

Technical Advisory Mission

May 2013,
National Emergency Management Agency, NEMA
Mongolia



**Concepts of Geo-
referenced Information
for disaster risk
management system in
Asia-Pacific region**

Nitin Kumar Tripathi, PhD

IDD Consultant, ESCAP
nitingeo77@gmail.com

1

Content

- Disaster Risk Management
- Disasters in Asia and Pacific
- Need of Geospatial Data for DRM
- Database Issues
- Need for Georeferencing
- Need for Georeferenced System
- GeoPortals for DRM
- Q/A

Mapping Disaster Risk Areas



Disaster risk map
Mapping of hazard,
exposure and
vulnerability
| finally combining
integrated overlay

23/07/2014

3

• **Hazard, exposure and vulnerability** differ from region to region

- topography,
- socio-economic condition and
- environmental/ climatic variables

• **Disaster Risk Reduction (DRR)** - the policy objectives of reducing risk

• **Disaster Risk Management (DRM)** - the actions needed to achieve those objectives

23/07/2014

4

Disasters in Asia and Pacific

- Of the total natural disasters in the world, the Asia and the Pacific region included 90% of those, 65% of death, and 38% of economic damage (2001 -2010)
- UNDP
 - 24 out of 49 LDCs, most of which are in Asia and the Pacific, face high levels of disaster risk
- The vulnerability of economically challenged Least Developed Countries (LDCs), Land-locked Developing Countries (LLDCs) and Small Island Developing States (SIDS) is a crucial issue due to
 - lack of Disaster Preparedness Mechanism and
 - gaps in baseline geospatial data

23/07/2014

5

Need of Geospatial Data

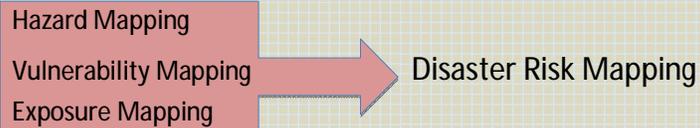
- HFA Priority 2 states
 - *identify, assess and monitor disaster risks and enhance early warning*
- These objectives need **satellite data**
 - Various sensors and various space platforms
 - Different resolution
 - Different scene geometry
- **Necessity to make them compatible** for overlay for analysis and finding the desired information on extent and magnitude of hazards, producing maps of exposure, vulnerability and risk for mitigation
- **Possible only by georeferencing**

23/07/2014

6

Geospatial and Statistical Data Needs for DRM

Data needs for different disasters differ to conduct:



- Preparedness & response (Evacuation Routes and Shelters)
- Post Disaster Damage and Loss Assessment (DaLA)

23/07/2014

7

Various Formats & Data Types:

Maps



Socio-economic data



Weather



Global Positioning System

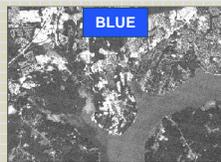
Country	Project Name	Project Start	Project End	Project Status
BRN	Bangkok Urban	1995-01-01	1995-12-31	Completed
CHN	China Urban	1996-01-01	1996-12-31	Completed
IND	India Urban	1997-01-01	1997-12-31	Completed
JPN	Japan Urban	1998-01-01	1998-12-31	Completed
KOR	Korea Urban	1999-01-01	1999-12-31	Completed
THA	Thailand Urban	2000-01-01	2000-12-31	Completed
VIE	Vietnam Urban	2001-01-01	2001-12-31	Completed
PHL	Philippines Urban	2002-01-01	2002-12-31	Completed
SGP	Singapore Urban	2003-01-01	2003-12-31	Completed
TWN	Taiwan Urban	2004-01-01	2004-12-31	Completed
USA	USA Urban	2005-01-01	2005-12-31	Completed
UKR	Ukraine Urban	2006-01-01	2006-12-31	Completed

Tabular Records



Satellite Image

Landsat Bands



Band 1



Band 2



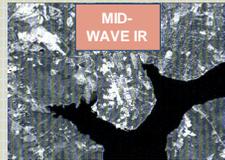
Band 3



Band 4



Band 5



Band 7



Band 6



Band 1



Band 2

Landsat Image of Idaho



Band 3



Band 4

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

GEO-REF Information Sharing
Platform for Disaster Management

Landsat Image of Idaho



Band 5



Band 6



Band 7

Landsat Image of Idaho

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

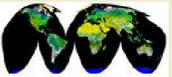
GEO-REF Information Sharing
Platform for Disaster Management

NASA Visible Earth: [long list](#)

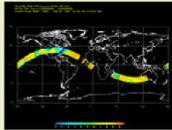
Selected satellite remote sensing systems



ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer)



AVHRR (Advanced Very High Resolution Radiometer)



CERES (Clouds and the Earth's Radiant Energy System)



DMSP/OLS (Defense Meteorological Satellite Program/Operational Linescan System)



ETM+ (Enhanced Thematic Mapper Plus)



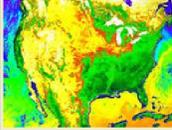
IKONOS



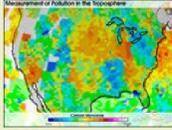
IRS (Indian Remote Sensing Satellite)



MISR (Multi-Angle Imaging Spectroradiometer)



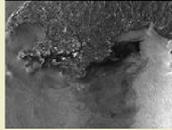
MODIS (Moderate-Resolution Imaging Spectroradiometer)



MOPITT (Measurements of Pollution in the Troposphere)



QuickBird



SAR (Synthetic Aperture Radar)

UNITED NATIONS
UNEP
GEO-REF Information Sharing
Platform for Disaster Management



LANDSAT 30m



LANDSAT PAN 15m

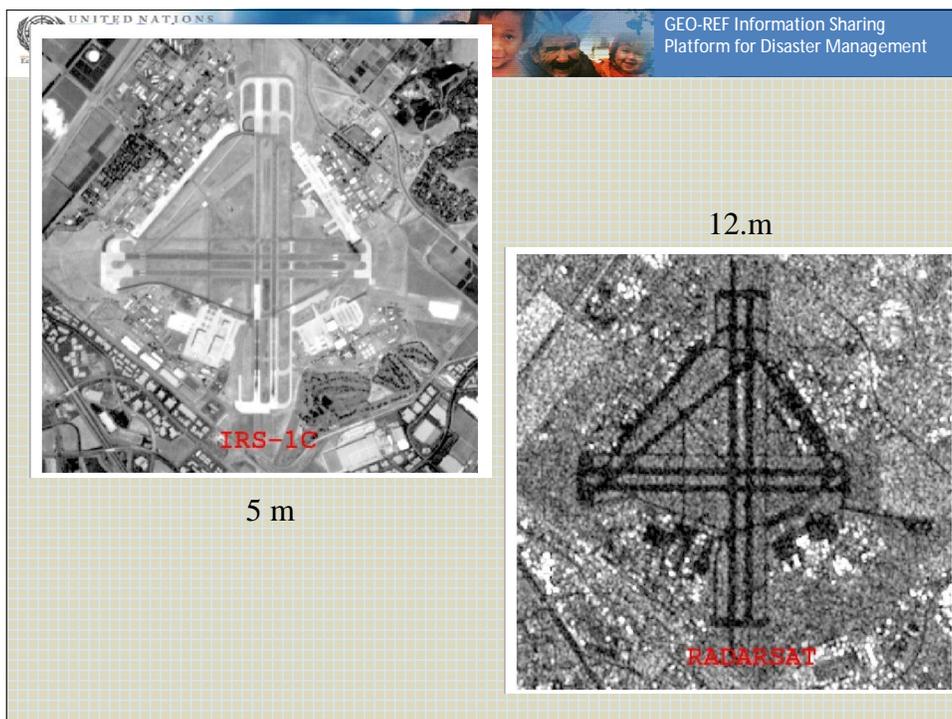
UNITED NATIONS
UNEP
GEO-REF Information Sharing
Platform for Disaster Management



SPOT XS 20m



SPOT PAN 10m



预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/reportId=5_6999

