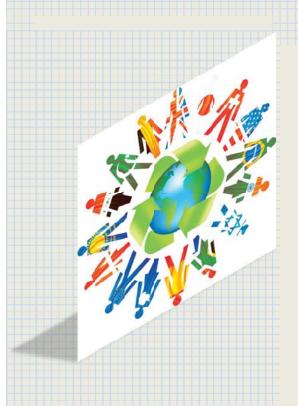




Technical Advisory MissionSeptember 2013, Cook Islands



Geospatial Database for the GeoDRM System

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GEO-REF Information Sharing Platform for Disaster Management

Content

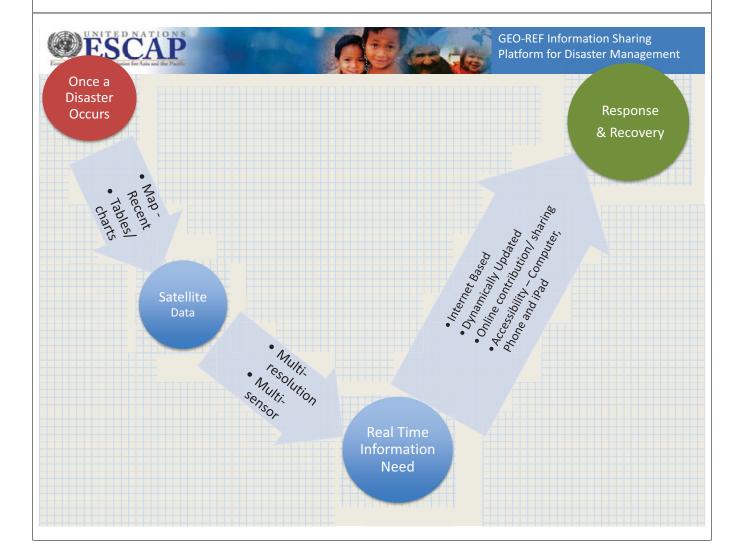
Geospatial Database for the GeoDRM System

- Introduction
- Overall framework
- Georeferencing
- Georeferenced Disaster Management System user interface





Geospatial Database for the GeoDRM System Introduction



ESC	ATIONS		CHINESE TO THE RESERVE TO THE RESERV	mation Sharing
Disaster [®] Type [®]	Remote S ensing [©] Data [©]	GIS ® ata®	Statistical/2 Demographic2 Data2	② AncillaryData② forImodeling② and@arly② warning②
	Regional Mapping/2	Landuse/2	Population, 2	Plant®vater®tress,®
	Monitoring: The state of the st	Landcover/2	Population 2	Drought & Non2
		Topographic: 2	density, Avg 2	Drought periods 2
	MODIS, ENOAA 2		FamilyBize,M	data@t@ocal@cale,@
	DistrictLevel:2	Rivers/Streams,2		Water?
	Districtatever:	reservoirs, hakes, 2	2	managementplan2
	Landsat, SPOT, IRS-1C, 2	ponds,BoilType,2 ContourMaps,DEM,2	Sources@fFood,2	
	Resourcesat, Theos 2	Admin boundary, 2	Food?	
		Roads, Railways, 2	transportation2	
	For Soil Moisture: 2	Airports/helipads, 2	methods,2	
Drought ²	Radar DERS, DERS, D	Seaports, Agriculture 2		
Drought	RADARSAT)		?	
	KADAKSAT JIII	2	Faclogy Trans	
	Weather S atellite: 2	Climata	Ecology, Crop 2 parameter 2	
		Climate: 2	parameter	
	GOES[[Geostationary2]	Humidity, TRainfall, 2		
	Operational 2	Temperature, 2		
	Environmental 2	Evaporation, Soil 2		
	Satellites), METEOSAT (METerological SATellite)	moisture, deservoirs, 2		
21/07/2014	(METerologicalSATellite) "GMS, INSATIII	Admin b oundary, m		5
21/07/2014	JUNIO A I III			
		7		

ESCAP Feature and Section Commission for Activated Section Commission Section (Section Commission Section C				
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,
21/07/2014				6





Disaster@ Type@	Remote [®] Sensing ® ata®	GIS D ata2	Statistical/2 Demographic2 Data2	2 AncillaryData2 forImodeling2 andBarly2 warning2
Earthquake[3	Landsat, BPOT, 2 IRS-1C, 2 Resourcesat, 2 Theos 2 For darge B cale: 2 High Resolution 2 during B arthquake 2 or flor damage 2 assessment but 2 NOT flor 2 monitoring 2	Geologic: 2 Geology, Leostructural, 2 Volcanic Pruptions Points, 2 Landuse / Landcover / 2 Topographic: 2 Rivers / Btreams, Peservoirs, 2 lakes, Ponds, Boil Type, 2 Contour Maps, DEM, Admin 2 boundary, Roads, Railways, 2 Airports / helipads, Beaports, 2 Agriculture, Forest, Urban. 2 Facilities: Shelter Places 2 (hospitals / Teligious Places, 2 academic Duildings 2 etc), Rescue Points, Health 2 facilities 2	Population, 2 House Types, 2 No. Of Mouses, 2 Households, 2 Avg Family Bize 2	

ESC Learning and Social Commission for	ATTONS AP Asia and the Paulic		the state of the s	mation Sharing isaster Management
Disaster2 Type2	Remote S ensing2 Data2	GIS I Data 🛭	Statistical/@ Demographic@ Data@	2 AncillaryData2 forInodeling2 andIarly2 warning2
Cyclone	Regional Mapping/Monitoring: Mapping/Monitoring: Modern Mo	Cyclone Dataset, M Admin boundary maps, M Rivers, M Evacuation menters, M Hospital, Macademic M Buildings M Transportation metwork M network M	Population, P House Types, No. P of Mouses, P Households, Avg P Family Bize P	Historical@yclone@data@





Disaster2	Remote S ensing②	GIS ® ata2	Statistical/2	and@arly2
Type2	Data②		DemographicData2	warning2
Landslide2	SPOT-5, ASTER, ARS-ID, M Aerial Photographs, 2 High Desolution 2 Geoeye, Quickbird 2	Landuse/Landcover/2 Topographic:2 Rivers/Streams, Deservoirs, 2 lakes, Donds, Soil Type, Contour 2 Maps, DEM, Admin Boundary, 2 Roads, Railways, 2 Airports/helipads, Seaports, 2 Agriculture, Forest, Urban. 2 Slope, Aspect, Flow direction 2 Previous Landslide Lazard 2 maps. Lithology, Lineament, 2 Settlement, Rescue Doints, 2 Health Lacilities 2	Population, House Types, No. of Houses, Thouseholds, Avg Tamily Bize T	Rainfall, 2





GEO-REF Information Sharing Platform for Disaster Management

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

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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
 - Several disaster prone countries such as Japan, China, India, Thailand etc. do
 have a georeferenced platform and very good capacity to handle the geospatial
 data in near real time.
 - But, the problem come in the case of many LDCs, LLDCs, and PIDCs where most of them are victim to frequent disasters and at the same lack such systems.
 - Components that need to be agreed
 - Overall framework of the Georeferenced Disaster Management System
 - Interface between system and data input personnel, decision makers, planners and people
 - Hardware/ software requirement of the system

21/07/2014

11





GEO-REF Information Sharing
Platform for Disaster Management

Geospatial Data Freely Available

- Post disaster satellite data (Committed by China, India and Thailand through ESCAP mechanism)
- Stereo satellite data is also available from China and India at very fine resolution.
- Digital elevation model of 30m (SRTM) and ASTER DEM from Jaexa
- Climate Data (TRMM and several others)
- Forest Fire products (MODIS)
- Sea Surface Temperature (MODIS)
- Ocean current direction
- Bathymetric charts
- Landuse/ Landcover maps from Local Government or Non-Governmental organisations
- Hydrographic data from local organisations
- Statistical data from National Statistical Offices, CRED or Desinventor

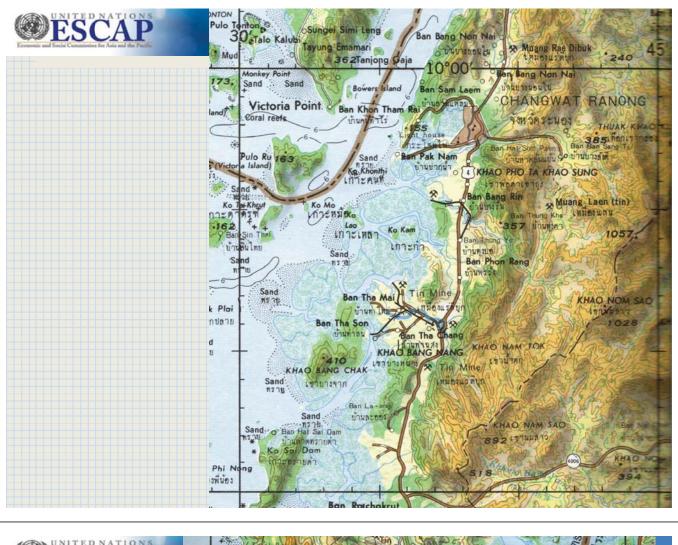




Georeferencing - Definition

- Georeferencing defines the location of an object in three-dimensional physical space. That is, establishing its location in terms of standard map projections or coordinate systems.
- Georeferencing relates to both data model when establishing the relation between raster or vector images/ maps and coordinates but also when determining the spatial location of other geographical features.







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