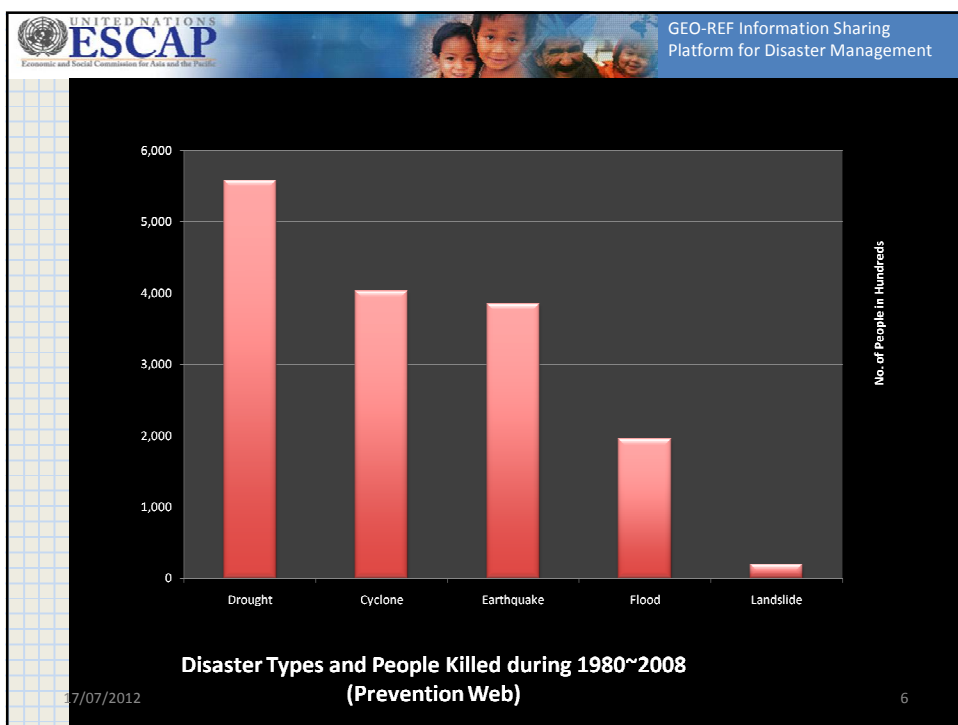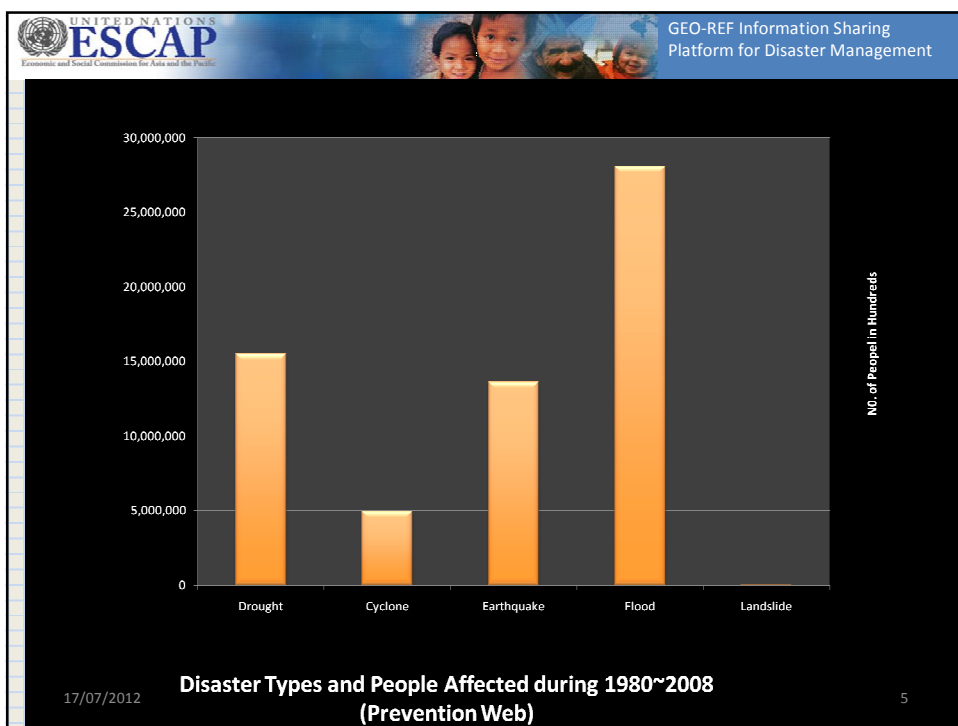**Geospatial Database for the GeoDRM System**
- Introduction
- Overall framework
- Georeferencing
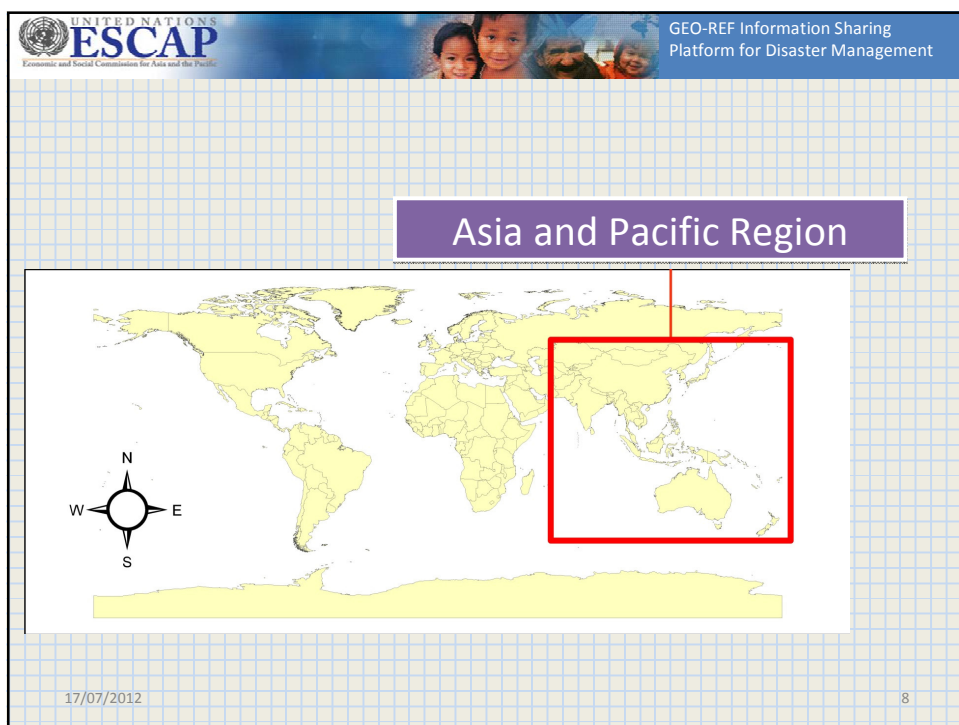- Georeferenced Disaster Management System user interface

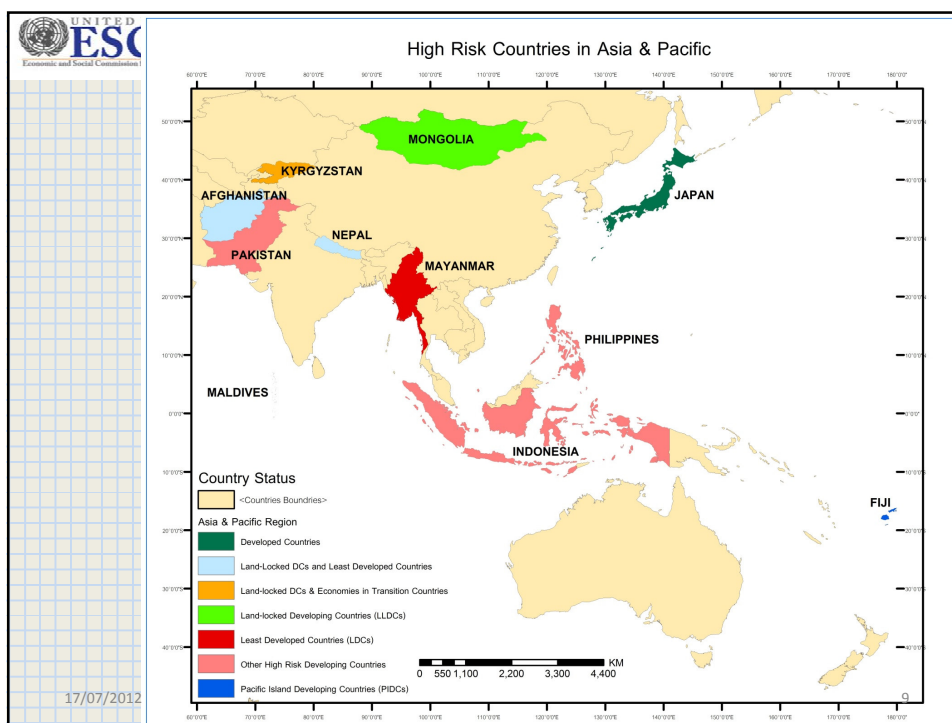**Integration of geo-referenced information platform to existing DRM portals**
- Background
- Procedure

Geospatial Database for the GeoDRM System
Introduction

Once a Disaster Occurs

Response & Recovery

- Map - Recent
- Tables/ charts

Satellite Data

- Internet Based
- Dynamically Updated
- Online contribution/ sharing
- Accessibility – Computer, Phone and iPad

- Multi-resolution
- Multi-sensor

Real Time Information Need

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

N0. of Peopel in Hundreds

**Disaster Types and People Affected during 1980~2008
(Prevention Web)**

17/07/2012

5

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

No. of People in Hundreds

**Disaster Types and People Killed during 1980~2008
(Prevention Web)**

17/07/2012

6

Disaster Types Economic Loss during 1980~2008 (Prevention Web)

Asia and Pacific Region

High Risk Countries in Asia & Pacific

MONGOLIA

KYRGYZSTAN

AFGHANISTAN

JAPAN

NEPAL

PAKISTAN

MAYANMAR

PHILIPPINES

MALDIVES

INDONESIA

FIJI

Country Status

<Countries Boundries>

Asia & Pacific Region

- Developed Countries
- Land-Locked DCs and Least Developed Countries
- Land-locked DCs & Economies in Transition Countries
- Land-locked Developing Countries (LLDCs)
- Least Developed Countries (LDCs)
- Other High Risk Developing Countries
- Pacific Island Developing Countries (PIDCs)

KM
0 550 1,100   2,200   3,300   4,400

9

Disaster Type	Remote Sensing Data	GIS Data	Statistical/ Demographic Data	Ancillary Data for modeling and early warning
Drought	Regional Mapping/ Monitoring: MODIS, NOAA District Level: Landsat, SPOT, IRS-1C, Resourcesat, Theos For Soil Moisture: Radar (ERS, JERS, RADARSAT) Weather Satellite: GOES (Geostationary Operational Environmental Satellites), METEOSAT (METerologicalSATellite), GMS, INSAT	Landuse/ Landcover/ Topographic: Rivers/ Streams, reservoirs, lakes, ponds, Soil Type, Contour Maps, DEM, Admin boundary, Roads, Railways, Airports/helipads, Seaports, Agriculture Climate: Humidity, Rainfall, Temperature, Evaporation, Soil moisture, reservoirs, Admin boundary,	Population, Population density, Avg Family size, Sources of Food, Food transportation methods, Ecology, Crop parameter	Plant water stress, Drought & Non Drought periods data at local scale, Water management plan

10

Disaster Type	Remote Sensing Data	GIS Data	Statistical/ Demographic Data	Ancillary Data for modeling and early warning
Flood	Regional Mapping/ Monitoring: MODIS, NOAA District Level: Landsat, SPOT, IRS-1C, Resourcesat, Theos In case of clouds: Radar (ERS, JERS, RADARSAT) Urban Flooding: Geoeye, Digital Globe	Landuse/ Landcover/ Topographic: Rivers/ Streams, reservoirs, lakes, ponds, Soil Type, Contour Maps, DEM, Admin boundary, Roads, Railways, Airports/helipads, Seaports, Shelter places (hospitals/ religious places, academic buildings etc), Agriculture, Forest, Urban. Climate: Rain Fall, Temperature,	Population, House Types, No. of houses, Households, Income level	Hydraulic data, riverbedroughness, Sediment grain size, Hydraulic calculations, Surface roughness, Maximum water levels in Dams, Water management plan, Base flow,

Disaster Type	Remote Sensing Data	GIS Data	Statistical/ Demographic Data	Ancillary Data for modeling and early warning
Earthquake	District Level: Landsat, SPOT, IRS-1C, Resourcesat, Theos For large scale: High Resolution during earthquake or for damage assessment but NOT for monitoring	Geologic: Geology, Geostructural, Volcanic eruptions points, Landuse/ Landcover/ Topographic: Rivers/ Streams, reservoirs, lakes, ponds, Soil Type, Contour Maps, DEM, Admin boundary, Roads, Railways, Airports/helipads, Seaports, Agriculture, Forest, Urban. Facilities:Shelter places (hospitals/ religious places, academic buildings etc),Rescue points, Health facilities	Population, House Types, No. of houses, Households, Avg Family size	

Disaster Type	Remote Sensing Data	GIS Data	Statistical/ Demographic Data	Ancillary Data for modeling and early warning
Cyclone	Regional Mapping/Monitoring: MODIS Meteorological / Weather Satellite: INSAT, GMS (Europe Geostationary Meteorological), GOES, MTSAT, HIMAWARI, Wind-Cloud 2,4,*GOMS, COMS, PCW*	Cyclone Dataset, Admin boundary maps, Rivers, Evacuation centers, Hospital, Academic Buildings Transportation network	Population, House Types, No. of houses, Households, Avg Family size	Historical cyclone data

17/07/2012   13

Disaster Type	Remote Sensing Data	GIS Data	Statistical/ Demographic Data	Ancillary Data for modeling and early warning
Landslide	SPOT-5, ASTER, IRS-ID, Aerial Photographs, High resolution – Geoeye, Quickbird	Landuse/ Landcover/ Topographic: Rivers/ Streams, reservoirs, lakes, ponds, Soil Type, Contour Maps, DEM, Admin boundary, Roads, Railways, Airports/helipads, Seaports, Agriculture, Forest, Urban. Slope, Aspect, Flow direction Previous landslide hazard maps.Lithology, Lineament, Settlement, Rescue points, Health facilities	Population, House Types, No. of houses, Households, Avg Family size	Rainfall,

17/07/2012   14

Geospatial Data - *Issues*

- **Data Requirement**: for frequent disasters
  - Data Availability: Status of existing data in high disaster risk LDCs, LLDCs and PIDCs.
  - Data Gap Assessment
- **Compatibility**: Is data compatible in GIS platform for information generation? Or it needs
  - Georeferencing necessity
  - Standards for georeferencing
- **Data Warehousing**: acquisition, storage and archival
- **Data sharing**: between line agencies/ departments

17/07/2012   15

Georeferenced Geographic Information Systems

- **Information** extracted by **integrated analysis** of varied spatial data in Geographic Information Systems (GIS) Platform
- Main issues to create the Georeferencing System/ Platform:
  - Need of Georeferencing System/ Platform System Frame work

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_7515