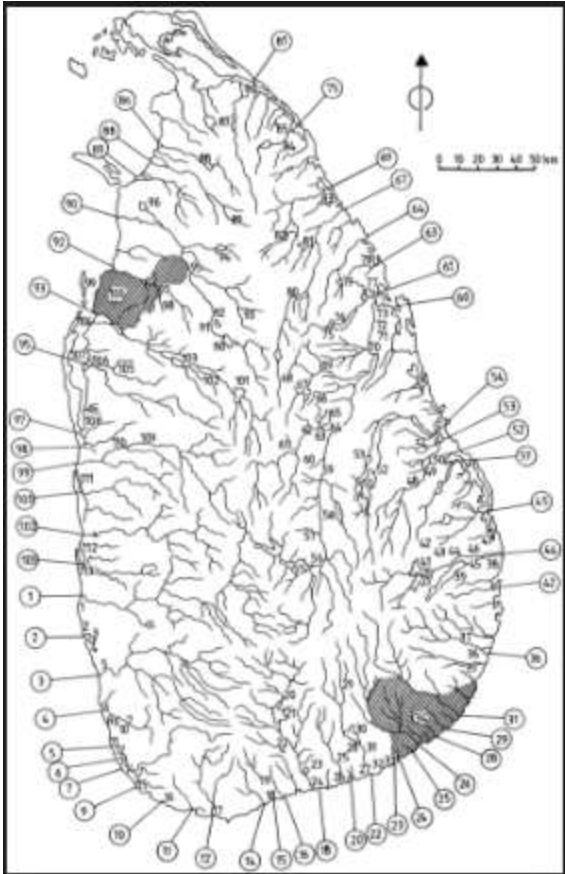


National Emergency Mapping Mechanism for Sri Lanka



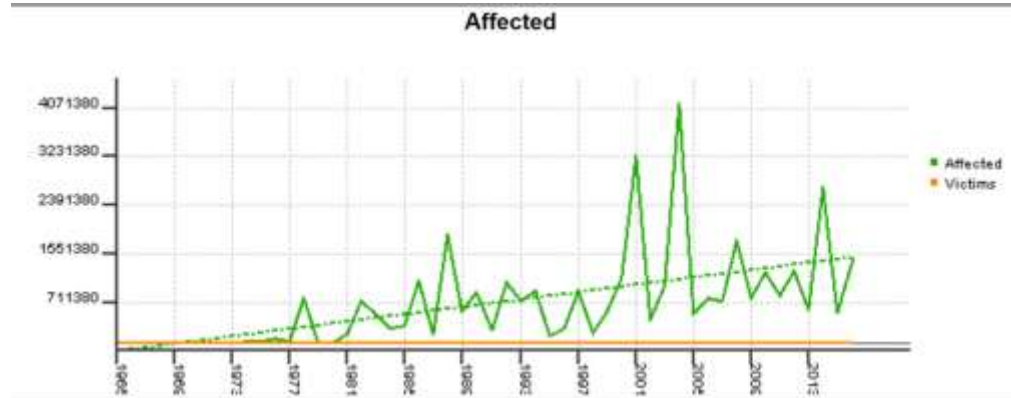
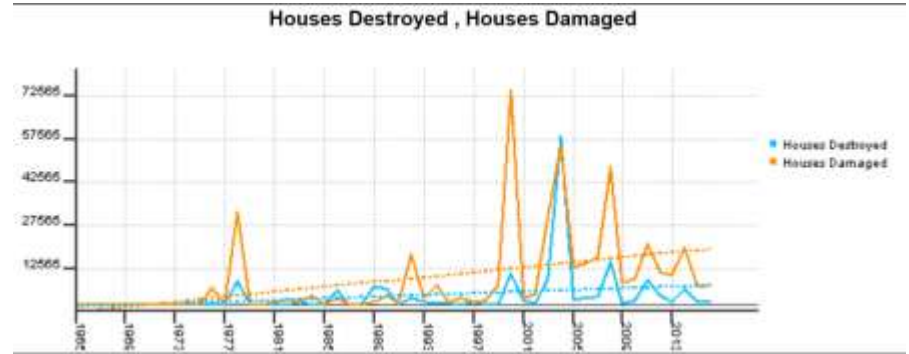
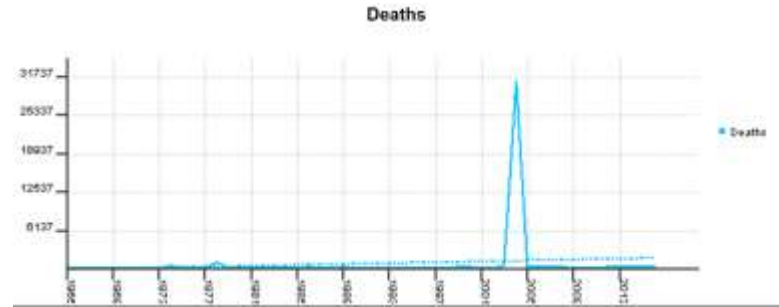
Srimal Samansiri
Assistant Director
Disaster Management Centre
Sri Lanka

1974 – 2016 Trend Analysis



Disaster Damage and Loss is 0.5 GPS

Source: World Bank



UNSPIDER Technical Advisory Mission (TAM)



UNSPIDER TAM Recommendations

1. Policy and Coordination

- ✓ DM Policy update to use space technology for DM
- ✓ Improve inter-agency coordination
- ✓ Sharing mechanism between data providers and users / Institute strengthen
- ✓ Data sharing policy / NSDI
- ✓ Data policy for interoperability / common arrangement to obtain satellite data

2. Data and Access / Info Management

- ✓ Improve base line data at 1:10,000 including DEM
- ✓ Development of Hazard & Risk Maps
- ✓ Right to access data from different institutes
- ✓ A dedicated unit for Information Management in DMC
- ✓ Implementation of NSDI

3. Capacity Building

- ✓ Building institutional and individual capacity

UNSPIDER TAM Recommendations

1. Policy and Coordination

- ✓ **DM Policy update to use space technology for DM**
- ✓ **Improve inter-agency coordination**
- ✓ **Sharing mechanism between data providers and users / Institute strengthen**
- ✓ **Data sharing policy / NSDI**
- ✓ **Data policy for interoperability / common arrangement to obtain satellite data**

2. Data and Access / Info Management

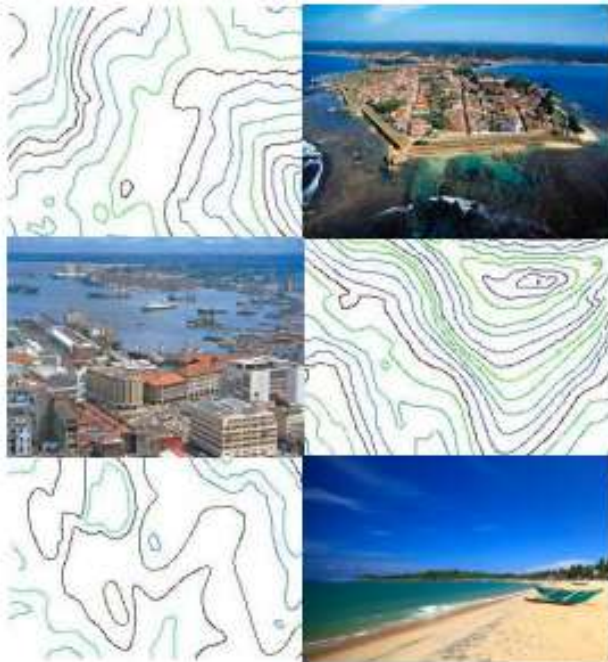
- ✓ **Improve base line data at 1:10,000 including DEM - ongoing**
- ✓ **Development of Hazard & Risk Maps - ongoing**
- ✓ **Right to access data from different institutes – ongoing NSDI**
- ✓ **A dedicated unit for Information Management in DMC – slowly developing**
- ✓ **Implementation of NSDI**

3. Capacity Building

- ✓ **Building institutional and individual capacity - ongoing**

Sri Lanka Spatial Data Infrastructure

POWERING DECISION MAKING
AND INNOVATION
USING SPATIAL INFORMATION
TECHNOLOGIES



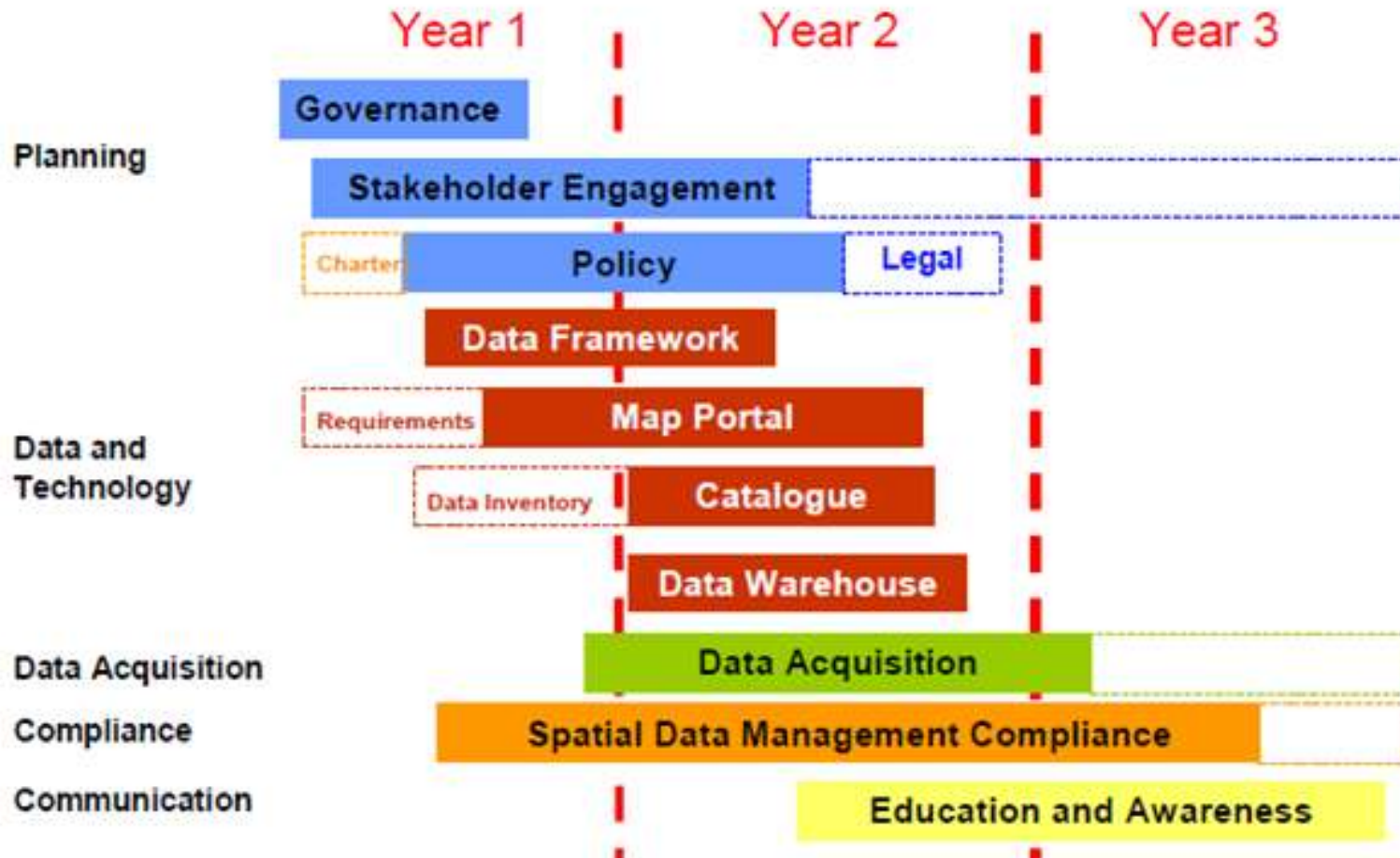
Sri Lanka Spatial Data Infrastructure Strategy 2020

Consultation Document - August 2014



1. NSDI Strategy
2. NSDI Road Map
3. NSDI Baseline Survey
4. NSDI Requirement Study
5. Proposals are called to setup NSDI in Sri Lanka

NSDI Implementation 2016-19



Government has allocated 3.5 US \$ Millions for this work



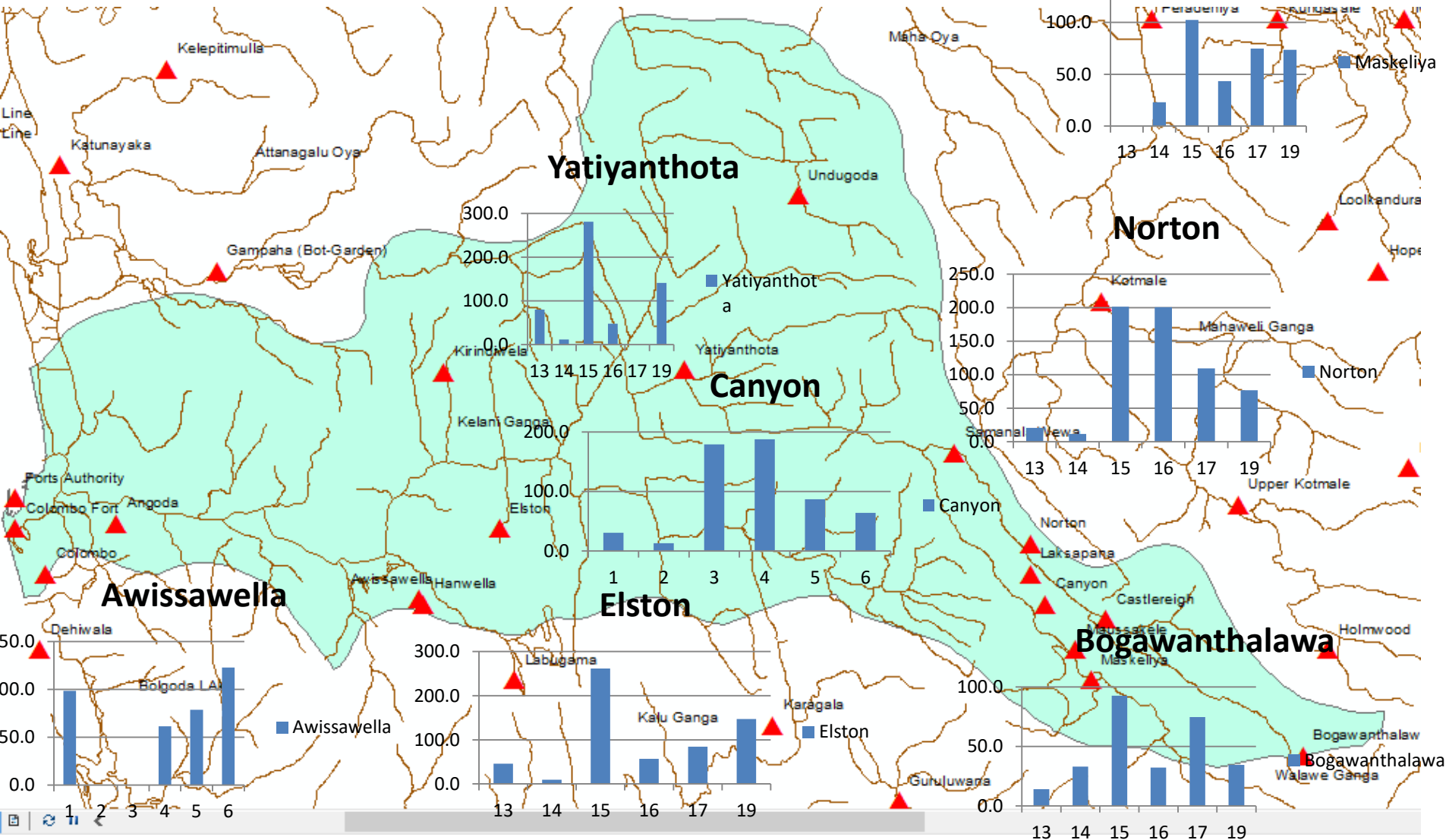
Colombo Floods
May 2016

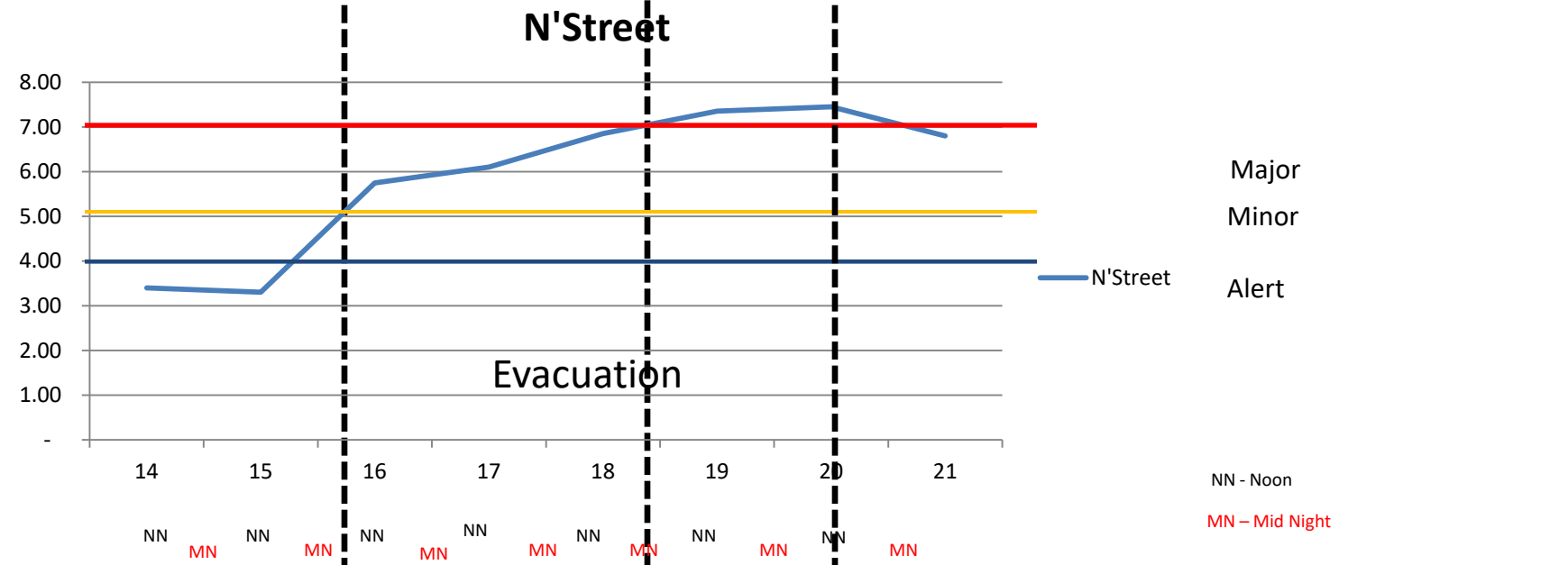
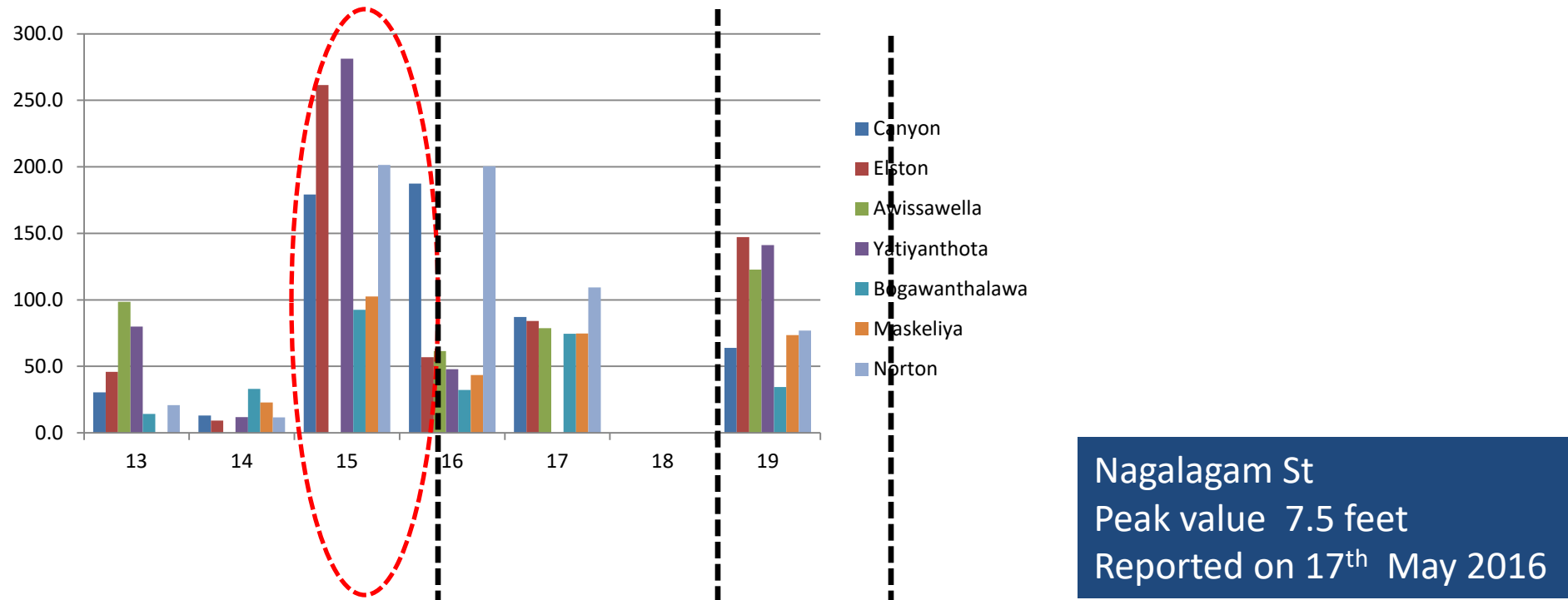
Summary of Earth Observation by Sentinel Asia / Intl Charter

	Disaster Type	Activation Requested	Observation Conducted	Map Disseminated	Peak Time of Disaster	Data	Result
1	Floods	17th Dec 2009	18 Dec 2009	No map generated	16 Dec 2009	ALOS Prism	Un successful due to cloud
2	Floods	17 May 2010	19 May 2010	20 May 2010	18 May 2010	ALOS Palsar	Successful
3	Floods	08 Dec 2010	09 Dec 2010	10 Dec 2010	8-10 Dec 2010	ALOS Palsar	Successful
4	Floods	11 Jan 2011	13 Jan 2011	14 Jan 2011	10-12 Jan 2011	ALOS Palsar	Successful
5	Floods	04 Feb 2011	06 Feb 2011	07 Feb 2011	03-05 Feb 2011	ALOS Palsar	Successful
6	Landslide	01 Nov 2014	02 Nov 2014	Not generated	30 Oct 2014	ALOS 2	Observation was Successful Results was not Successful
7	Floods	29 Sep 2015	01 Oct 2015	02 Oct 2015	30 Sep 2016	ALOS 2	Successful
8	Floods Landslide	1 st observation 14 May 2016	16 May 2016	18 May 2016	30 Oct 2014	ALOS 2 / TerraSARx	Successful
9	Floods Landslide	1 st observation 26 May 2017	28 May 2017	29 May 2017	26 May 2017	TerraSARx / Intl Charter	Successful

Rainfall 13 – 19 May 2016

Source – Meteorology Department





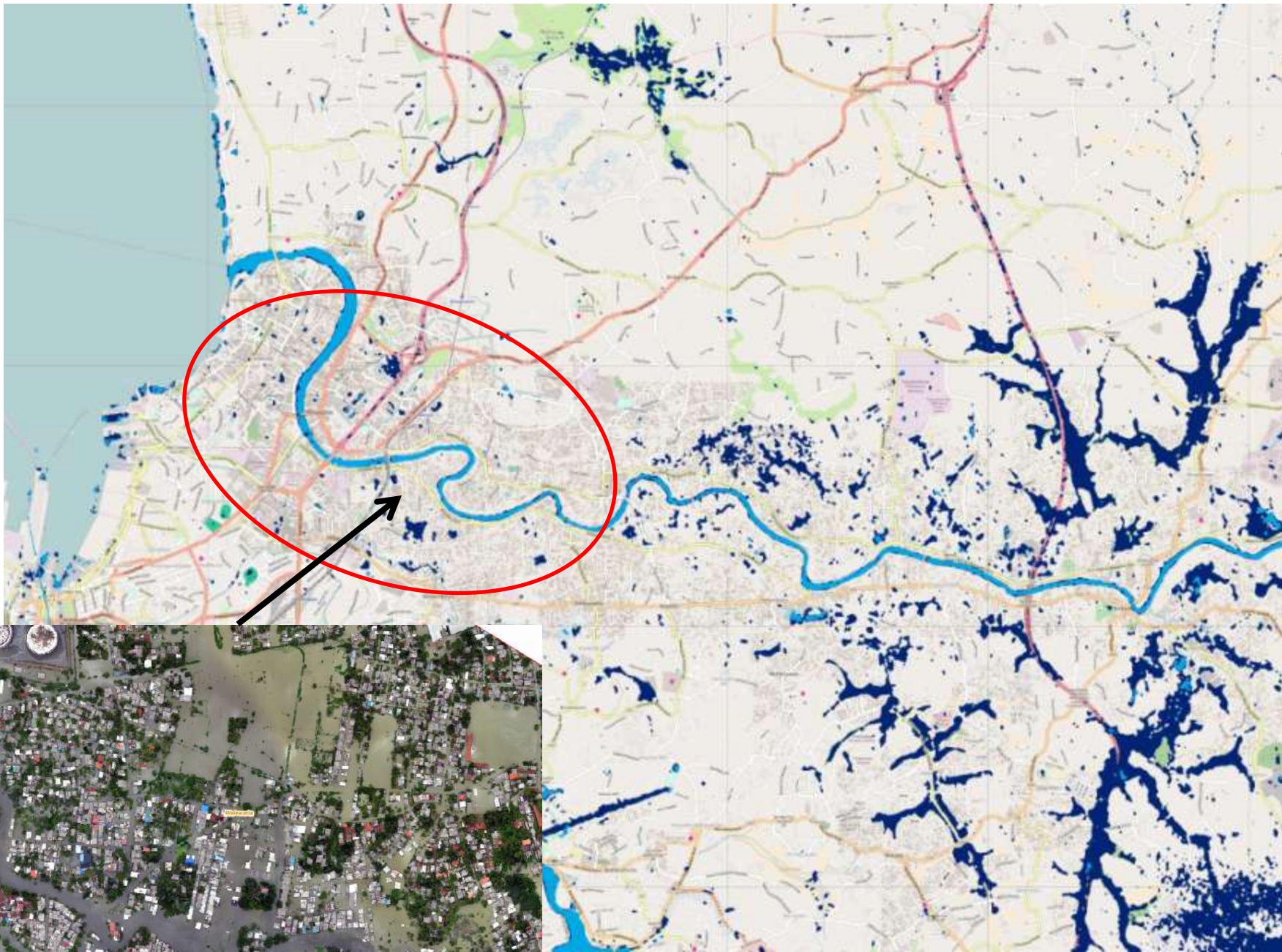
Satellites Contributed Data

Radar Satellites

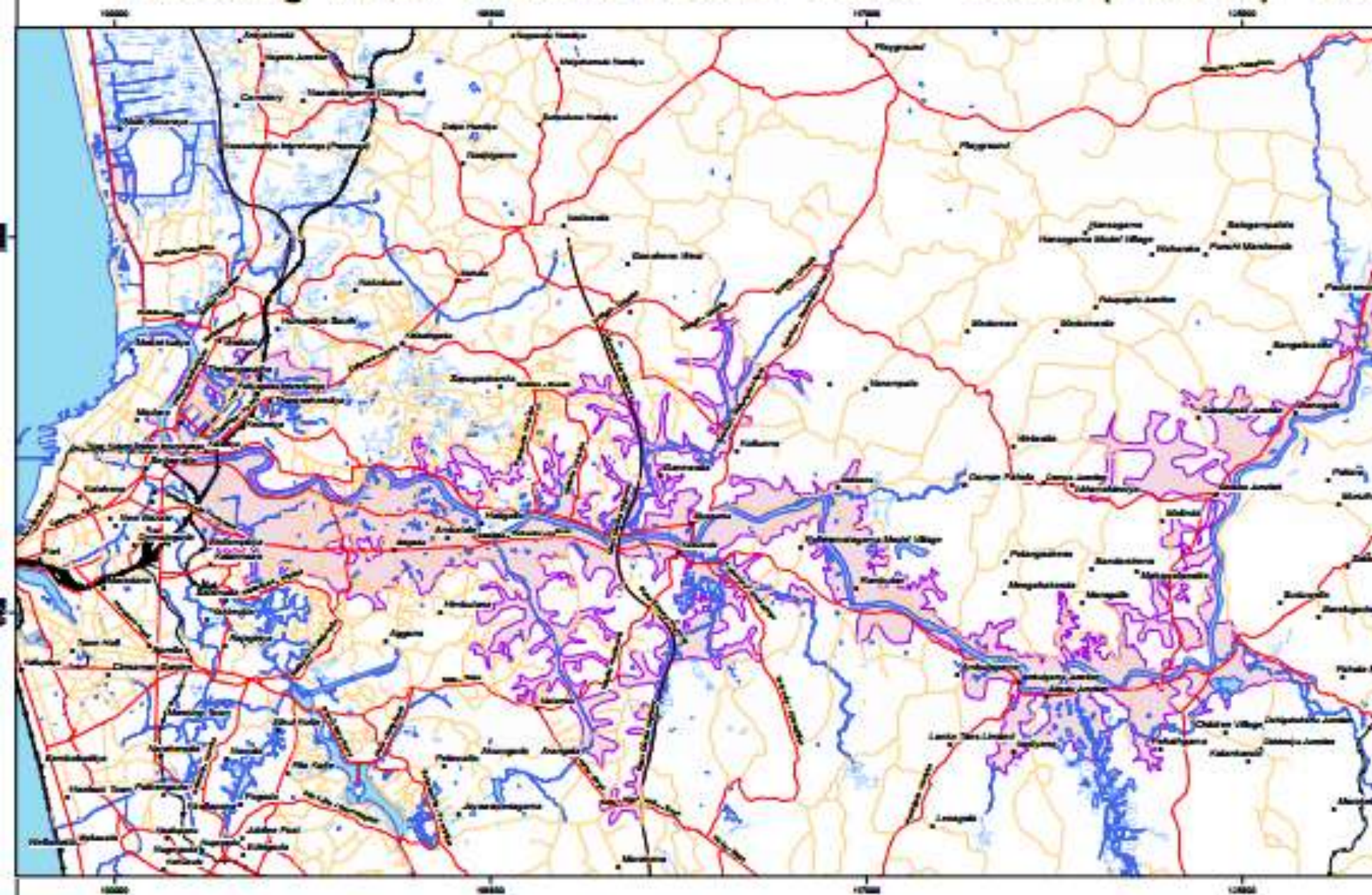
1. ALOS Palsar – Japan
2. RISAT – India
3. Radar Sat – Canada
4. Terra SAR X – Germany

Optical Satellites

1. Plaides – France (0.5 m)



Terra SAR X 19th May 2016

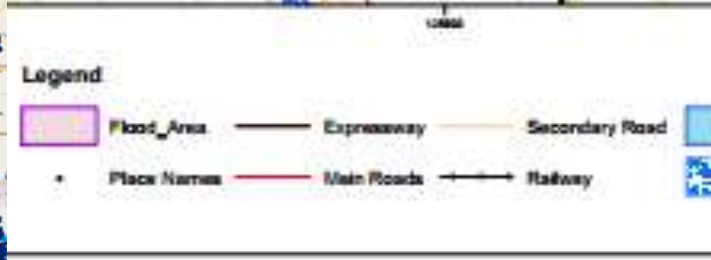
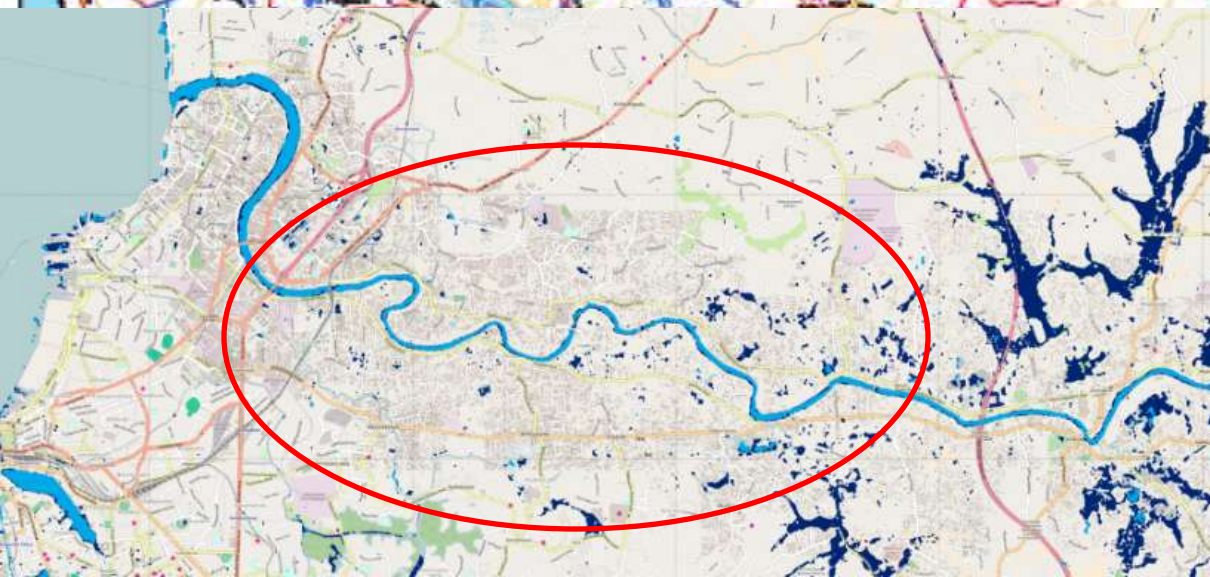
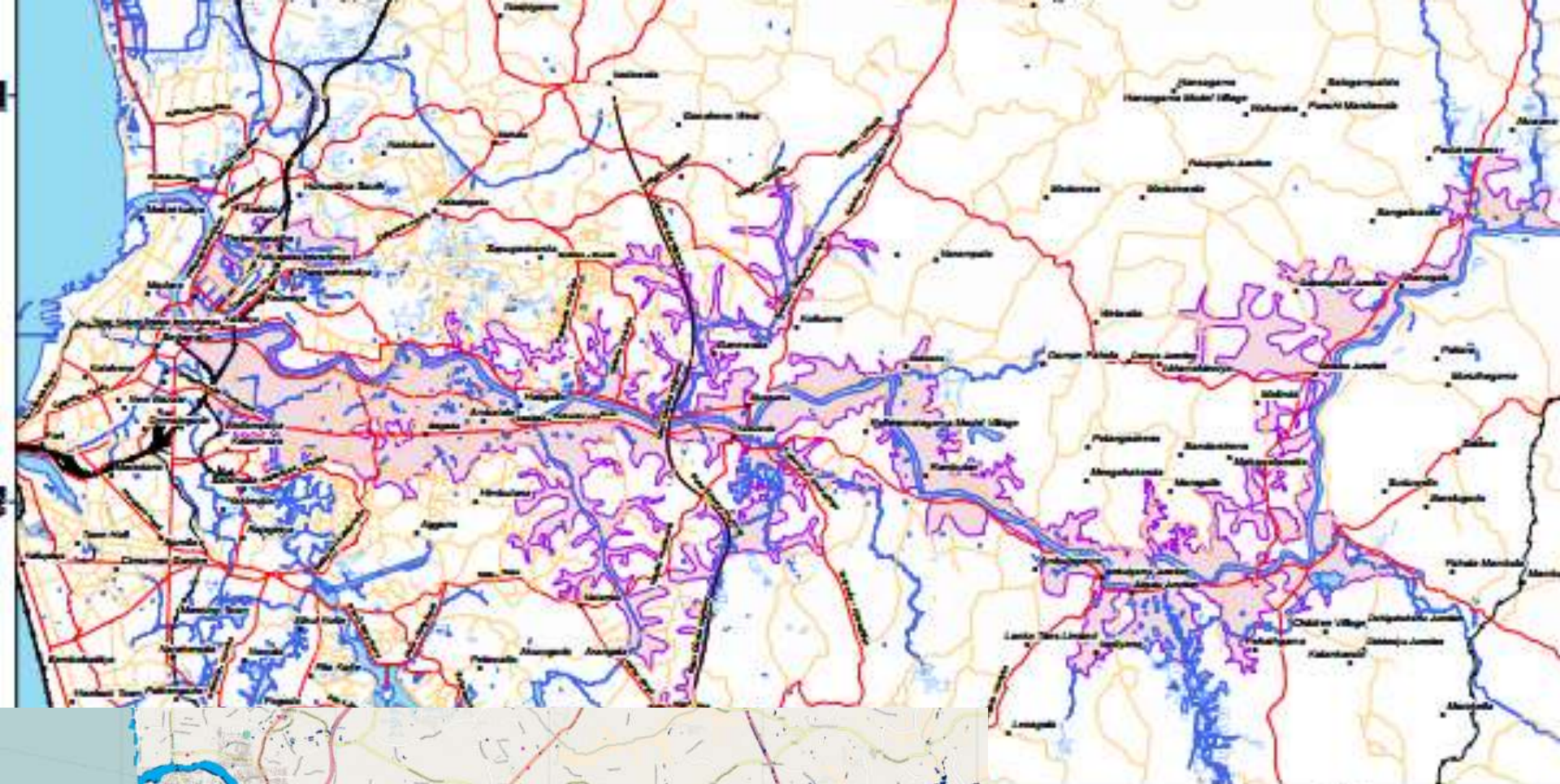


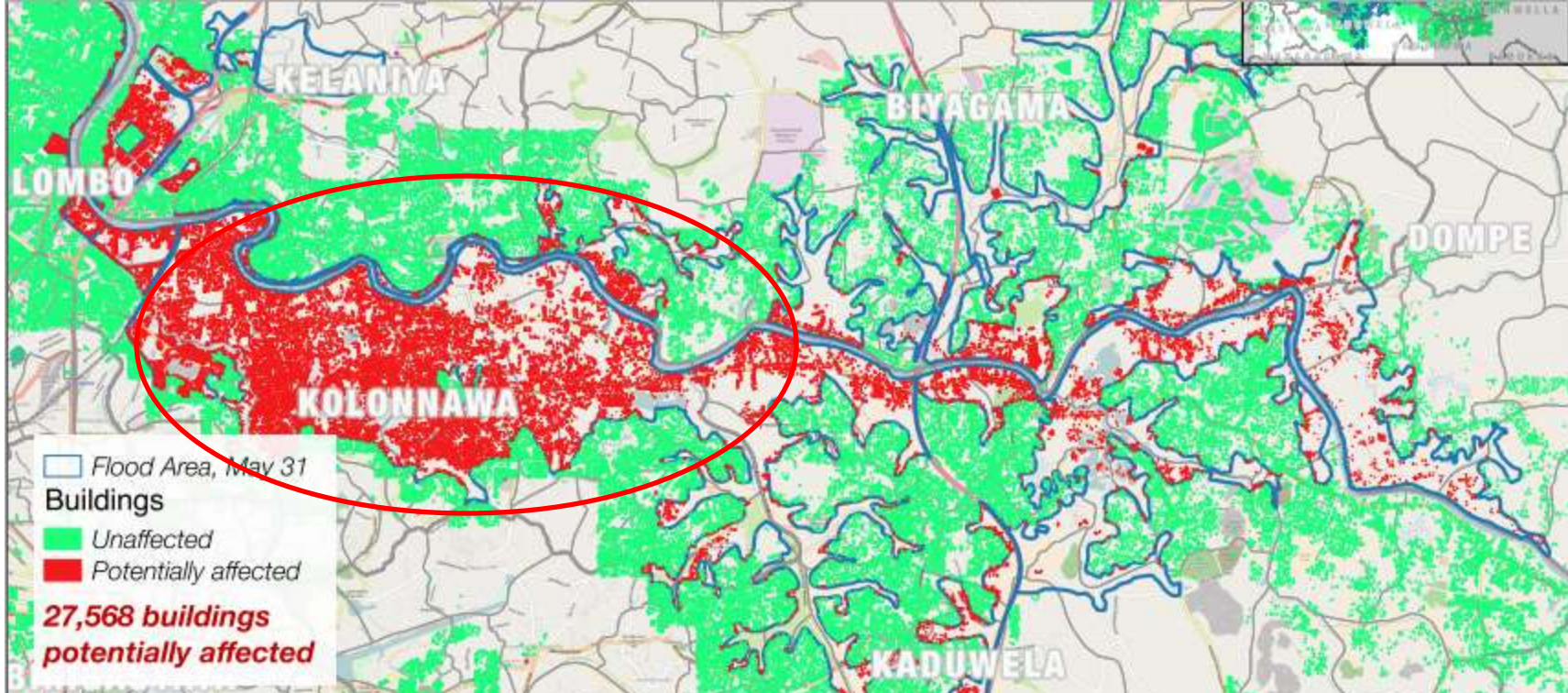
This map is based on data collected on 23rd May - 02nd June 2016.
 Map to be updated after field verification. Field data collection is in progress.
 Prepared by GIS Branch, Survey Department of Sri Lanka.
 Map published on 03rd June 2016

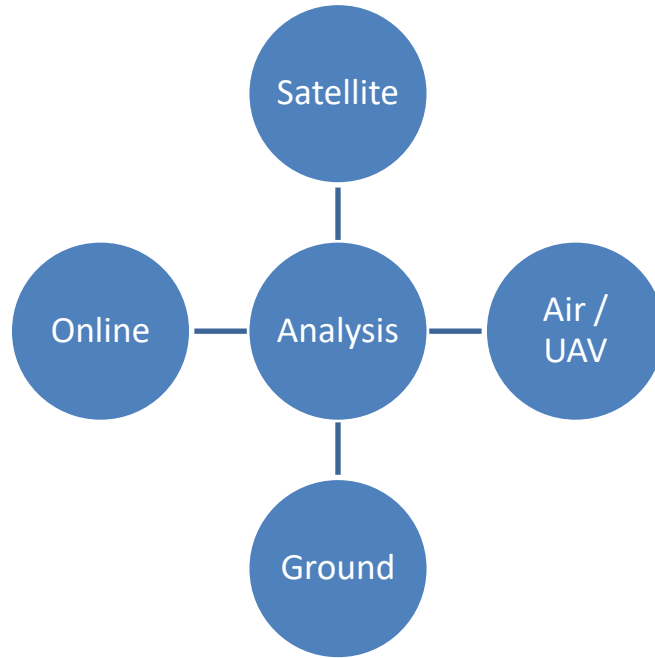
1:90,000

Legend

- Flood Area
- Expressway
- Secondary
- Place Names
- Main Roads
- Railway







Satellite
Air
Ground
Analysis

Organization	Satellite Data Acquisition	Airborne Data Acquisition	UAV Acquisition	Field Data Collection	Data Processing/ Analysis
Disaster Management Centre	Yes	No	No	Yes	Yes
Survey Department of Sri Lanka	No	No	Yes	Yes	Yes
Arthur C Clerk Centre for Modern Technology	Yes	No	Yes	No	Yes
Department of Irrigation	No	No	No	No	Yes
Department of Meteorology	No	No	No	Yes	Yes
National Aquatic Resources Research and Development Agency (NARA)	No	No	No	No	Yes
Coast Conservation and Coastal Resources Department	No	No	No	No	Yes
National Building Research Organization (NBRO)	No	No	Yes	Yes	Yes
Mahaweli Authority of Sri Lanka	No	No	No	Yes	Yes
Centre for Research and Development (CRD), Ministry of Defense	No	No	Yes	Yes	Yes
Sri Lanka Air force	No	Yes	Yes	No	No
Sri Lanka Navy	No	No	No	Yes	No
Sri Lankan Army	No	No	Yes	Yes	Yes
PGIC/University of Peradeniya	No	No	Yes	Yes	Yes
UCSC/ University of Colombo	No	No	No	Yes	Yes
ERE/ University of Moratuwa	No	No	No	Yes	Yes
Department of Census and Statistics	No	No	No	Yes	Yes

Strategy

- Common Data
- Standard Procedures
- Pre-agreed output

Outcome

- Reduce duplication
- Efficient resource mobilization
- Timely outputs

National Emergency Operations Plan (NEOP)
-
Disaster Management Center

Request satellite support:

- Charter for Major Disasters
- Sentinel Asia
- Planet Labs, Digital Globe, etc.

MOUs

- Universities
- Census
- Navy
- Army
- Air Force
- IWMI
- UAV Users...
- Others...

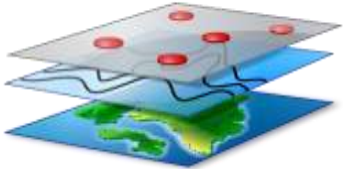
Activate volunteer groups:

- HOT OSM
- MapAction
- CrisisMappers, etc.

Common Operational GIS Database

**NEMM Secretariat
Survey Department
&
DMC**

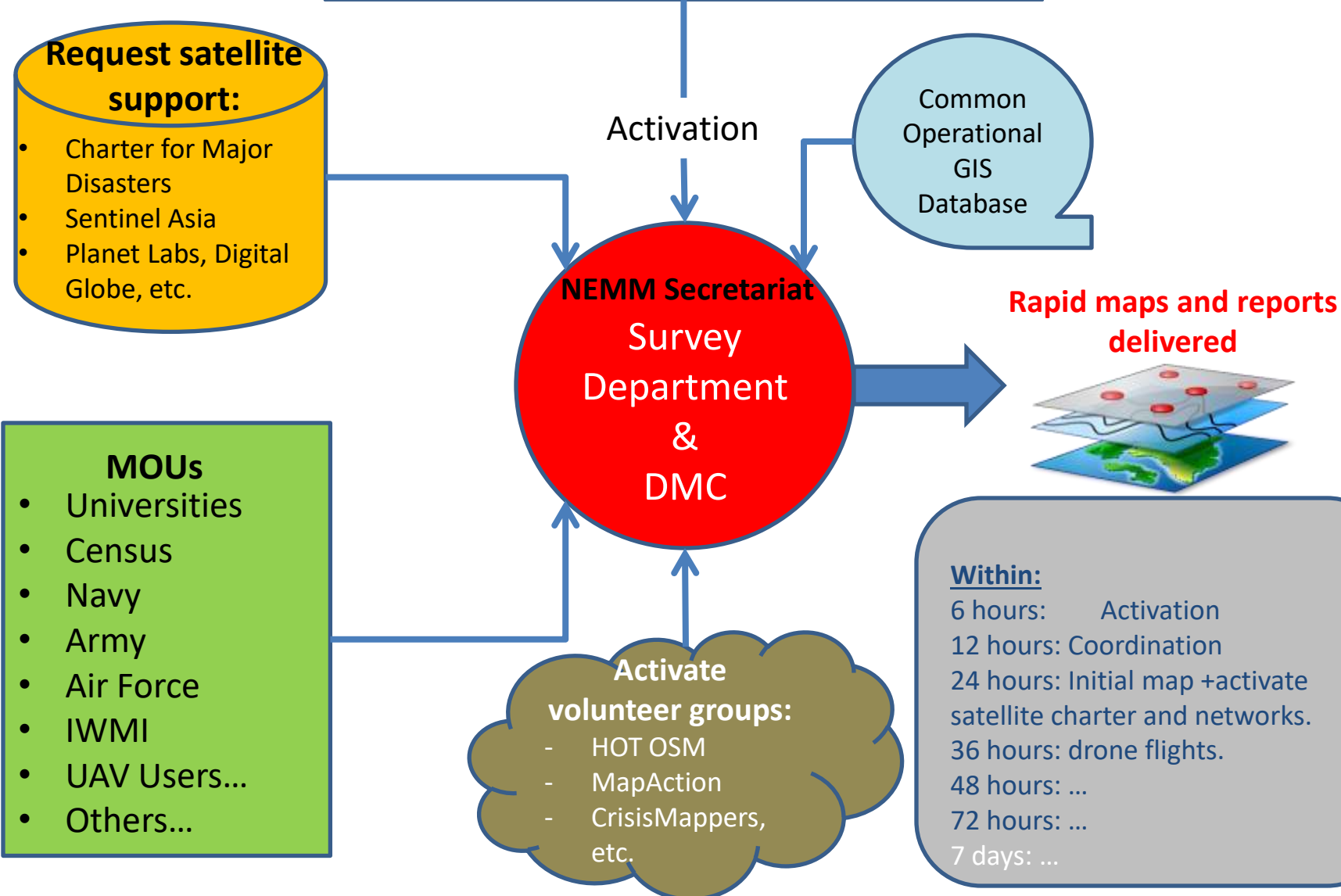
Rapid maps and reports delivered

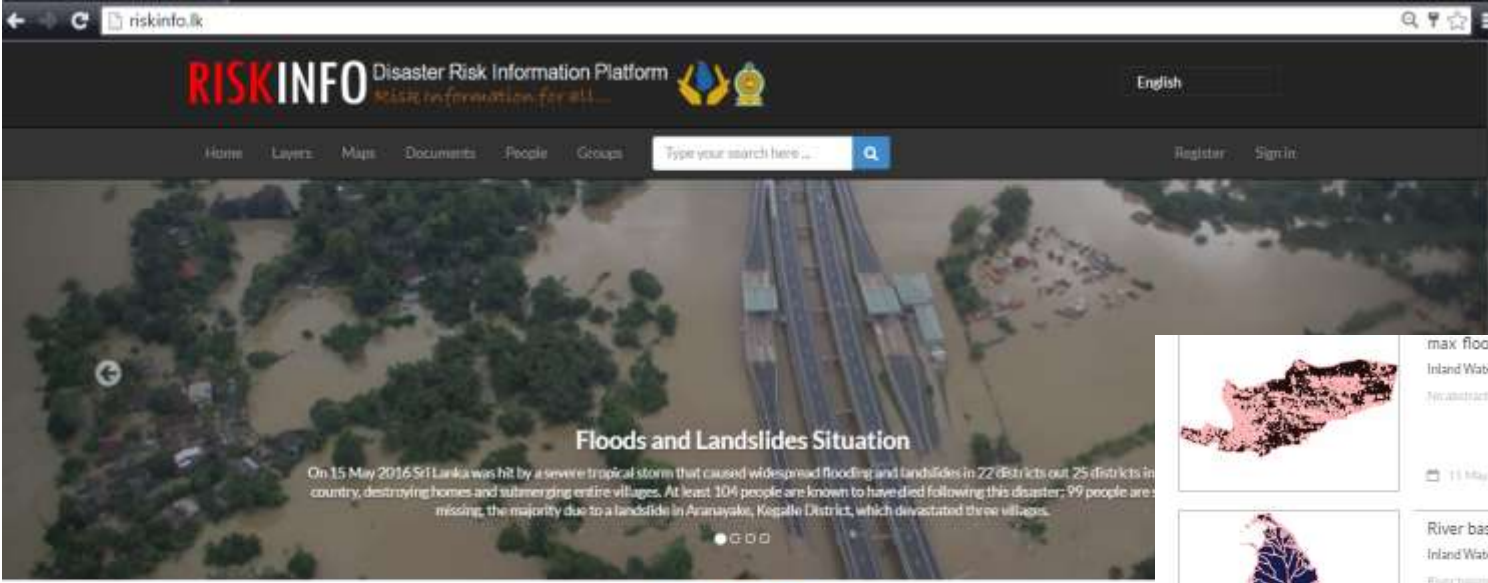


Within:

- 6 hours: Activation
- 12 hours: Coordination
- 24 hours: Initial map + activate satellite charter and networks.
- 36 hours: drone flights.
- 48 hours: ...
- 72 hours: ...
- 7 days: ...

Activation





DATA LAYERS
RiskInfo lets you upload, manage, and browse data. Search for data that is valuable to you, or upload your own



RISKINFO is the mechanism to share all the Risk related data / information

www.riskinfo.lk

A vertical list of seven data layer thumbnails. Each thumbnail shows a map of Sri Lanka with a specific data overlay. The list items are:

- max flood eventmay2003 sld99**
Inland Waters by admin
No abstract provided
15 May 2016
- River basins of Sri Lanka**
Inland Waters by admin
River basins of Sri Lanka. Projected in WGS84.
3 May 2016
- attanagalu wgs84**
Inland Waters by srimal
The footprint of the Attanagalu river
5 Mar 2016
- district combined sri lanka 1**
Society by admin
No abstract provided
1 Mar 2016
- Population within 500m of a tsunami inundation zone**
Environment by admin
The total number of persons affected by a potential tsunami going 500m inland. Built off an inventory of a tsunami hazard model and 2012 census data.
5 Mar 2014
- Census areas intersecting projected Attanagalu Oya flooding (no b...**
Society by admin
2012 census areas falling within a projected flood of the Attanagalu Oya river basin.
26 Jun 2014

Concept of Operations

for the institution of the

National Emergency Mapping Mechanism (NEMM)

Coordinated by the
Survey Department and Disaster Management
of Sri Lanka



2. Technical and Procedural Manual

for the
National Emergency Mapping Mechanism
of Sri Lanka

Version (09.17.2017)



Memorandum of Understanding

Creation of an inter-institutional **National Emergency Mapping Mechanism (NEMM)** led by the Disaster Management Centre and the Survey Department of Sri Lanka, to be on-call and activate upon the occurrence of disasters and emergencies in order to coordinate efforts for the rapid delivery of maps and spatial analysis to all stakeholders involved in disaster response and relief.

Background:

Rapid emergency mapping using various datasets and tools provides spatial information on the impact of a disaster and assures the effectiveness of response and relief efforts. In past disasters, the Disaster Management Centre (DMC) as well as other agencies have contributed to rapid mapping by using available datasets and obtaining satellite images through regional and international mechanisms such as the United Nations Asia and the Pacific Disaster Preparedness Centre.

However, past experience has shown that more coordination is needed among all institutions involved in rapid mapping of disaster-struck areas. A formal rapid mapping mechanism is essential for efficient disaster response, with minimal duplication of information and effort. Such a system needs to be established as part of a disaster preparedness strategy.

The proposed mechanism fits with disaster preparedness initiatives in Sri Lanka that include the development of a National Spatial Data Infrastructure, the use of the WFP-lead 72 hour rapid mapping framework and the use of WFP's PRISM system, among others. The proposed mechanism's main objective is to have protocols in place before a disaster strikes in order for rapid and coordinated mapping response to disasters.

d) As outlined in the "Concept of Operations for establishing a Rapid Emergency Mapping Mechanism in Sri Lanka", there is a strong legal mandate to establish such a mechanism, given by the Disaster Management Act, the National Policy on Disaster Management (NDMP) and the National Emergency Operations Plan (NEOP).

e) Internationally, standards that call for and mandate the establishment of the Rapid Emergency Mapping Mechanism are set forth by the UN Committee of Experts on Global Geospatial Information

Thank You