



# **Preparedness and Rapid Response based on Geospatial Information at Great East Japan Earthquake in 2011**

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**Taken by Kokusai Kogyo**

# UNISDR

UNISDR is the United Nation's office for disaster risk reduction. It implements the International Strategy for Disaster Reduction.

- **Private Sector Advisory Group: 40 companies**
- **Private Sector Advisory Board: 16 companies**

**Kokusai Kogyo is an advisory board member.**



**When private sector companies close down due to disasters, the effects are felt both...**

***... locally by the community, and  
... globally through the supply chain***



# Private Sector Advisory Group (PSAG)

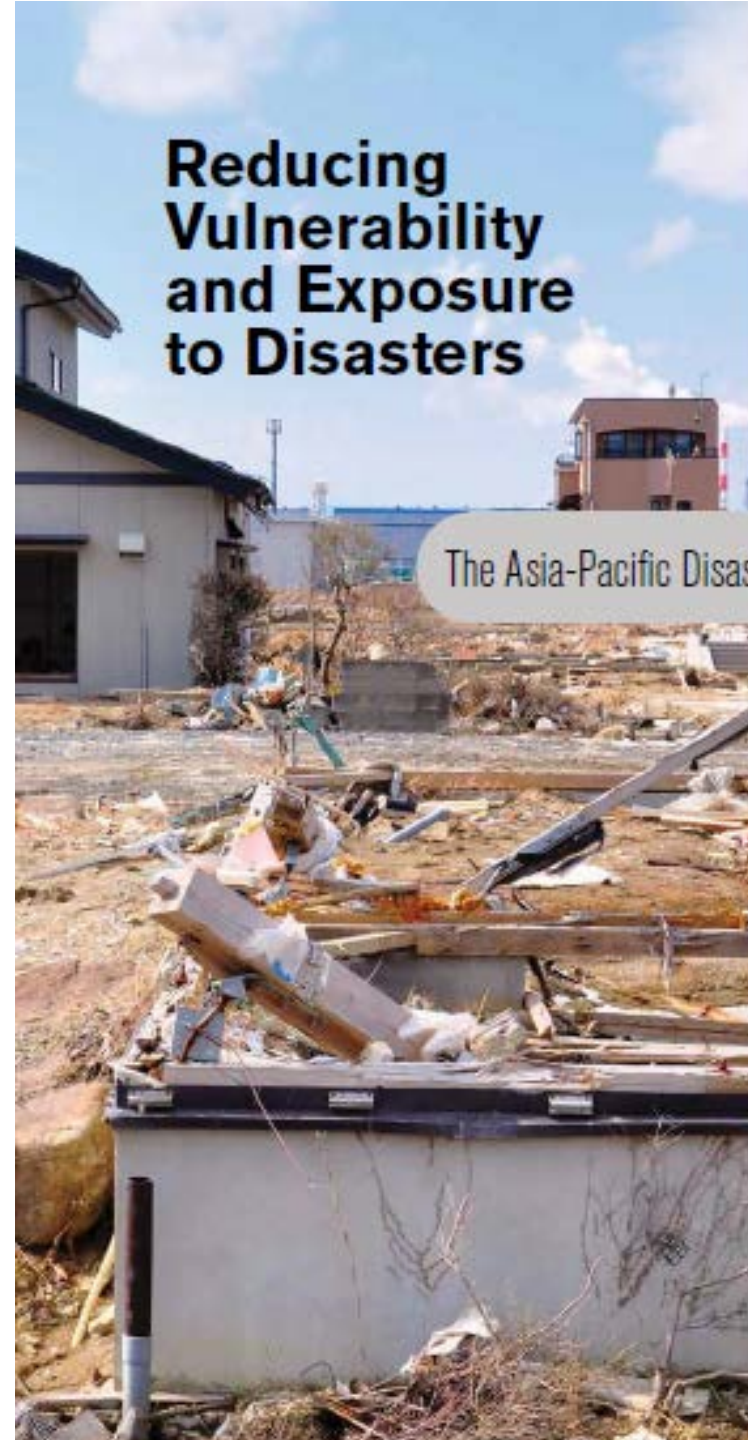
- Assembling “Evidence” e.g. best practices.
- Working to expand involvement of the private sector in DRR through ***Five Essentials of DRR***.
- Expand membership of **DRR-Private Sector Partnership (DRR-PSP)** worldwide, made of companies who signed Statement of Commitment to DRR.





# Asian Pacific Disaster Report 2012

## Chapter 5 Harnessing Innovative Technologies



The Asia-Pacific Disaster Report 2012



# Private Sector and DRR

1. Businesses protecting themselves – BCP  
(Business Continuity Planning)
2. Contribution through sector and/or corporate  
technical expertise



# Contributing Through Expertise

## Private Sector Expertise

### 1 Data Capturing

Capture geospatial data through various kinds of sensors

SPACE

Satellite Remote Sensing

Digital Aerial Photography

LIDAR

GPS

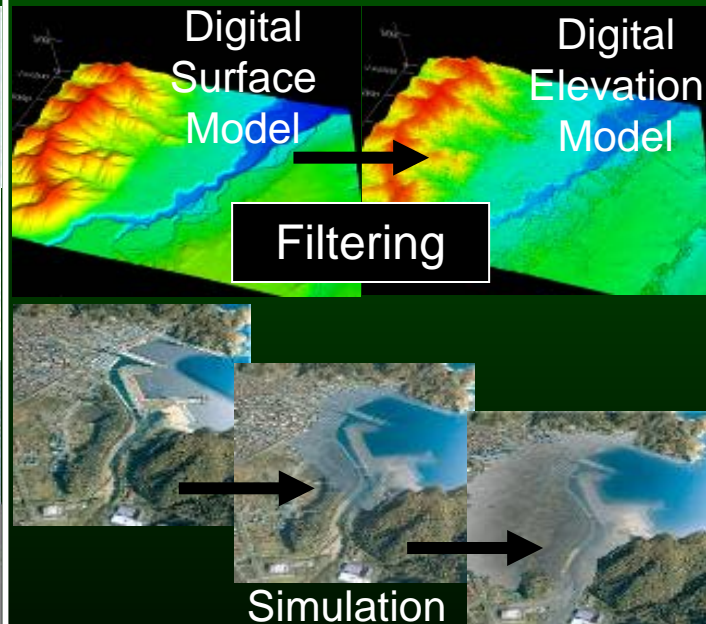
Narrow Multi-Beam

SEA



### 2 Data Processing & Analysis

Provide high quality data processing technology and professional interpretation



### 3 Consulting & Engineering Services

Consulting based on processed geospatial data and technical expertise



Hazard map



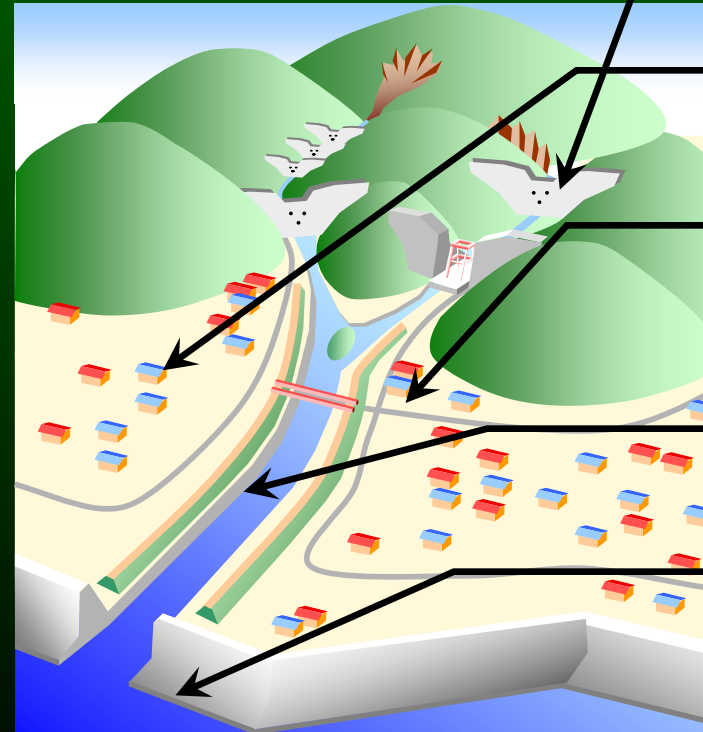
# Contributing Through Expertise

## Private Sector



## Local Government etc.

### 4a Implementation of DRM Plan, Prevention Infrastructure



Dams

City planning

Earthquake-proof structures

Flood levees

Sea walls

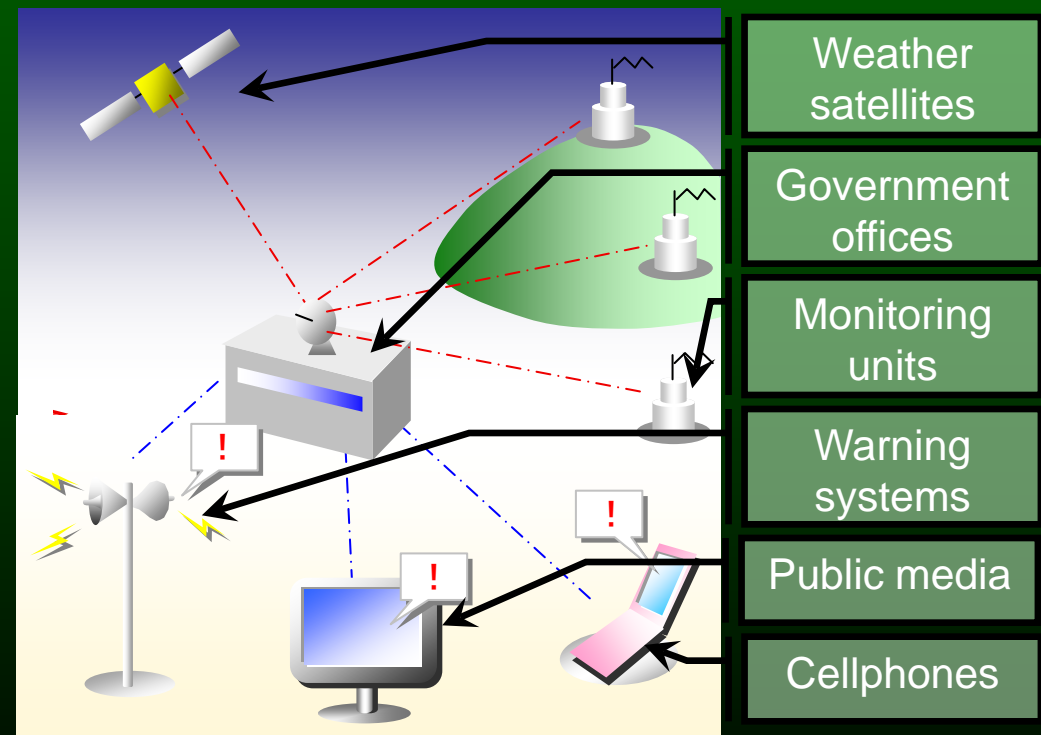


## Private Sector



## Local Government etc.

### 4b Using the Plan, Monitoring & Alarming System



# Contributing Through Expertise

## Private Sector

1 Data Capturing	2 Data Processing & Analysis	3 Consulting & Engineering Services
Capture geospatial data through various kinds of sensors	Provide high quality data processing technology and professional interpretation	Consulting based on processed geospatial data and technical expertise
<div>SPACE</div> <div>Satellite Remote Sensing</div> <div>Digital Aerial Photography</div> <div>LIDAR</div> <div>GPS</div> <div>Narrow Multi-Beam</div> <div>SEA</div>	<div>Digital Surface Model</div> <div>Digital Elevation Model</div> <div>Filtering</div> <div>Simulation</div>	<div>Hazard map</div>

## Local Government, Residents

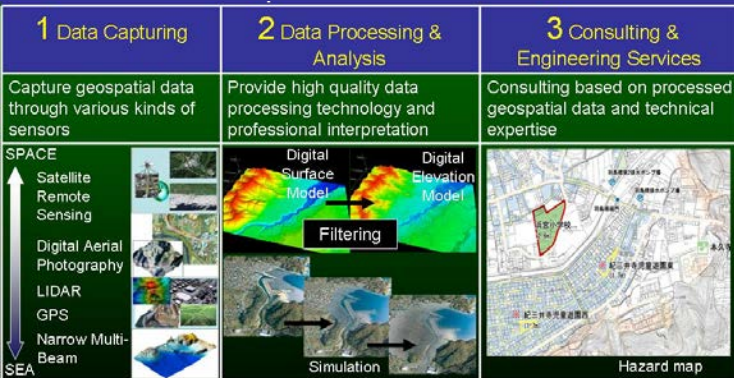
### 4c Using the Plan, Community Evacuation Workshops





# Contributing Through Expertise

## Private Sector



## Local Government, Residents

### 4d Using the Plan, Community Evacuation Training



Takaishi City



# Case study: Rapid Assessment in the aftermath of the Great East Japan Earthquake in 2011



GSI (Geospatial Information Authority of Japan)

APSAT (Association of Precise Survey and Applied Technology).: The national association of private survey companies

Private companies for aerial photos

# The Timeline of Response

## March 11th, Friday

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- 14:46 Great East Japan Earthquake
- 15:30 GSI sends standby notice
- 15:45 GSI requests APSAT for list of members
- 15:54 APSAT begins contacting member companies
- 17:59 APSAT tells GSI: 7 companies ready to respond
- 22:37 APSAT tells GSI: 9 companies ready to respond

## March 12th, Saturday

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- 12:07 GSI reports to APSAT that this emergency survey job has been divided among 6 companies





# The 1<sup>st</sup> Assessment

Location	Area	Time	Company Name
Sanriku (North)	818 sq km	11:00 AM	Asia Air Survey
Sanriku (South)	1,044 sq km	9:10 AM	Kokusai Kogyo
Sendai-Ishinomaki	529 sq km	10:00 AM	PASCO Corporation
Sendai Harbor	663 sq km	11:00 AM	Aero Asahi Corporation
Kurikoma Mtn. (East)	673 sq km	on standby	A-TEC
Kurikoma Mtn. (West)	673 sq km	9:23 AM	Hasshu



図1 平成23年(2011年)東北地方太平洋沖地震災害に伴う第一次緊急撮影実施計画図

注) 栗駒山東及び同西の撮影は、天候不順が続き一部中止された。



An aerial photograph showing a large area of destruction. A river flows through the upper left, with debris and damaged land along its banks. A highway with a bridge is visible in the upper right. The central and lower portions of the image show a dense area of rubble, destroyed buildings, and scattered debris, indicating a major disaster like an earthquake or tsunami.

# Emergency aerial photography survey agreement

Emergency agreements - Agreed *prior* to disasters, public-to-private

a.k.a. standing agreements, emergency activated contracts

- Reserve the *specific expertise* of company
- Multiple agreements cover all contingencies



# Day 1-7: Damage assessment (aerial photography)

## Building damage, Rikuzentakata City, Iwate Pref.



18<sup>th</sup>/29<sup>th</sup> October 2010

13<sup>th</sup> March 2011



Spatial Info