

Sentinel Asia Activities at Principal Data Analysis Node (PDAN) - AIT

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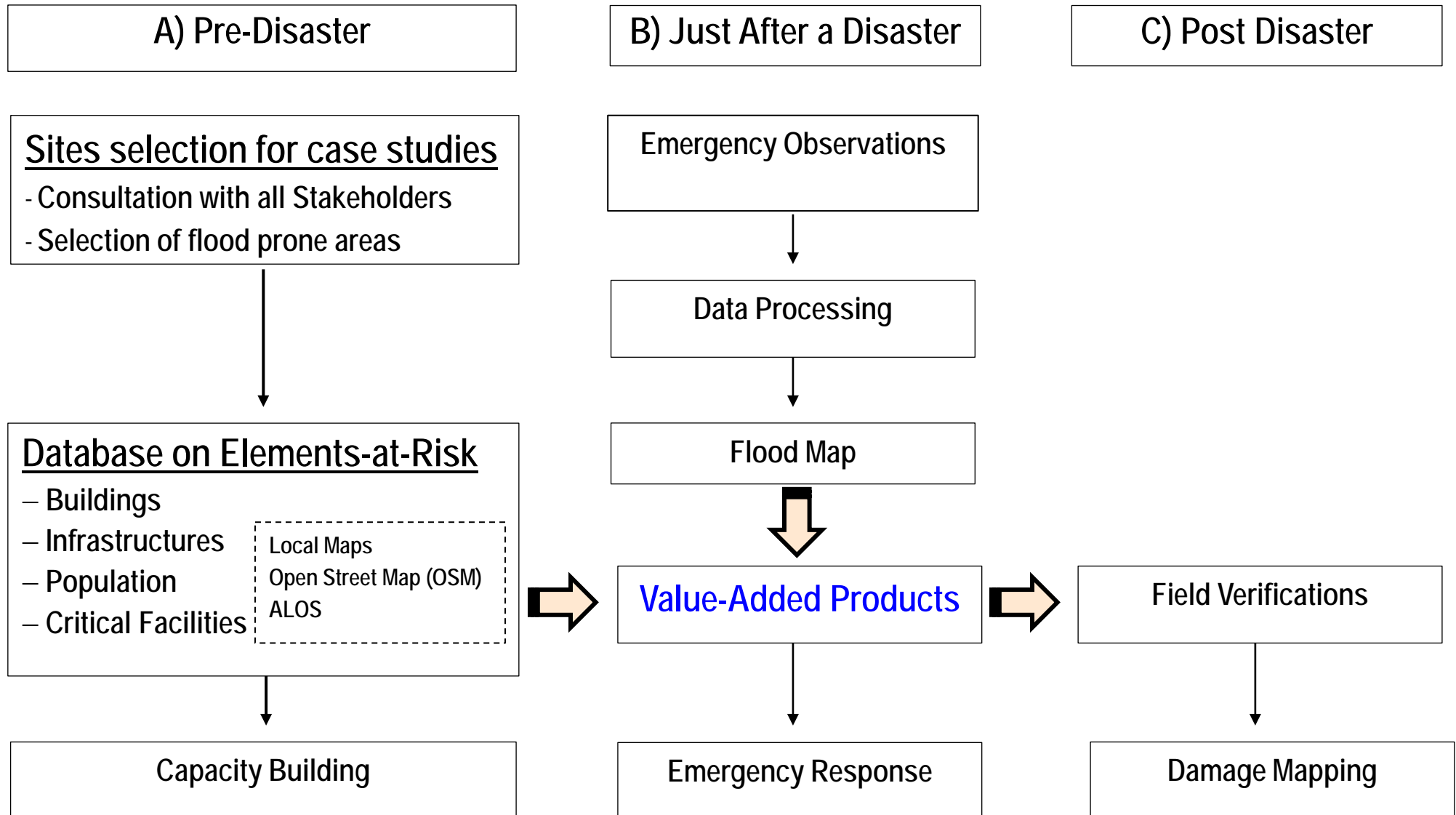
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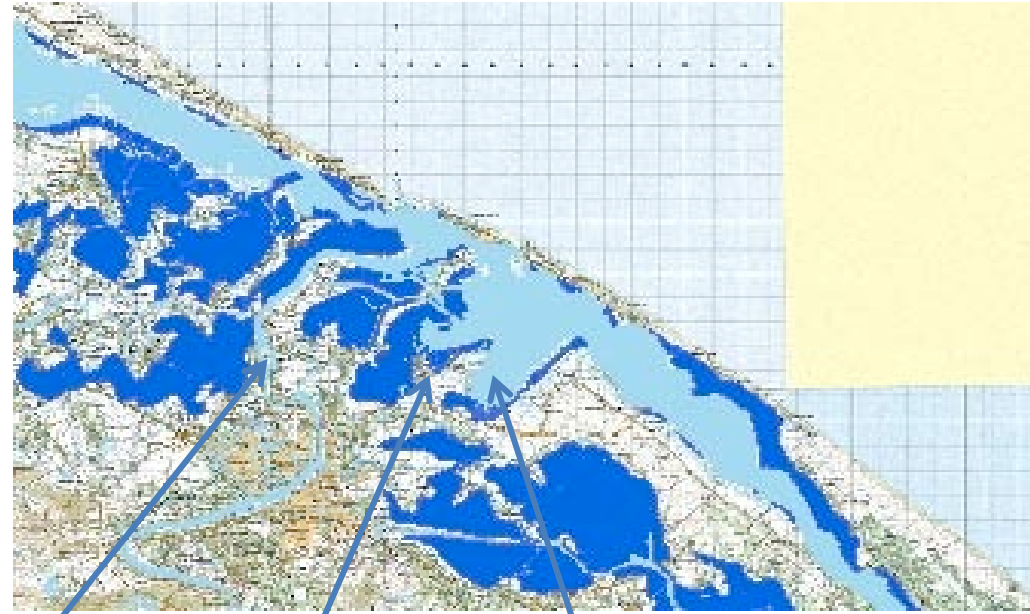
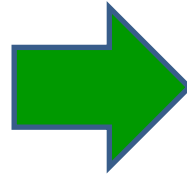
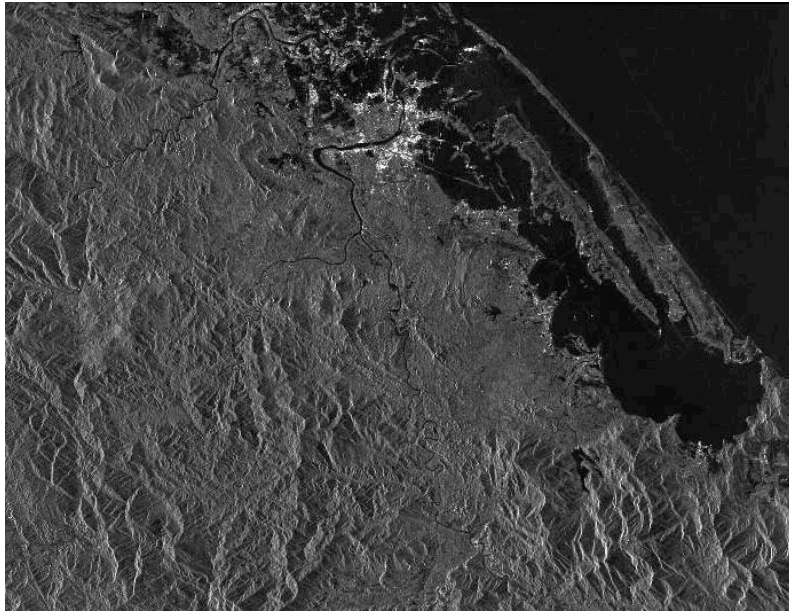
Framework for Sentinel Asia Activities at PDAN-AIT



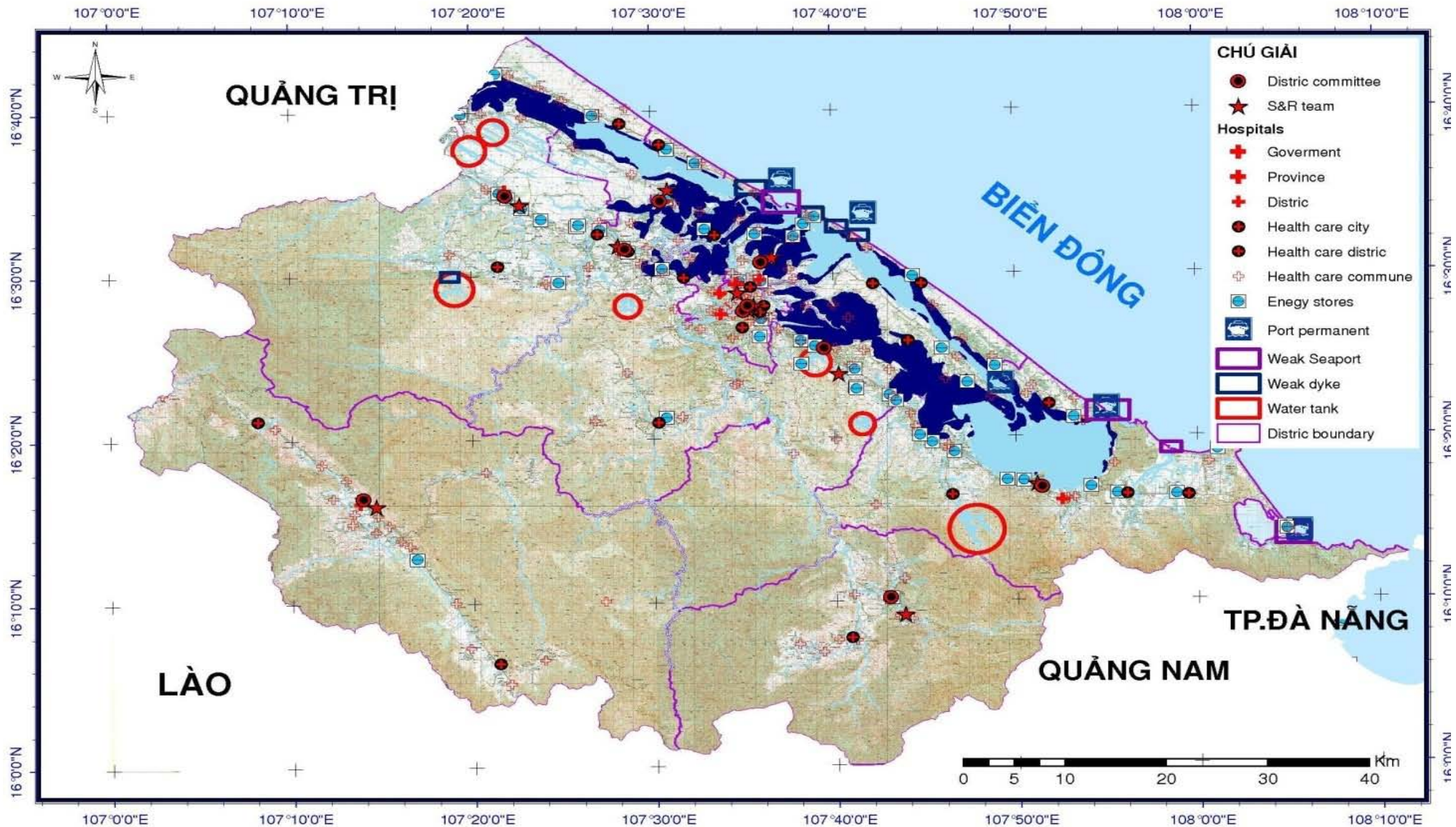
A Case Study - Hue Province, Vietnam



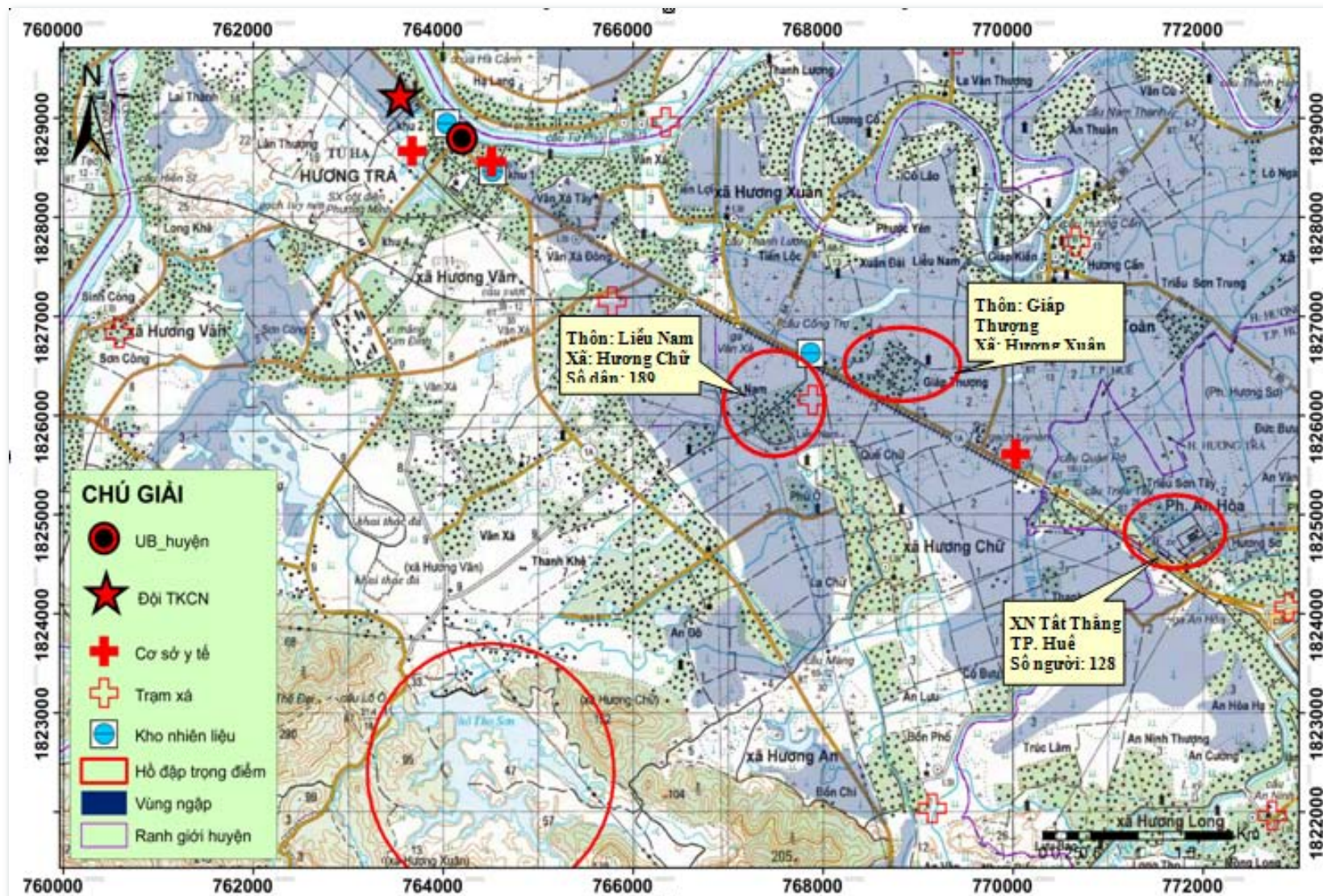
Field Verification in Collaboration with Search and Rescue Technical Center, Vietnam



Value Added Map Products for Disaster Response (a)



Value Added Map Products for Disaster Response (b)



Flood extent and elements-at-risk for S&R team


International Charter Call 498 in Nepal



Introduction to International Charter Call 498

Type of Event	Landslide
Location of Event	Sindhupalchowk District, Nepal
Date of Charter Activation	05 August 2014
Charter Requestor	ICIMOD/Asia Disaster Reduction Center (ADRC)
Project Manager	Asian Institute of Technology (AIT)

ICIMOD -International Centre for Integrated Mountain Development



Home page

Charter Activations

Map of Activations

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INTERNATIONAL CHARTER SPACE AND MAJOR DISASTERS

Landslide in Nepal

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Type of Event	Landslide
Location of Event	Sindhupalchowk District, Nepal
Date of Charter Activation	05 August 2014
Charter Requestor	Asia Disaster Reduction Center (ADRC) on behalf of ICIMOD
Project Management	Asian Institute of Technology (AIT)

Description of the Event

Ten people have been confirmed killed in a landslide in the Sindhupalchowk District of Nepal and over a hundred more are believed lost. The landslide occurred on 02 August 2014 following heavy rain.

Landslides are common in Nepal during this time of year, when rain falls on the nation's mountainous terrain. But this landslide brought debris and rocks down on Mankha village, burying dozens of houses and 159 people. Despite search efforts, by 04 August rescue workers announced that there was no longer any hope of saving the 159 missing victims.

The landslide has blocked part of the Araniko Highway; an important, but notoriously dangerous, route which leads to Nepal's capital city, Kathmandu. Rescue workers have been cutting temporary routes through the debris in order to get supplies through to the victims of the landslide.

Of great concern is the landslide's impact on Sunkoshi River. Debris from the landslide also blocked part of this river and formed a growing lake. It was feared that the lake would burst through the debris and the excess water flood villages along the river and even into neighbouring India. 100,000 people were evacuated in India due to concerns over the potential flood, but in Nepal the army has carefully been clearing debris on the river and slowly letting the water through so that it does not flood. While there are still concerns over potential flooding, it has been reported that the water level is dropping.

Five hundred tourists were additionally left stranded by the landslide. Hiking in the mountains when the landslide occurred, their guides brought the tourists safely to Tatopani town where they were later rescued on 04 August.

Emergency workers and soldiers are working together to treat the wounded in Sindhupalchowk district, to salvage what remains from the landslide, and to recover the bodies of its victims.



5. 8. 2014

First Few Images

- One day after the activation

- ✓ TerraSAR-x 3m SAR data
- ✓ Radasat-2 3m SAR data



- SAR data advantage

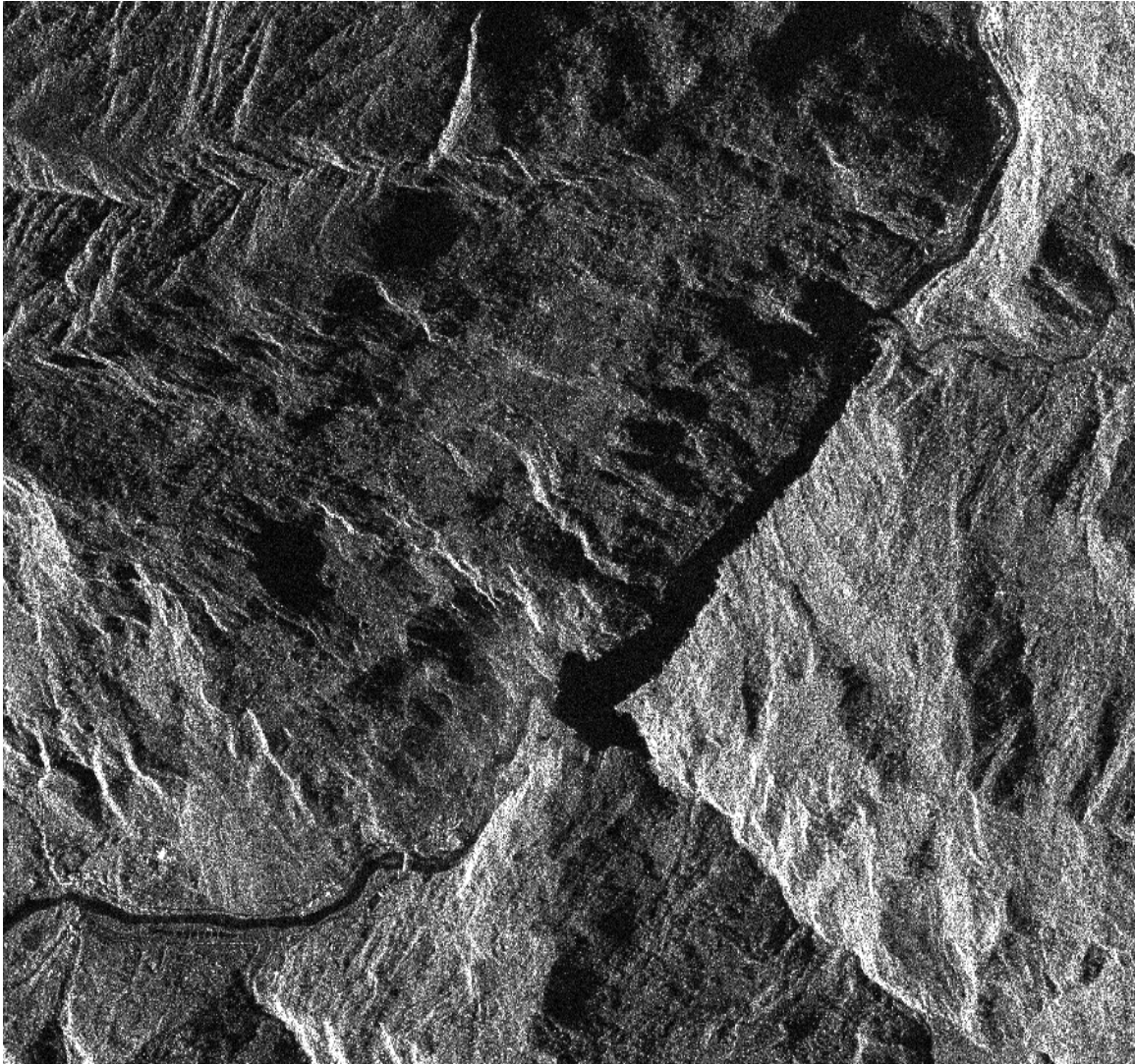
- ✓ Images are not effected by cloud cover
- ✓ Ideal for flood mapping/Observation in the tropical areas

- SAR data disadvantages

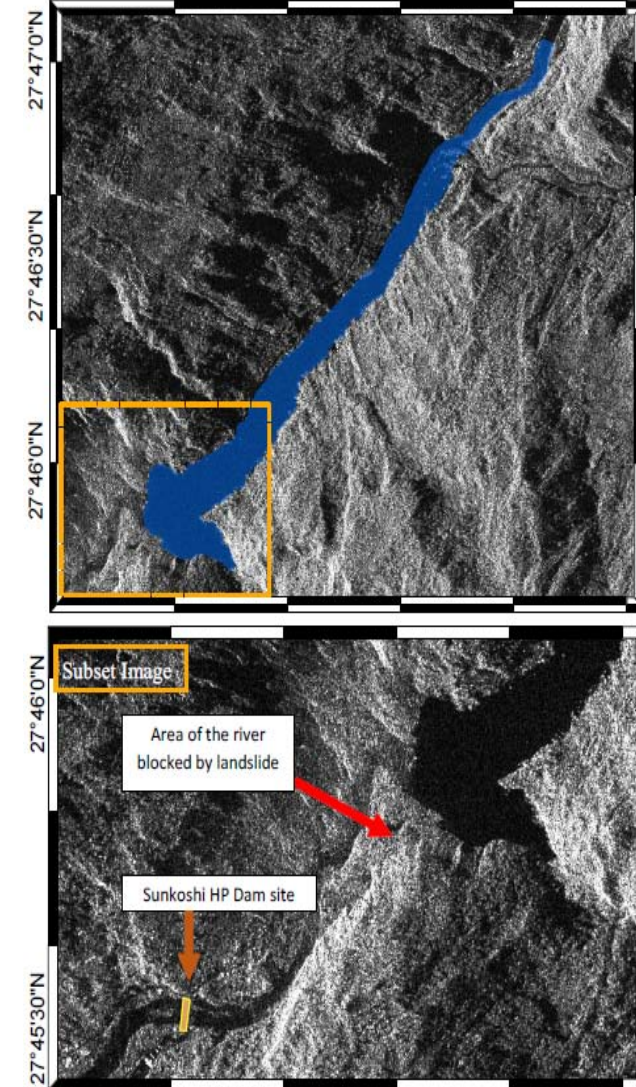
- ✓ Difficult to identify landside areas.
- ✓ Image are distorted in mountain areas.



Radasat-2 Post-Disaster Image



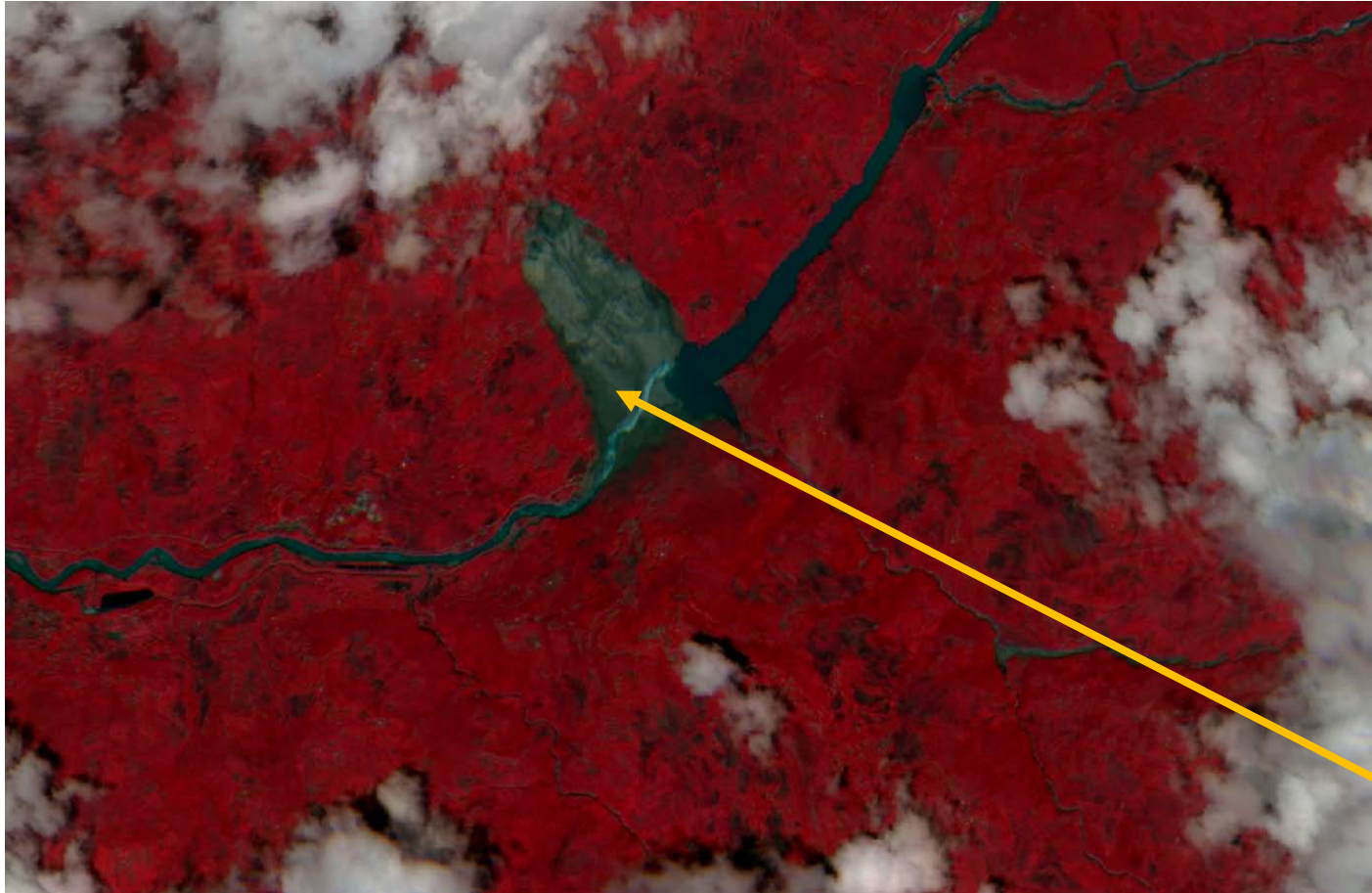
Radasat-2 3m resolution



First Optical data

- WorldView2 pre-event images 13-feb-2013
 - ✓ 2m multispectral (Red,Green,Blue,NIR)
- ALOS AVNIR pre-event images 13-feb-2013
 - ✓ 10m multispectral (Red,Green,Blue,NIR)
- Resourcesat-2 – 06-Aug-2014
 - ✓ 5.8m multispectral (Red,Green,NIR)
- PLEIADES -8 Aug 2014
 - ✓ 2.8 m multispectral (Red,Green,Blue,NIR) pan sharpened to 0.7m

False Colour Composite from Resoucesat-2 (5.8m)



**Landslide
area**

Comparison of Pre and Post Disaster Images

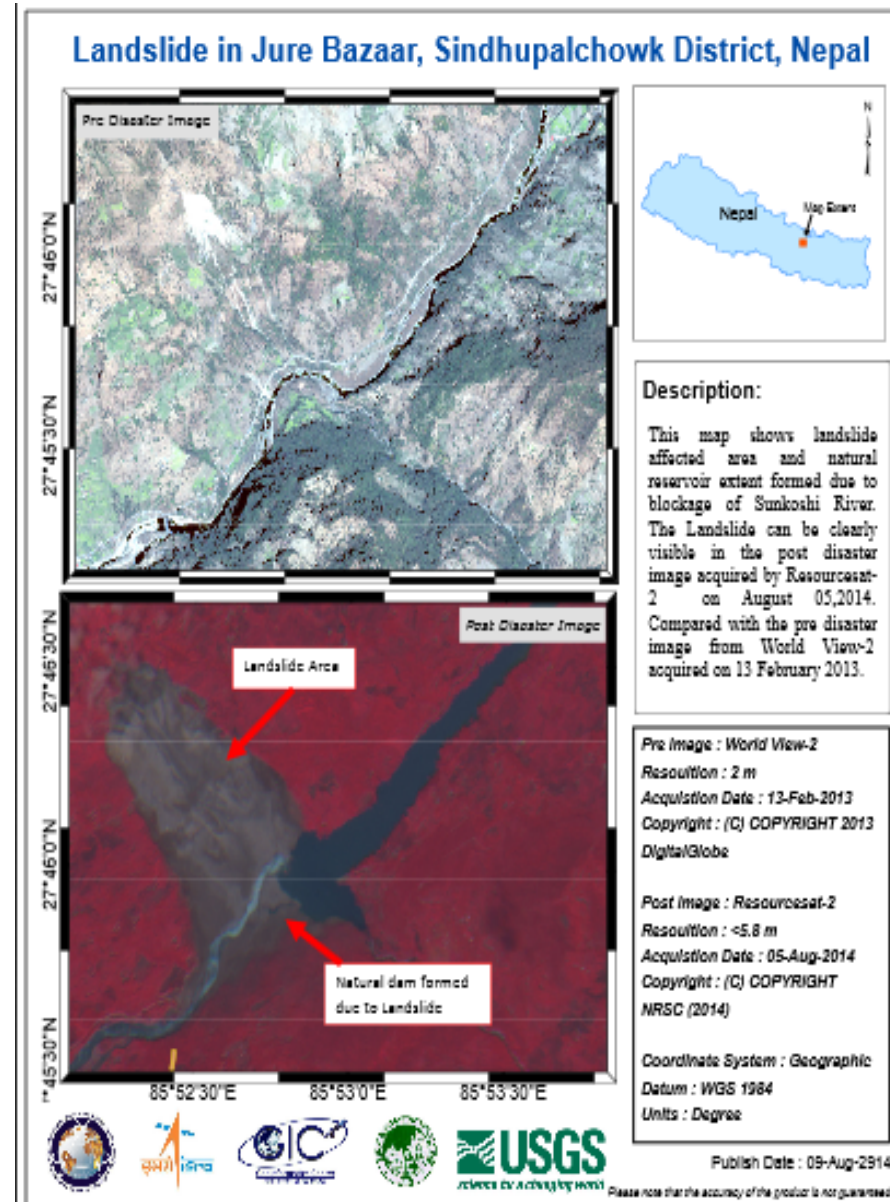
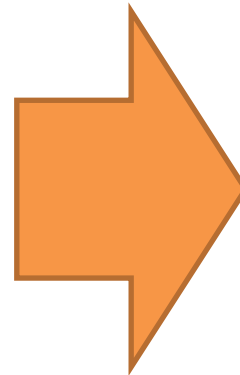
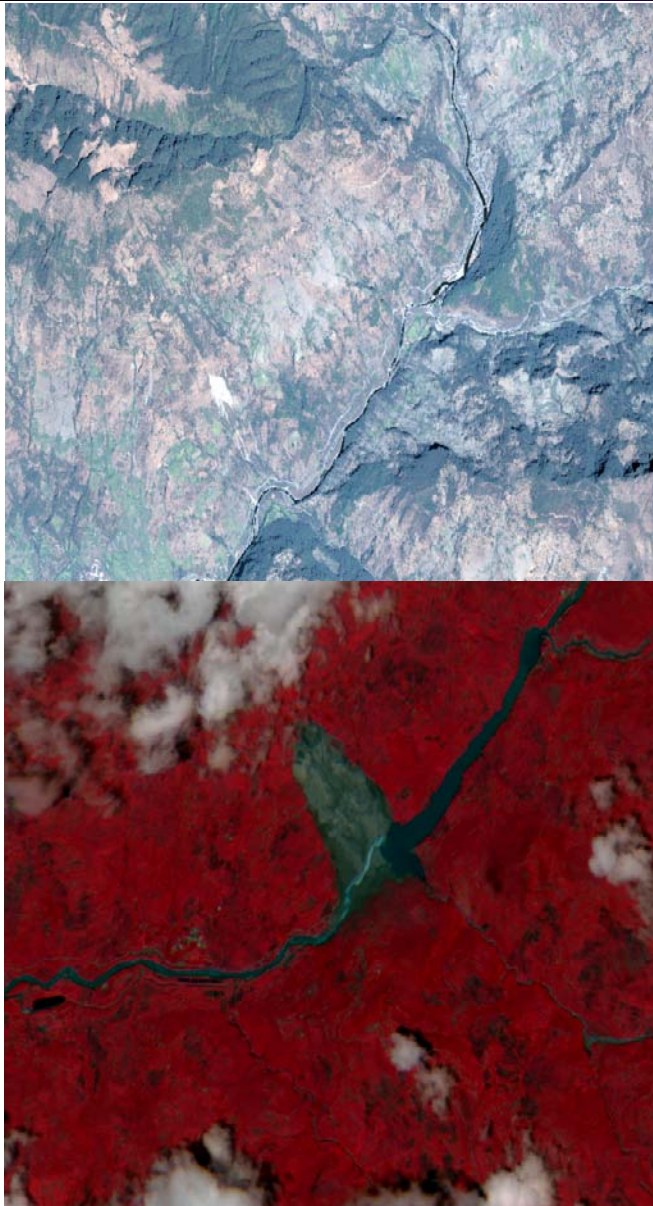
**World View 2
2m true color,
pre disaster
Image**



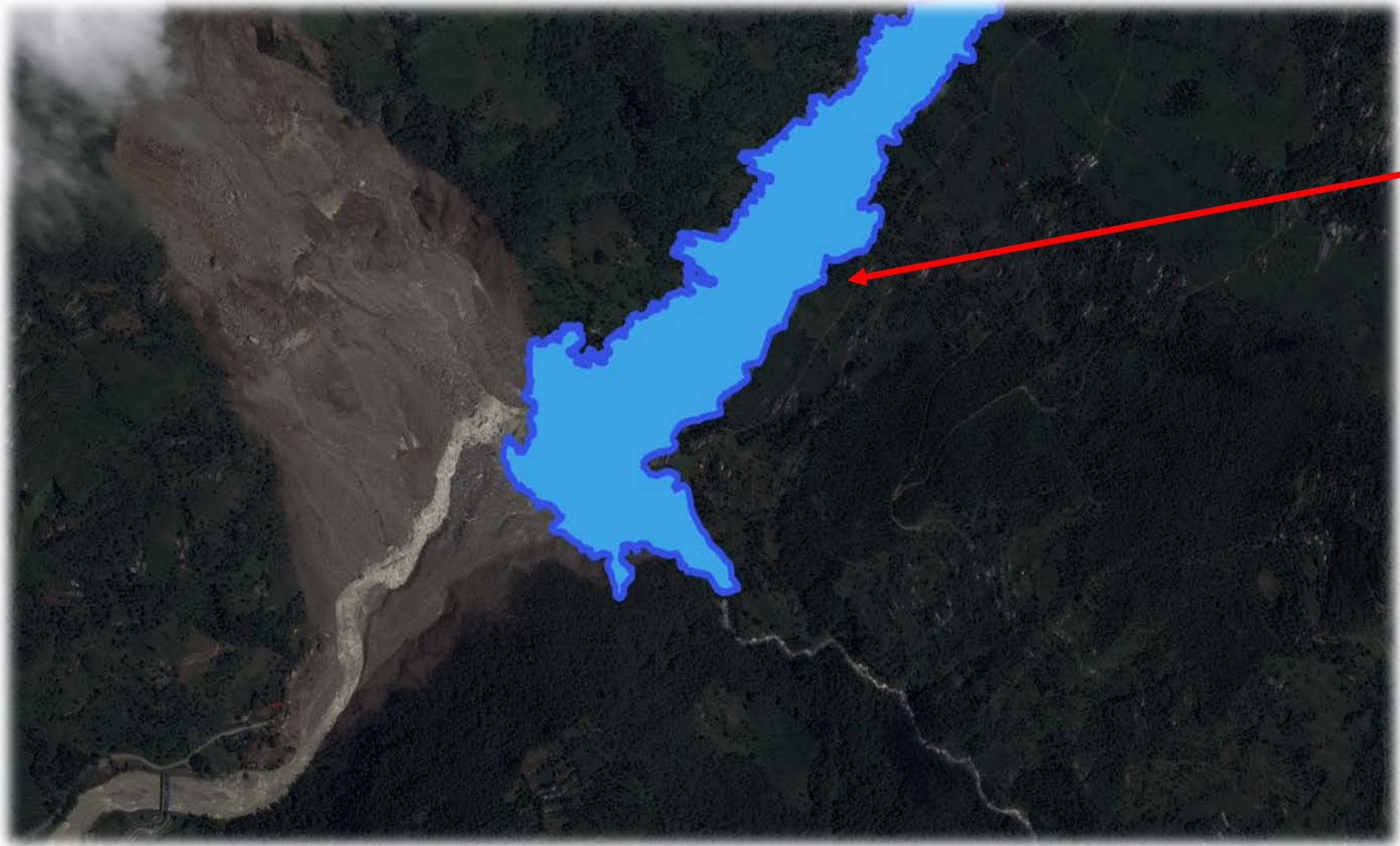
**Resoucesat-2
5.8m false color,
Post diaster**



Value Added Products



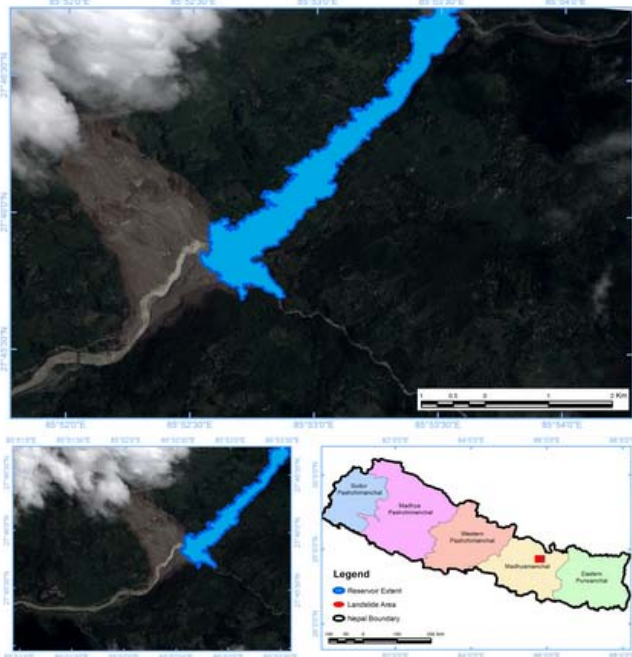
Flooded area identification using PLEIADES -8 Aug 2014



**Flooded
Area**

Published Value-Added Products for Call 498

Landslide in Jure Bazaar - Sindhupalchowk District NEPAL



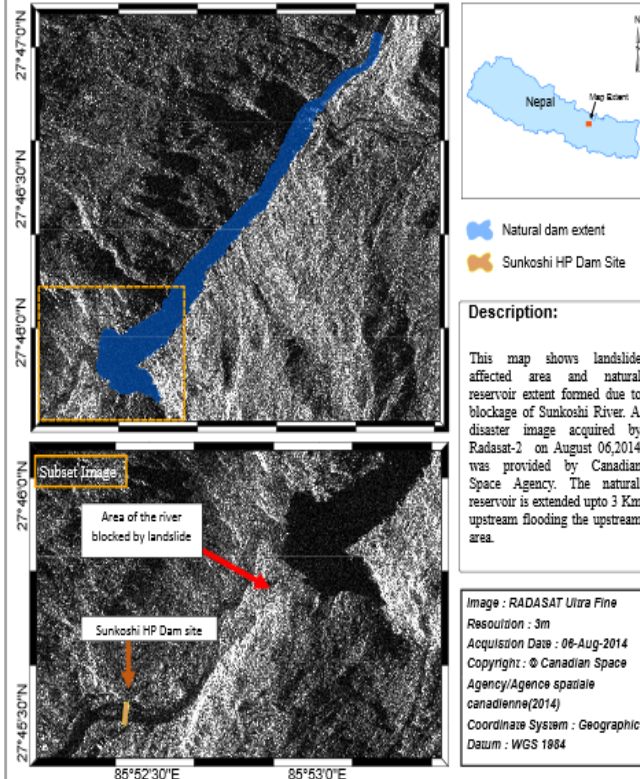
Ten people have been confirmed killed in a landslide in the Sindhupalchowk District of Nepal and over a hundred more are believed lost. The landslide occurred on 02 August 2014 following heavy rain. Landslides are common in Nepal during this time of year, when rain falls on the nation's mountainous terrain. But this landslide brought debris and rocks down on Mankha village, burying dozens of houses and 159 people.

Image : PLEIADES
Resolution : 2.8m
Acquisition Date : 09-Aug-2014
Copyright : © CNES 2014
Coordinate System : Geographic
Datum : WGS 1984
Units : Degree

Please note that the accuracy of the product is not guaranteed

Publish Date : 09-Aug-2014

Landslide in Jure Bazaar, Sindhupalchowk District, Nepal



Description:

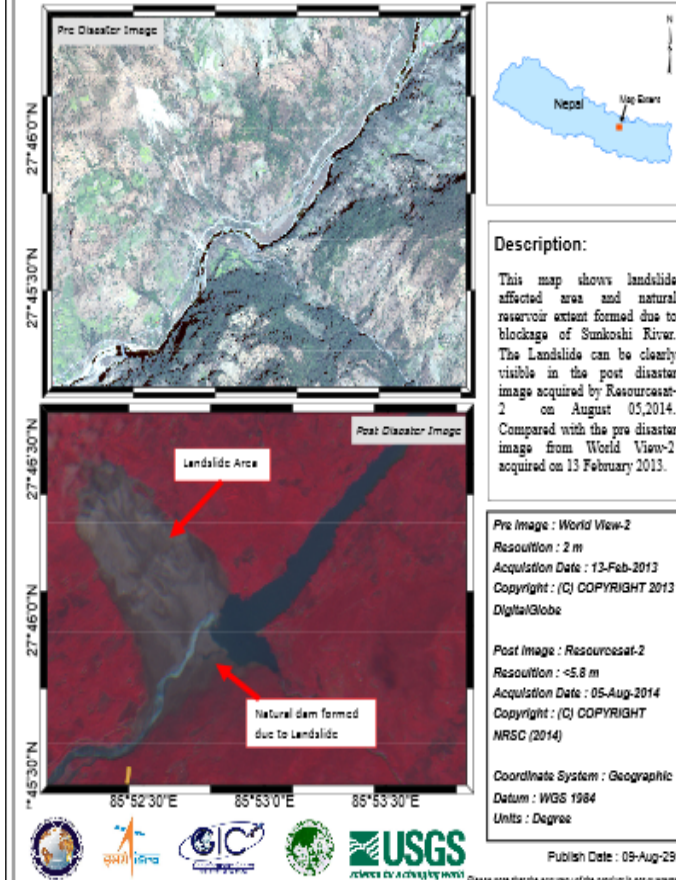
This map shows landslide affected area and natural reservoir extent formed due to blockage of Sunkoshi River. A disaster image acquired by Radasat-2 on August 06, 2014 was provided by Canadian Space Agency. The natural reservoir is extended upto 3 Km upstream flooding the upstream area.

Image : RADASAT Ultra Fine
Resolution : 3m
Acquisition Date : 06-Aug-2014
Copyright : © Canadian Space Agency/Agence spatiale canadienne(2014)
Coordinate System : Geographic
Datum : WGS 1984

Publish Date : 08-Aug-2014

Please note that the accuracy of the product is not guaranteed

Landslide in Jure Bazaar, Sindhupalchowk District, Nepal



Description:

This map shows landslide affected area and natural reservoir extent formed due to blockage of Sunkoshi River. The Landslide can be clearly visible in the post disaster image acquired by Resourcesat-2 on August 05, 2014. Compared with the pre disaster image from World View-2 acquired on 13 February 2013.

Pre Image : World View-2
Resolution : 2 m
Acquisition Date : 13-Feb-2013
Copyright : (C) COPYRIGHT 2013 DigitalGlobe

Post Image : Resourcesat-2
Resolution : <5.8 m
Acquisition Date : 05-Aug-2014
Copyright : (C) COPYRIGHT NRSC (2014)

Coordinate System : Geographic
Datum : WGS 1984
Units : Degree

Publish Date : 09-Aug-2014

Please note that the accuracy of the product is not guaranteed

Call 488 products in Tajikistan (April 2014)

Landslide and Mudflow in Khatlon Province of Tajikistan



Image : Pléiades (PA+XS Ortho)
Resolution : 2.5m multi-spec image
pansharpened to 0.5m
Acquisition Date : 18-Apr-2010
Copyright : © CNES 2014
Distribution : Pléiades Image S.A.,
all rights reserved

Coordinate System : Geographic
Datum : WGS 84
Units : Degree

Field Photo
Credit : Committee of Emergency
Situations and Civil Defense of
Tajikistan (CESCD)

This map shows landslide and mudflow affected areas in the Khatlon province of Tajikistan. Buildings affected by the disaster were identified in the satellite images acquired by Pléiades on 18th April, 2014 and verified by CESCD of Tajikistan in collaboration with Geoinformatics Center, AIT.



Disaster coverage by the
International Charter 'Space and
Major Disasters'. For more
information on the Charter, which
is about assisting the disaster
relief organizations with multi-
satellite data and information, visit
www.disasterscharter.org



Landslide and Mudflow in Khatlon Province of Tajikistan



Image : Pléiades (PA+XS Ortho)
Resolution : 2.5m multi-spec image
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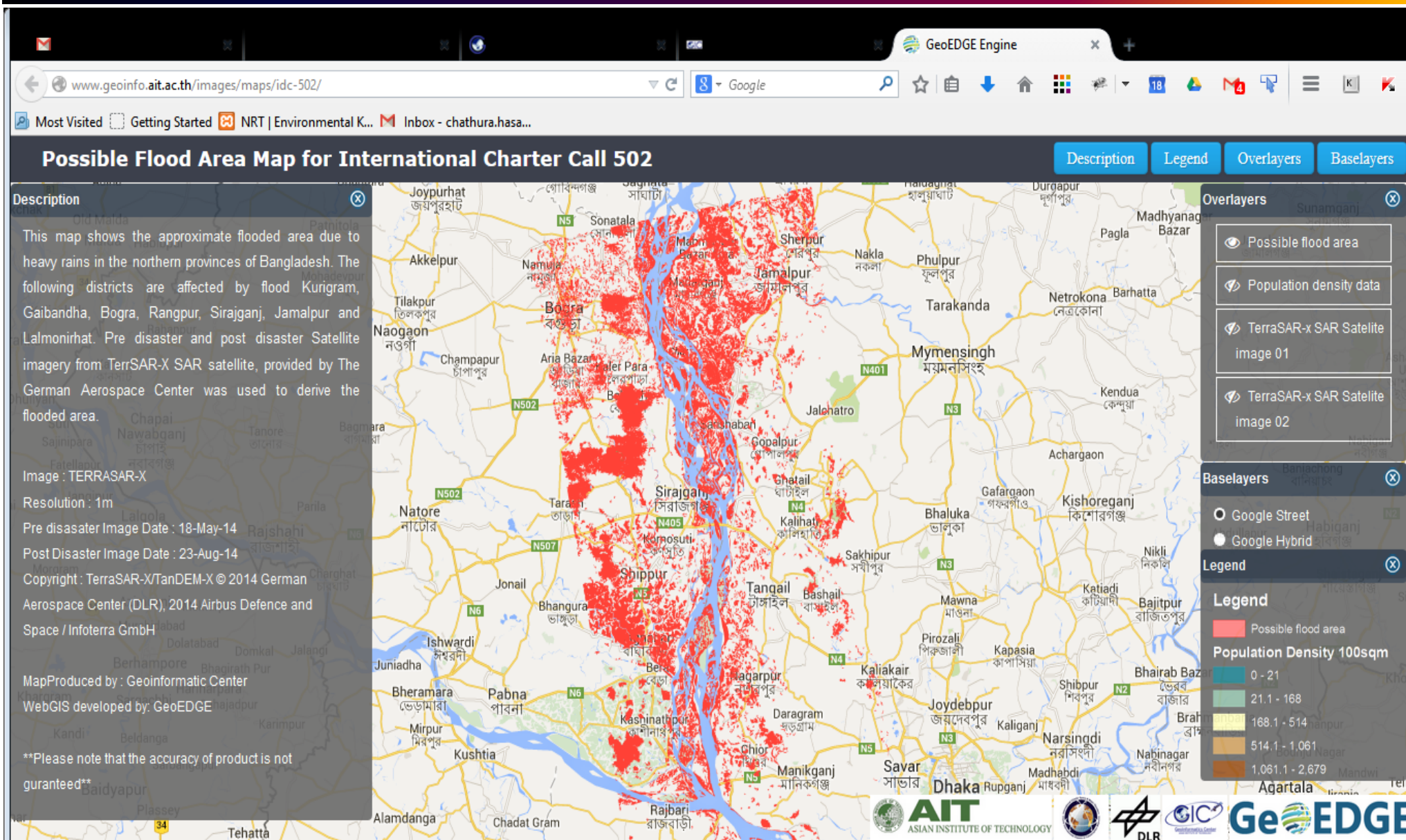
Coordinate System : Geographic
Datum : WGS 84
Units : Degree

This map shows landslide and mudflow affected areas in the Khatlon province of Tajikistan. A disaster image acquired by Pléiades satellite on 18th April, 2014 was provided by CNES. The image subsets (1:2000) shows that a significant number of buildings were affected by landslide and mudflow.



Publish Date : 20-Apr-2014
Please note that the accuracy of the product is not guaranteed.

Interactive Map for Bangladesh Flood (Charter Call 502, August 2014)



Development of a New Website with Interactive Maps

- Easy interactive maps of the value added products.
- Archive or resent activations .
- Forum of Sentinel Asia to support members to discuss problems.
- Information for participating in Sentinel Asia.

The screenshot displays the Sentinel Asia website interface. At the top, the logo "Sentinel Asia South Asia GIS Services" is visible alongside a search bar and navigation links: "Recent Activations", "Disaster Support", "Members", "How To Activate", and "Contact". The main content area features a world map with a weather popup for "India, New Delhi" showing a clear sky, 48°F / 9°C, 42% humidity, and a 3-day forecast. Below the map, the "Recent Activations" section highlights a "Land Slide in Sri Lanka" on Thursday, 30 October 2014, in the Haputale area. The text describes a landslide caused by monsoon rains on 29 October 2014, resulting in over 100 deaths and significant property damage. A "Read more..." link is provided. On the right side, there is an "Archives" section with a "FORUM" icon and a list of months from August 2014 to December 2012. At the bottom right, a grid of tags includes "california", "canada", "canon", "cat", "chicago", "christmas", "mars", "church", "city", "clouds", "color", "concert", "dance", "day", "dog", and "travels".

Conclusions

- ✓ Satellite data are useful for mapping the extent of a disaster and emergency responses.
- ✓ However, success of mapping depends on type of disasters, locations, weather conditions etc.
- ✓ Even if we successfully map the extent and damage caused by a disaster, but detail information at local level is essential for a success.
- ✓ As P-DAN, we would like to invite all the Sentinel Asia stakeholders to have close collaborations for making better products.

Thank you for your kind attention

