



**Regional Committee of United Nations Global Geospatial
Information Management for Asia and the Pacific
(UN-GGIM-AP)**



Established by a United Nations Resolution

There were provisions of best practices from 10 countries. The respondent country and title is as follows.

1. Australia
 - Real Time Crisis Response Mapping for Government Officials
2. Bangladesh
 - Use of Geospatial information for DRR in Asia and the Pacific region
3. China
 - earthquake
4. Fiji
 - Tropical Cyclone, Flooding
5. Hong Kong, China
 - Contingency Plan for Natural Disasters
6. Indonesia
 - Rapid Mapping of Kelud Mountain
7. Japan
 - Floods
 - 2011 Great East Japan Earthquake
8. Malaysia
 - The Use Of Unmanned Aerial Vehicle (UAV) To Monitor The Flood And Its Impact in Malaysia
 - Earthquake Struck Ranau In Sabah, Malaysia
9. Philippines
 - Multi-Hazard Mapping of 28 Priority Provinces and the Greater Metro Manila Area
 - The Philippine Geoportal
 - Recovery and Rehabilitation After Typhoon Haiyan
10. Sri Lanka
 - Tsunami – 2004 December 26

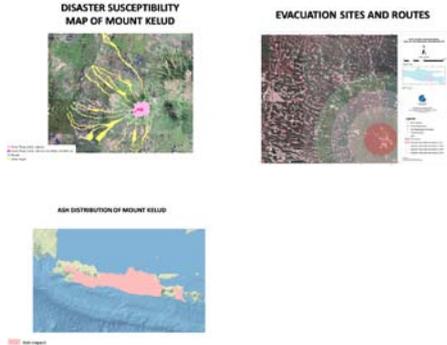
Country	Australia
Organization	Geoscience Australia
Title	Real Time Crisis Response Mapping for Government Officials
Outline of the subject natural disaster	Spatially enabling federal government to enhance decision making.
Response *1	Geoscience Australia is supporting the Attorney-General's Department's - Australian Government Crisis Coordination Centre - establish a spatial mapping capability as part of its crisis centre. Geoscience Australia also integrates fundamental and synthesised spatial data with statistical information for a given area of interest to estimate exposure. This information is provided in report form on request to the Australian Government Crisis Coordination Centre.
Effect *2	The collaboration between GA and AGD is supporting the ability of executive decision makers in government to make informed decisions on the coordination of the Australian Government's response to domestic disaster events, using location based data.
Future *3	Continuous development and improvement of the capability supporting a joint mission across agencies.

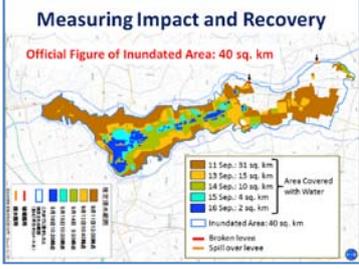
Country	Bangladesh
Organization	Survey of Bangladesh
Title	Use of Geospatial information for DRR in Asia and the Pacific region
Outline of the subject natural disaster	Floods, Storm surge, Drought, Tornado, Landslide and Cyclone are the main disaster. Beside these, country is in the risk of Earthquake and Sea Level Rise.
Response *1	Survey of Bangladesh is preparing thematic maps for the whole Bangladesh. Thematic maps will help the country to prepare an integrated, comprehensive and coordinated plan which is already underway.
Effect *2	By supplying geospatial information to the relevant agencies, the Government will be able to mitigate the natural disaster and can save our valuable resources.
Future *3	Our organization is planning to use UAV for capturing aerial photographs and making available live high resolution satellite images just after the disaster to prepare an integrated, comprehensive and coordinated post disaster plan.

Country	China
Organization	sasmac
Title	earthquake
Outline of the subject natural disaster	In China, earthquakes happen quite often, In almost all earthquakes, SBSM provides the mps after earthquakes including previous, in situ, and after maps
Response *1	The response of emergency mechanism of government
Effect *2	good
Future *3	Accelerate the speed of response including all kinds of disasters such as storm, flooding. etc

Country	Fiji
Organization	National Disaster Management Office
Title	
Outline of the subject natural disaster	Tropical Cyclone, Flooding
Response *1	The information provided by geospatial information assists in the coordination our response.
Effect *2	It really assists in the effectiveness and efficiency of response efforts.
Future *3	<ul style="list-style-type: none"> ● Improve geospatial information ● Mapping of people with disability

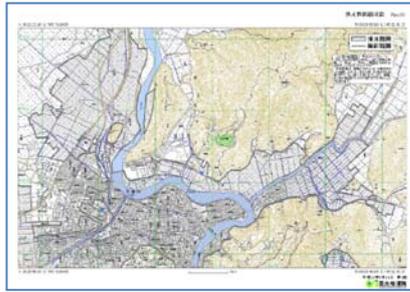
Country	Hong Kong Special Administrative Region (HKSAR)
Organization	Lands Department
Title	Contingency Plan for Natural Disasters
Outline of the subject natural disaster	A landslide is occurred affecting life and property.
Response *1	Lands Department (LandsD) is responsible for emergency and urgent repair works to landslips occurring on registered man-made slopes maintained by LandsD and to landslips that occur on man-made slopes on unleased and unallocated Government land not maintained by other departments and affecting life and property. LandsD works in conjunction with the Civil Engineering and Development Department (CEDD) in determining maintenance responsibilities of registered man-made slopes. The maintenance responsibilities of slopes having been determined are contained in the Slope Maintenance Responsibility Information System (SMRIS) and publicized on the LandsD's website (http://www.slope.landsd.gov.hk/smrisk/) and on CEDD's Slope Information System (SIS) accessible from http://hkss.cedd.gov.hk . LandsD will assist as necessary in emergency situations. The Survey and Mapping Office (SMO) of LandsD is responsible for providing existing maps, plans and aerial photos of the scene in conjunction with Government Flying Services (GFS) in an emergency situation. The SMO will also conduct topographical surveys after the disaster if necessary.
Effect *2	Location and maintenance responsibility of the landslide are identified in the first instance. Geospatial information of the disaster scene is captured for investigation and restoration purposes.
Future *3	UAV will be deployed as a part of the emergency survey operation in future disaster incidents.

Country	Indonesia
Organization	Geospatial Information Agency
Title	Rapid Mapping of Kelud Mountain
Outline of the subject natural disaster	On February 13, 2014 mount Kelud erupted. The Centre of Thematic Mapping and Integration of Geospatial Information Agency (BIG) has conducted rapid mapping and analysis of Mount Kelud.
Response *1	 <p>DISASTER SUSCEPTIBILITY MAP OF MOUNT KELUD</p> <p>EVACUATION SITES AND ROUTES</p> <p>ASH DISTRIBUTION OF MOUNT KELUD</p> <p>BIG, together with some institutions and local governments, have provided the Disaster Susceptibility Map of Mount Kelud, Evacuation Sites and Routes, and Ash Distribution of Mount Kelud.</p>
Effect *2	The above products have been published on internet so that many people in Blitar and Kediri Regencies could be saved.
Future *3	Many additional important information from ministries, local governments, and private sectors could be enriched the above maps.

Country	Japan
Organization	Geospatial Information Authority of Japan (GSI)
Title	Floods
Outline of the subject natural disaster	<p>Due to the heavy rainfall from September 9 to 11 in 2015, the collapsing of levees, overtopping and leakage, inundation and the fracturing/breaking of levee slopes occurred in over 80 rivers. Immense damage was brought about as a result of this, including the loss of lives, injuries, and many incidents of houses being swept away and above the floor level inundation.</p>
Response *1	<p>Relief work and restoration activities were enforced in cooperation with related organizations after overtopping and damage occurred at the rivers. Specifically, aerial photos after the disaster were photographed, and photos before and after the disaster were provided to the government and disaster-stricken municipalities, while information was provided extensively to the nation on our homepage.</p> <p>By measuring the inundated area using photographic interpretations, the disaster effects and restoration situation after the disaster were monitored. Measurements of the inundated areas were updated daily and reported to the government until the inundated areas became small enough that drainage pump cars were no longer required.</p>  
Effect *2	<p>Swiftly disclosing the disaster situation that specifies the inundation range, contributed to initial restoration operations (placement of police, the numbers of pumper trucks and workers, placement positions and determining work hours).</p> <p>As well, the government and media utilized the data provided by GSI as trustworthy official information in their disaster response and news coverage, reaffirming the significance of GSI.</p>

Future *3	<p>It was possible to provide timely information to the government, as the government's needs were understood through frequent interactions with various government posts on a regular basis. In other words, it is important that the required needs for policy making are grasped.</p> <p>Furthermore, disaster simulations (hazard maps) of these rivers where levees broke had been released to the public until now. However, because a sense of danger was not clearly communicated to residents, it may also be believed that it didn't lead to their swift evacuations. It is important to also raise the awareness of residents towards disaster prevention.</p>
-----------	---

Country	Japan
Organization	Geospatial Information Authority of Japan (GSI)
Title	2011 Great East Japan Earthquake
Outline of the subject natural disaster	<p>The Great East Japan Earthquake that occurred at 14:46 on March 11 2011 with the largest Mw (moment magnitude) of 9.0 ever recorded in Japan, caused strong earthquake motions with an intensity over lower 6 on the Japanese scale of 7 in a wide area spanning eight prefectures from Iwate Prefecture to Chiba Prefecture, and triggered a powerful tsunami over 10-meters in height that hit the Pacific side of Japan's Tohoku region, destroying an area of 561km² with its massive force, followed by an accident at the Tokyo Electric Power Company Fukushima Daiichi Nuclear Power Plant and resulting massive evacuation efforts, making it the most massive and multiple catastrophe our nation has ever experienced.</p>
Response *1	<p>Immediately after the disaster, Geospatial Information Authority of Japan created figures of the general situation of the inundation range, conducted emergency shoots of aerial photograph to provide to related organizations, and these resources were utilized in a wide range of fields. Specifically, figures of the general situation of the tsunami inundation and aerial photos were used for the creation of radiation dosimetry maps, the issuing duties of disaster victim certificates, and explanatory manuals for volunteer activities etc. Apart from these, the disaster recovery plan base map, provided by Geospatial Information Authority of Japan, was also utilized.</p>



[Figure of the general situation of the inundation range]



[Radiation dosimetry map (estimate)]

<p>Effect *2</p>	<p>Various resources to serve restoration/recovery were created and provided using the map provided by Geospatial Information Authority of Japan as its base. For example, in areas where massive emigration was conducted, the time and cost spent on the move was significantly reduced using the results of the cadastral survey results.</p>
<p>Future *3</p>	<p>Though most of the three months after the disaster was spent for grasping the damage situation, because the information gets complicated, the swift disclosure of “trustworthy maps” issued by the nation is indispensable for grasping damage situations towards their recovery. In the future, Geospatial Information Authority of Japan will continue to seriously maintain and provide geospatial information for restoration/recovery, and promote the utilization of information, while understanding the needs of each field.</p>

Country	Malaysia
Organization	Department of Survey and Mapping Malaysia (DSMM)
Title	The Use Of Unmanned Aerial Vehicle (UAV) To Monitor The Flood And Its Impact in Malaysia
Outline of the subject natural disaster	Floods are the major natural disaster threat facing Malaysia. The 2014-year end downpour and floods has been the worst ever in the country's history, affecting more than half a million people. Damage to infrastructure alone was estimated RM2.851 billion. Areas that have never experienced floods before were also inundated and floodwater rose at an unprecedented level.
Response *1	The video and aerial photo captured using UAV have been used to provide information about the areas that were susceptible to the floods and locations where people can be evacuated to. The data have been used for making post flood damage assessments and identifying the facilities need to be repaired urgently such as roads, bridges, water treatment plant, etc.
Effect *2	The process to search and rescue flood victims were expedited by using the UAV data. Besides that the refurbishment and reconstruction of damaged facilities were expedited to ease the transportation links in moving people and goods to the affected area. The use of UAV also has saved the operational cost due to its flexibility and cheap flying operation with less constraint on time and human resources.
Future *3	To provide UAV data during and after disaster for relief and recovery purposes particularly on the remote area. Efficient dissemination of information

Country	Malaysia
Organization	Department of Survey and Mapping Malaysia (DSMM)
Title	Earthquake Struck Ranau In Sabah, Malaysia
Outline of the subject natural disaster	A magnitude 5.9 earthquake struck near Mount Kinabalu killing 18 and stranding more than a hundred people on the peak. The quake damaged roads and buildings, including schools and a hospital on Sabah's west coast. Geospatial information also plays a big role to monitor the crustal and surface motion by using Continuously Operating Reference Station (CORS) data.
Response *1	The earthquake that occurred in Ranau on 5 th June 2015 which is near to Mount Kinabalu had caused massive landslides around the mountain and nearby area as well. The data before and after earthquake from CORS stations (MyRTKnet) and 11 GNSS monuments were analysed and has indicated the surface motion on the area is between 36 to 53 cm. The output reflected the benefit to monitor the progress of motion so that the early warning for earthquake can be disseminated to alert the surrounding people.
Effect *2	The data from CORS stations (MyRTKnet) and 11 GNSS monuments has contributed significant information for an early warning system for earthquake in order to expedite the necessary evacuation of people from the hazard area. Also important in the following cases: <ul style="list-style-type: none"> • Overall picture and extent of damage caused • Indication of ground displacement • Planning and distribution of aids
Future *3	To densify the CORS stations (MyRTKnet) throughout the country

Country	Republic of the Philippines
Organization	National Mapping and Resource Information Authority (NAMRIA)
Title	Multi-Hazard Mapping of 28 Priority Provinces and the Greater Metro Manila Area
Outline of the subject natural disaster	<p>The Philippines is consistently visited by tropical disturbances exposing communities to hydrometeorological hazards such as strong winds, storm surge floods/flashfloods, and rain-induced landslides. The country, being located in the Pacific ring of fire, is likewise exposed to seismological hazards such as ground shaking, ground rupture, earthquake-induced landslide, and liquefaction.</p> <p>Aiming to have a safer and disaster resilient communities, multi-hazard mapping of the 28 high risk provinces was implemented to map out areas exposed to natural hazards. The output of this activity will facilitate evidence-based decision-making by local and national authorities.</p>
Response*1	The Agency provided base maps, capacitated LGUs on the use of GIS technology, engaged technical staff in the integration of hazard maps for use by the local government units and national government agencies, and participated in the conduct of information and education campaign (IEC) in the communities primarily exposed to hazards.
Effect *2	<ol style="list-style-type: none"> 1. Raised awareness on the impending hazards confronting the exposed communities in the provinces. 2. Hazard maps are increasingly used in the formulation of land use and physical development plans. 3. Hazard maps used in the formulation of local DRRM plans. 4. Increasing number of LGUs expressing interest in the use of GIS for DRRM
Future *3	

Country	Republic of the Philippines
Organization	National Mapping and Resource Information Authority (NAMRIA)
Title	The Philippine Geoportal
Outline of the subject natural disaster	<p>The Philippine Geoportal is envisioned to provide a comprehensive and consistent geospatial information of the country. It aims to support the geospatial information needs of users in various disciplines by providing access to such information.</p> <p>In the aftermath of Tropical Storm Ketsana (Ondoy) which left Metro Manila and 30% of the provinces in the Philippines under state of calamity, geohazard maps were prepared for the 28 high risk areas in the country. These maps were made accessible to the public through the Philippine Geoportal.</p>
Response *1	Developed in the Philippine Geoportal is a DRRM application which provides a visual appreciation of the hydrometeorological and seismological hazards in the high risk areas of the country.
Effect *2	<ol style="list-style-type: none"> 1. Increased awareness of the public on the hazards faced by the community. 2. Hazard maps are increasingly used in the formulation of land use and physical development plans. 3. Hazard maps used in the formulation of local DRRM plans.
Future *3	

Country	Republic of the Philippines
Organization	National Mapping and Resource Information Authority (NAMRIA)
Title	Recovery and Rehabilitation After Typhoon Haiyan
Outline of the subject natural disaster	The harrowing impact of typhoon Haiyan left about 4 million people homeless. This prompted the Philippine government to ensure the safety of the affected communities, moving them away from the seashore to more suitable relocation sites. In focusing on the recovery and rehabilitation phase, the immediate objective is to identify areas suitable for relocation of those left homeless by the typhoon.
Response	NAMRIA provided technical assistance with the provision of IfSAR data which includes digital terrain models (DTM), digital surface models (DSM), and orthorectified images used in the identification of suitable relocation sites for the affected communities.
Effect	The government was able to advance and fast track the identification of safe and unsafe zones in the Haiyan-affected areas.
Future	

Country	Sri Lanka
Organization	Survey Department
Title	Surveyor General
Outline of the subject natural disaster	Tsunami – 2004 December 26
Response *1	Providing available digital data / maps and technical support to map the disaster prone areas / damages Identify available resources for relief activities
Effect *2	Help quick dispatch of support Relief providing activities Locations for relief camps Medical support availability information
Future *3	Fully pledged database on topographic information / resources available which is shared with stakeholders / allowing them to add / update information Quick mapping with UAV when required Provide accurate digital elevation model