

6th Joint Project Team Meeting of Sentinel Asia STEP3 (JPTM2018Awaji)

Presentation on good practices

# Disaster Risk Reduction in the HKH region

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International Centre for Integrated Mountain Development

Kathmandu, Nepal

ICIMOD



Sentinel Asia



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# Good practices! Disaster Risk Reduction in the HKH region

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# India's most flood-prone state Bihar aided by new satellite mapping

Manipadma Jena

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## India - PALSAR remote sensing enables accurate flood-mapping of Bihar State

SOURCE(S): FLOODLIST

By Ed Hill

As a result of increasing conversion of forests to agricultural and pastoral land in the middle hills of Nepal, run-off into the rivers has increased, especially into the Koshi, which flows through a narrow gorge as it enters Bihar state. This, along with increasing settlement in the floodplains of the rivers, has significantly increased the frequency and severity of flooding in Bihar, which accounts for almost half of India's average annual flood losses.

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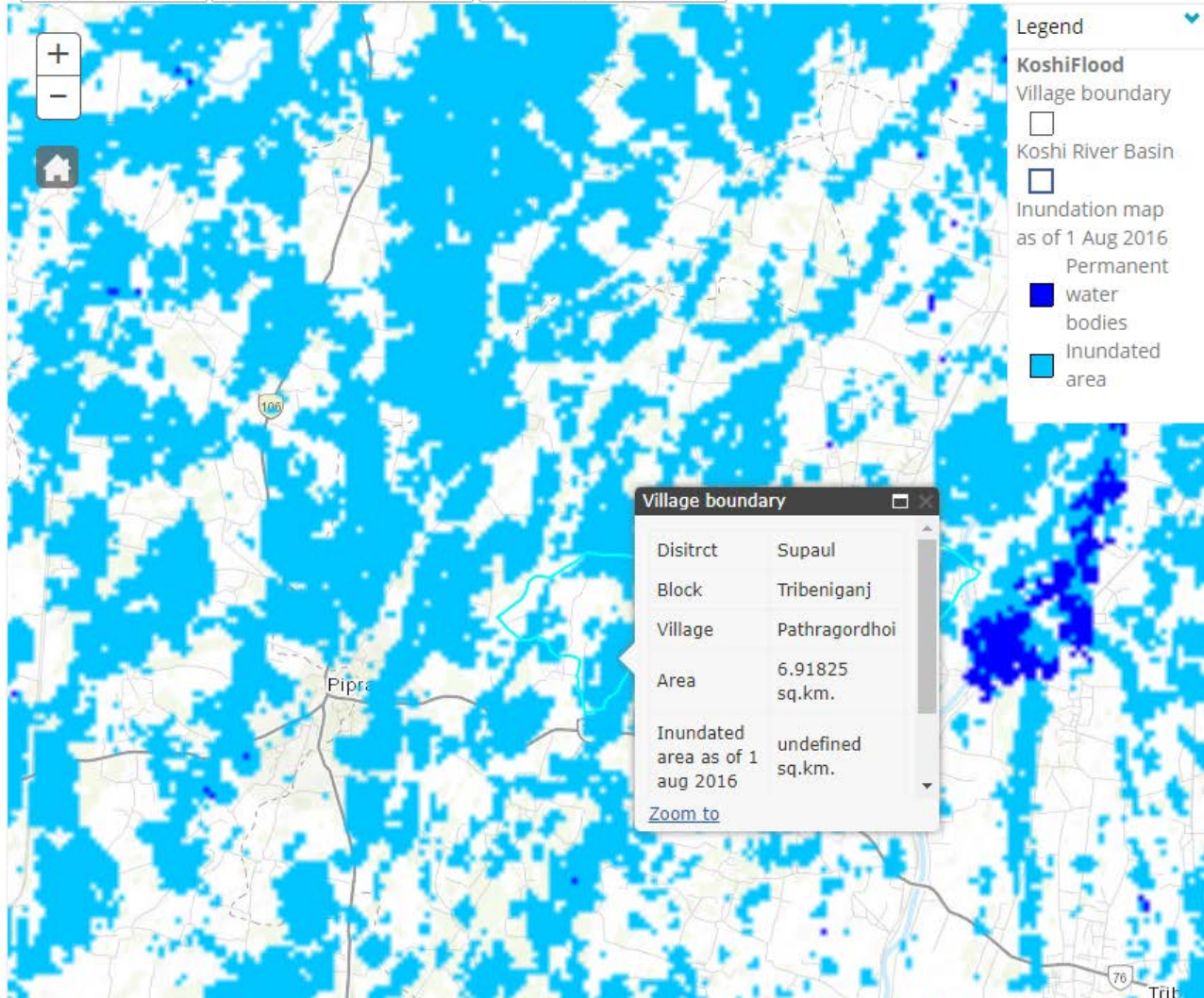
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India's Most Flood-Prone State Aided by New Satellite Mapping  
New Delhi, India August 31, 2016  
September 30, 2016  
north-eastern state of Bihar is the  
disaster management author  
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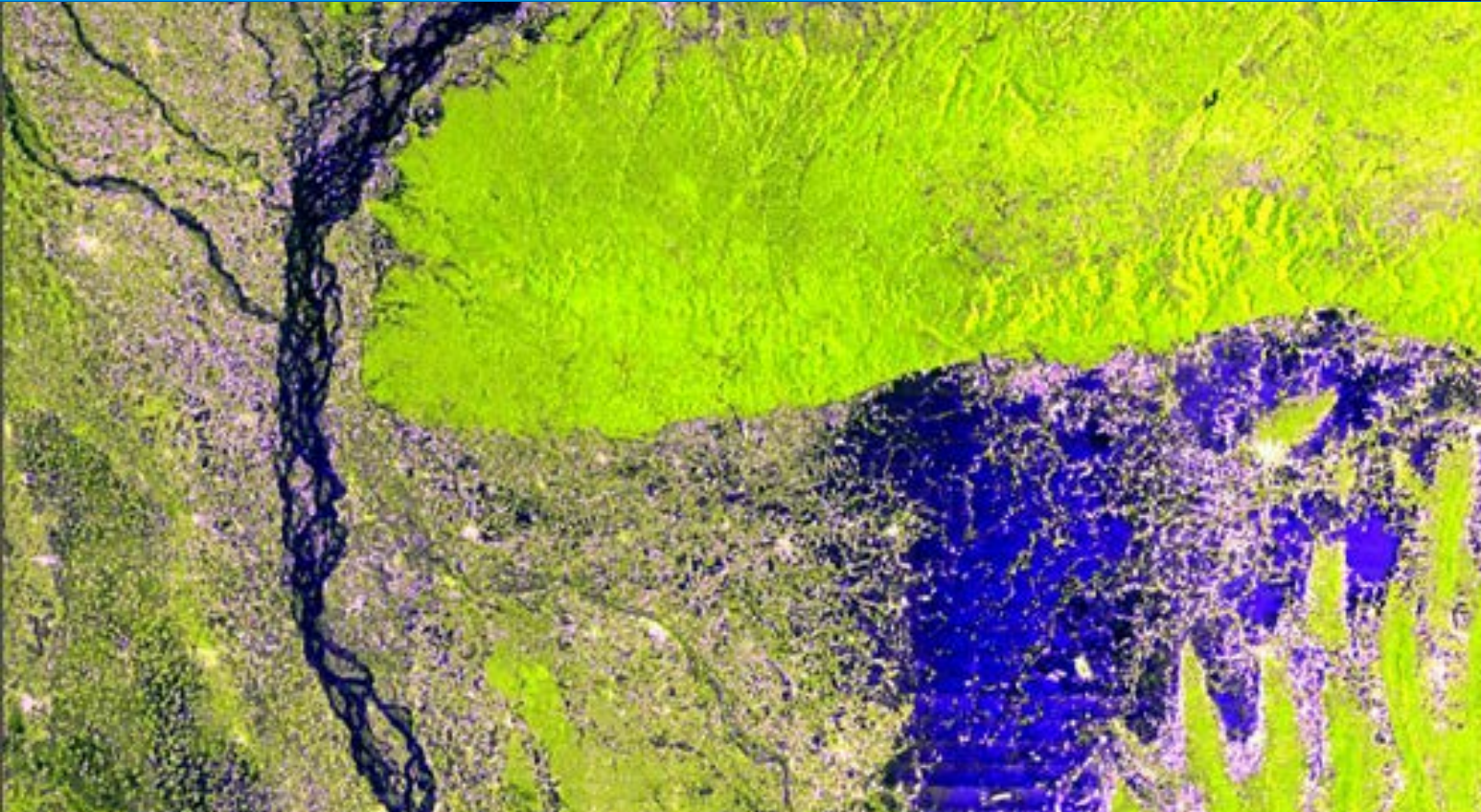
- [Koshi Basin Programme Home](#)
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- [Water resources](#)
- [Land resources](#)
- [Cryosphere](#)
- [Vulnerability analysis](#)
- Flood Inundation Map of Koshi Basin (2016)**
- Inundation map as of 1 August 2016
- Inundation map as of 19 July 2016
- Village boundary
- Koshi basin ⊟
- Sub-basin ⊟
- Drainage Network ⊟
- Land cover (2010)
- [Climate Change Impact](#)
- [Koshi Flood Outlook](#)
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## Flood Inundation Map of Koshi Basin (2016)

Select district ▾ | 
 Please select district first ▾ | 
 Please select block first ▾

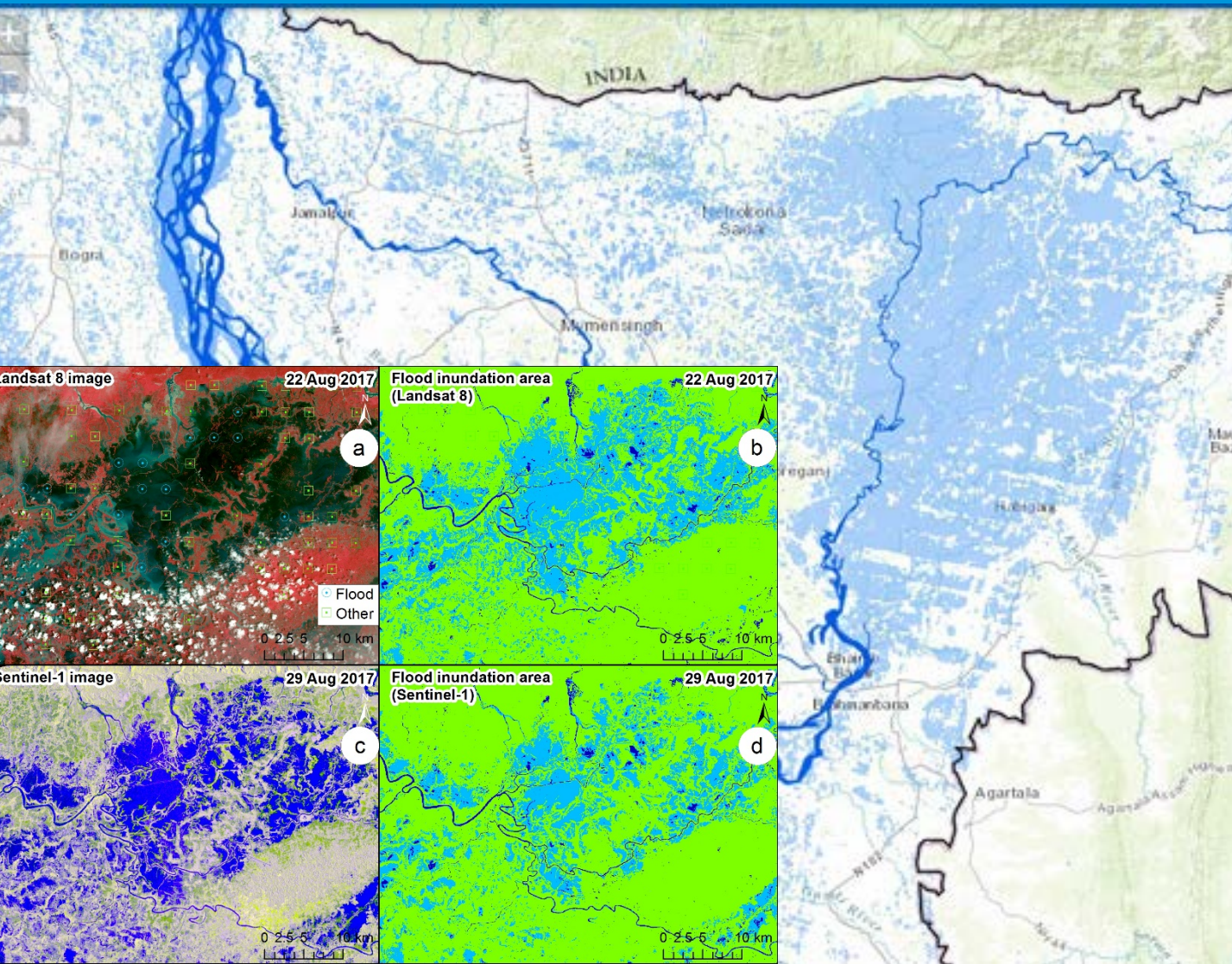


# Mapping Floods in Bangladesh

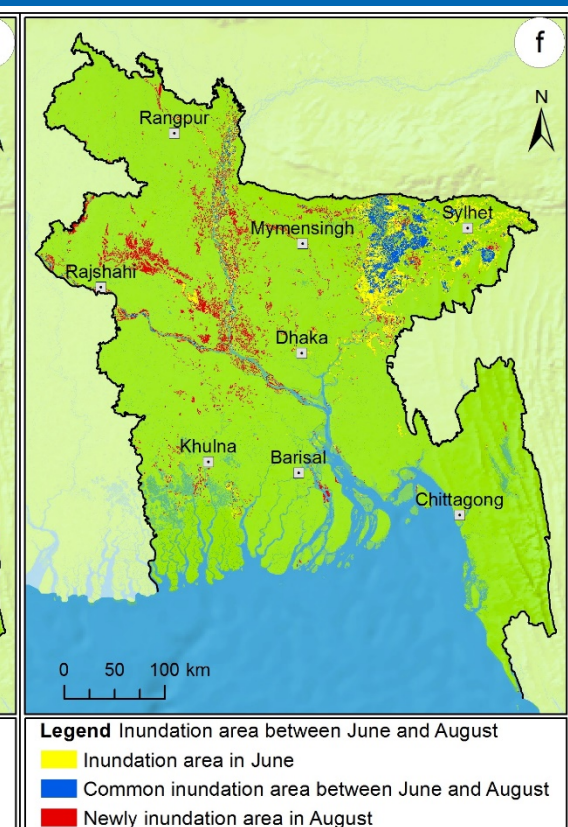
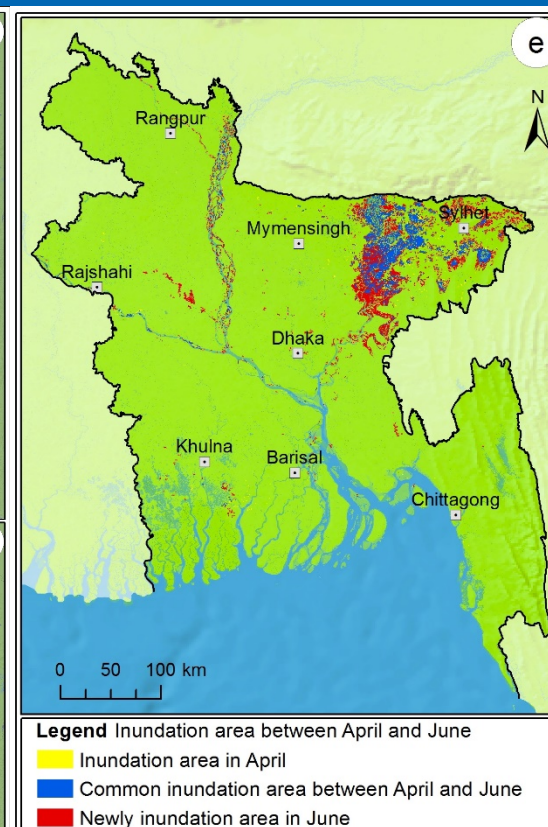
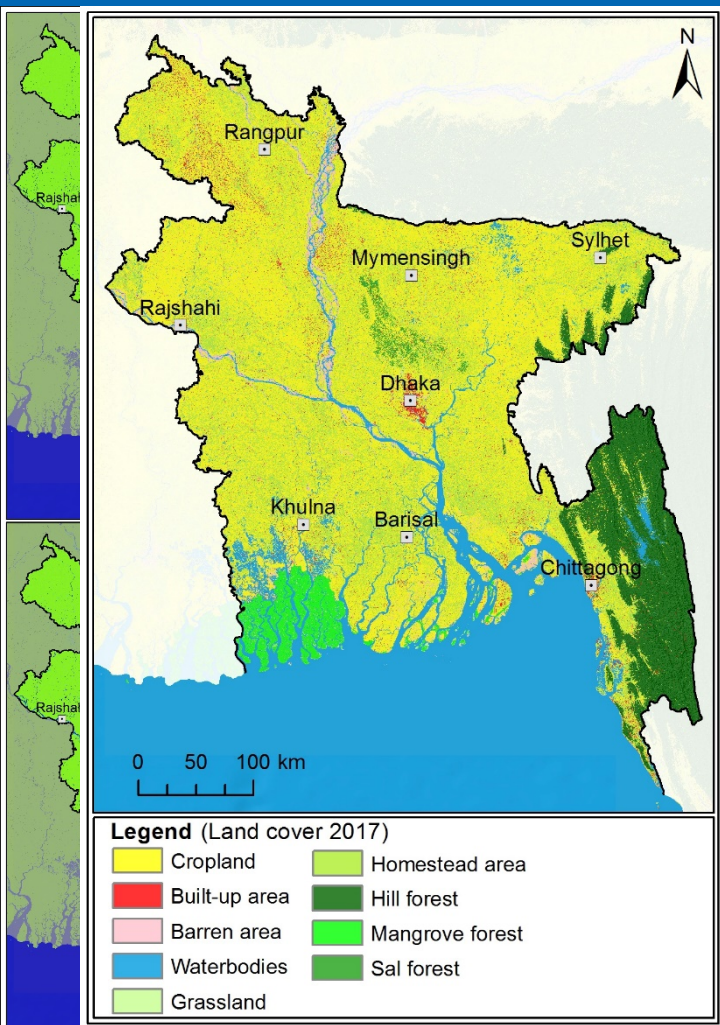


**An ALOS PALSAR 2 image shows overall inundated areas in Bangladesh. The deep blue colour indicates inundated areas, while green and yellow coloured areas mark areas above water level.**

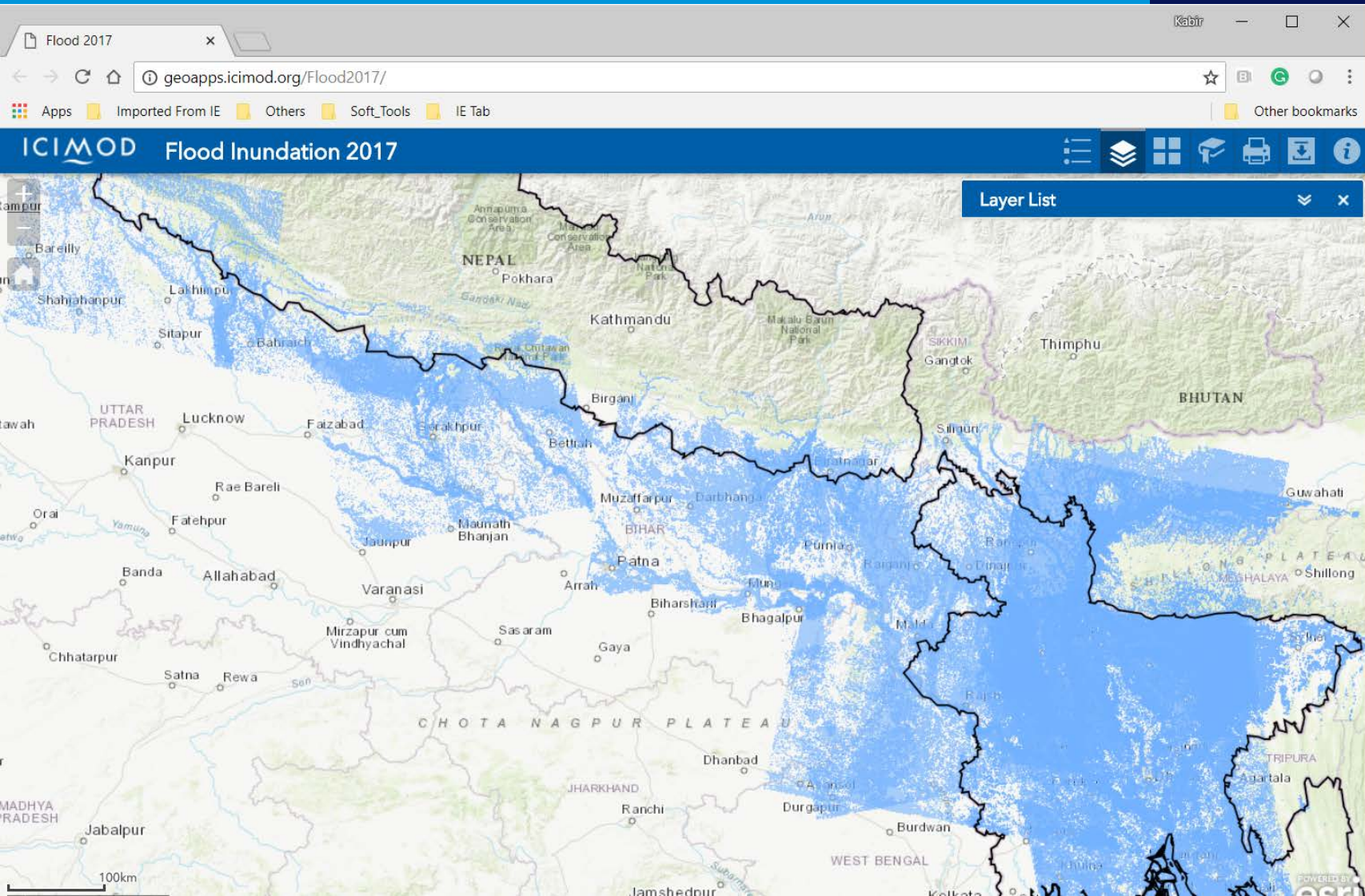
# Mapping Floods in Bangladesh



# Mapping Floods in Bangladesh



# Mapping Floods in HKH Region







# NEPAL

Flood | August 2017

## VERSION 1

Date released: 21 August 2017

72hour assessment

Contents may change based on updated information

### Food security impact of the flood:

Nepal was hit by the worst rains in 15 years that started on 11 August 2017. It caused severe flooding in the Terai with huge impacts on livelihoods, food security and nutrition due to losses in lives, assets, housing, infrastructure including water and sanitation, food stocks and agricultural production. The full impact is still unknown, but the NeKSAP estimates that more than 0.94 million people in impacted areas are currently food insecure. Almost 300,000 people or 58,300 households would need food assistance on a priority basis. Based on evidence from previous flood disasters, the risk of acute malnutrition will be hugely magnified. Prevention is therefore key. Within the identified priority one areas, the number of children under the age of five is approximately 190,000 and there are 84,000 pregnant or lactating women.

Six districts were most affected including Saptari, Siraha, Mahottari, Rautahat, Banke and Bardia. This report will provide...



## Methodology

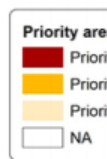
### Estimation of food insecure populations

Satellite data of inundated surface area was overlaid with settlement data to derive an initial estimate of the affected population. This estimate was adjusted based on information received from direct field reports. Subsequently, the estimates of affected population was overlaid with ilaka level small area estimates of undernutrition (wasting) to derive a prioritization for each flood impacted VDC. As a last step, small area estimates of food poverty were used to calculate the number of food insecure people. Current estimates are based on the information available from 16 districts of Eastern, Central, Western and Mid Western Terai.

### Acknowledgement

UK aid funding from the UK government has remained critical for backstopping the capacity of Nepal Food Security Monitoring system (NeKSAP). Capacity of NeKSAP was utilized to produce this 72hour assessment. NeKSAP is operated by the Ministry of Agricultural Development (MoAD) with the strategic guidance of the National Planning Commission (NPC). WFP provides technical assistance.

ICIMOD provided Sentinel-1 radar image, which was used to estimate inundation surface in the flood affected areas across the Terai districts.



Priority

# April 2015 Nepal earthquake

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## April 2015 Nepal earthquake

The screenshot shows a web browser window with the URL `geoapps.icimod.org/ndriip/`. The page title is "Nepal Earthquake 2015" and the subtitle is "Disaster Recovery and Reconstruction Information Platform". The main content area features a grid of eight profile cards, each with a representative image and a "View" button:

- Country Profile**: Includes a map of Nepal with earthquake epicenters marked in red and orange.
- District Profile**: Includes a map of Nepal with district boundaries and earthquake epicenters.
- Municipality Profile**: Includes a photograph of a street in a city.
- VDC Profile**: Includes a photograph of a rural village with traditional houses.
- Health**: Includes a photograph of an ambulance.
- Education**: Includes a photograph of children in a classroom.
- Heritage**: Includes a photograph of a traditional Nepalese pagoda.
- Landslide Assesment**: Includes a photograph of a landslide on a hillside.

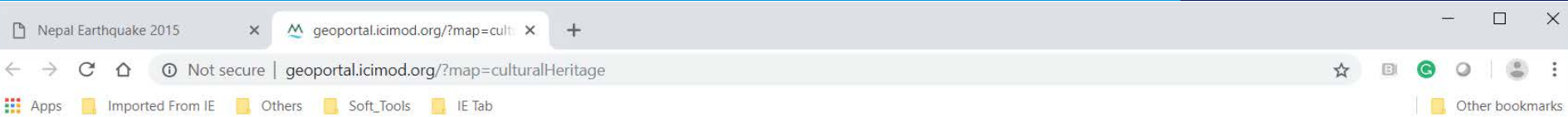
Below the grid, there are four more profile cards partially visible, including one for a dam and another for a religious figure.

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## April 2015 Nepal earthquake

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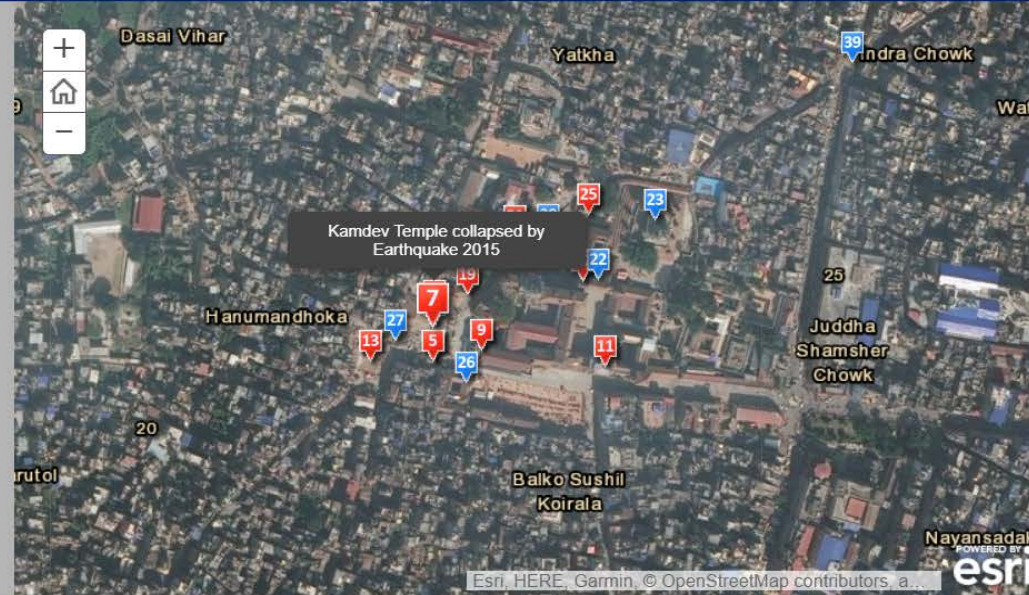
Mountain  
GeoPortal

### Cultural Heritage Sites of Kathmandu Valley

Story Map showing Cultural Heritage sites of Kathmandu Valley

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Story maps



Kamdev Temple collapsed by Earthquake 2015



Gaddi Durbar(Palace)



Gaddi Durbar After Earthquake 2015



Nau Talle Durbar



Nau Talle Durbar partially damaged by Earthquake



Kasthamandap



Kasthamandap collapsed by Earthquake 2015



Kathmandu Durbar Square

# Good practices!

# April 2015 Nepal earthquake

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Nepal Earthquake 2015

Not secure | geoapps.icimod.org/ndrrip/

Apps Imported From IE Others Soft\_Tools IE Tab

Other bookmarks

## Contributors

### National Partners



- Department of Mines & Geology
- Department of Surveying
- Department of Hydrology and Meteorology
- Department of Water Induced Disaster Prevention



Kathmandu Metropolitan City



Kathmandu University



Nepal GIS Society

### Regional Partners



### International Partners



# Collaboration between JAXA and ICIMOD

- ICIMOD received **Sentinel Asia Operational Training in 2007** held in Bangkok. The training content included how to make Emergency Operation Request (EOR) to Asian Disaster Reduction Center (ADRC) during disaster.
- ICIMOD made **first EOR during Koshi flooding** due to break of embankment in 2008.
- ICIMOD became **Data Analysis Node (DAN)** of Sentinel Asia in 2010.
- **WINDS** (Wide-band Interworking Engineering Test and Demonstration Satellites) was set up at ICIMOD HQ in October 2010.
- ICIMOD and JAXA jointly organized a **regional training workshop** for ICIMOD's member countries in the first quarter of 2011.
- ICIMOD and JAXA jointly organized a user workshop on **Sentinel Asia System** in 2015, at Kathmandu, Nepal.

# Thank You

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