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UAVs in Support of Landslide Disaster Risk Reduction

Joel Kaiser, September 2015

LANDSLIDE RISK AS RESULT OF SEISMIC ACTIVITY

- **Catastrophic earthquake caused over 8,790 casualties and 22,300 injuries**
- **Hundreds of those deaths were due to landslides, which also blocked vital road and trail lifeline routes to affected villages.**
- **Landslides caused by the earthquakes continue to pose both immediate and long-term hazards to villages and infrastructure within the affected region.**

Emergency Shelter Distribution

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Site Demolition

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Landslide Risk

The lasting legacy of

05 MAY 2016

quake: Killer Landslides

NEPAL

Human settlements in quake-affected districts at high risk of landslides

02 July 2016
By News Desk, The Kathmandu Post (Nepal)
#General #People

SHARE TWEET

CONTRIBUTED BY
kathmandupost

KATHMANDU (The Kathmandu Post/ANN) - Lawmakers on Friday drew the government attention to the increasing cases of landslides affecting lives and settlements in the 11 districts that were most affected by the earthquake last year.

Lawmakers on Friday drew the government attention to the increasing cases of landslides affecting lives and settlements in the 11 districts that were most affected by the earthquake last year.

Landslides displace over 200 families in quake-hit districts

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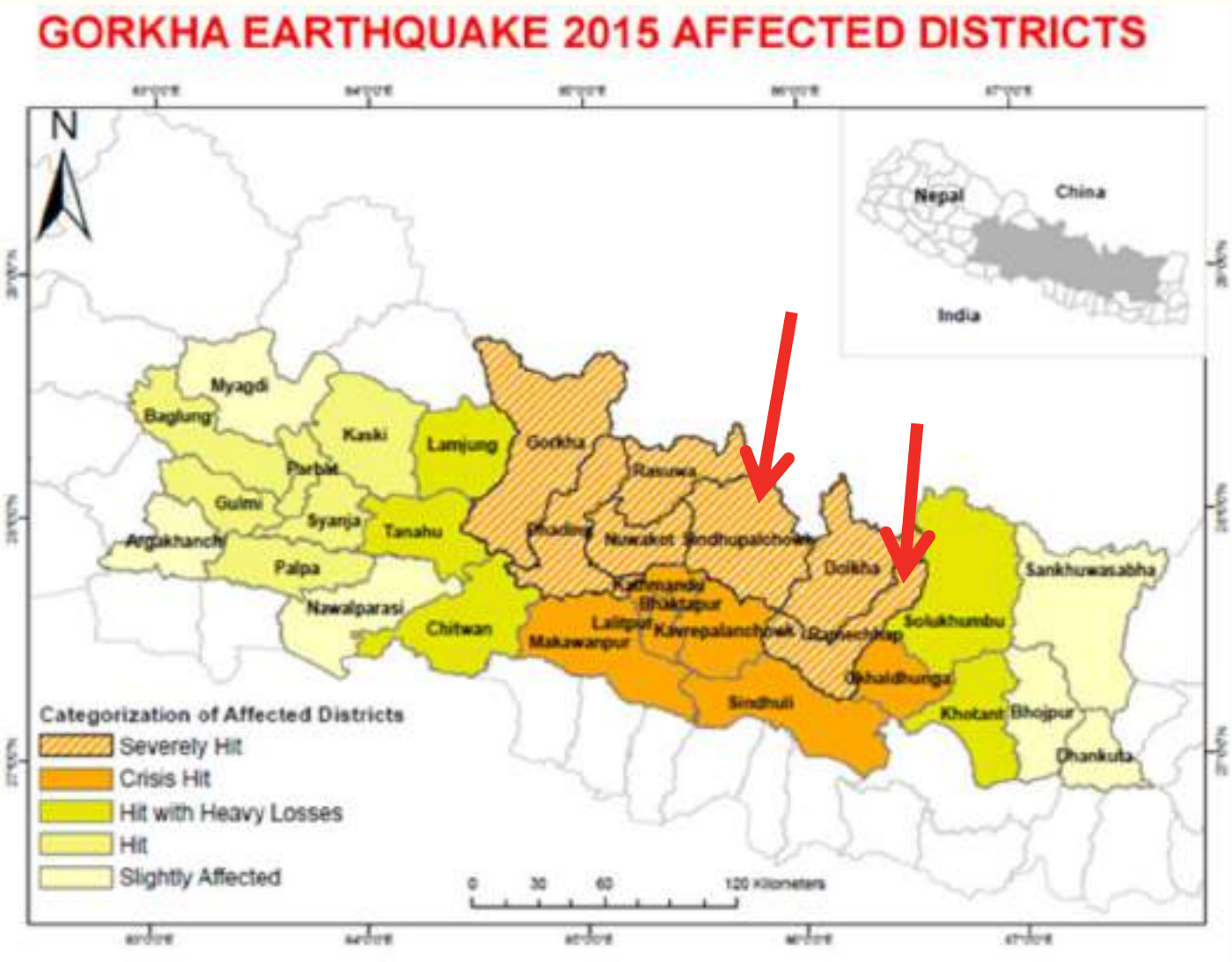
Earthquake Shelter Reconstruction



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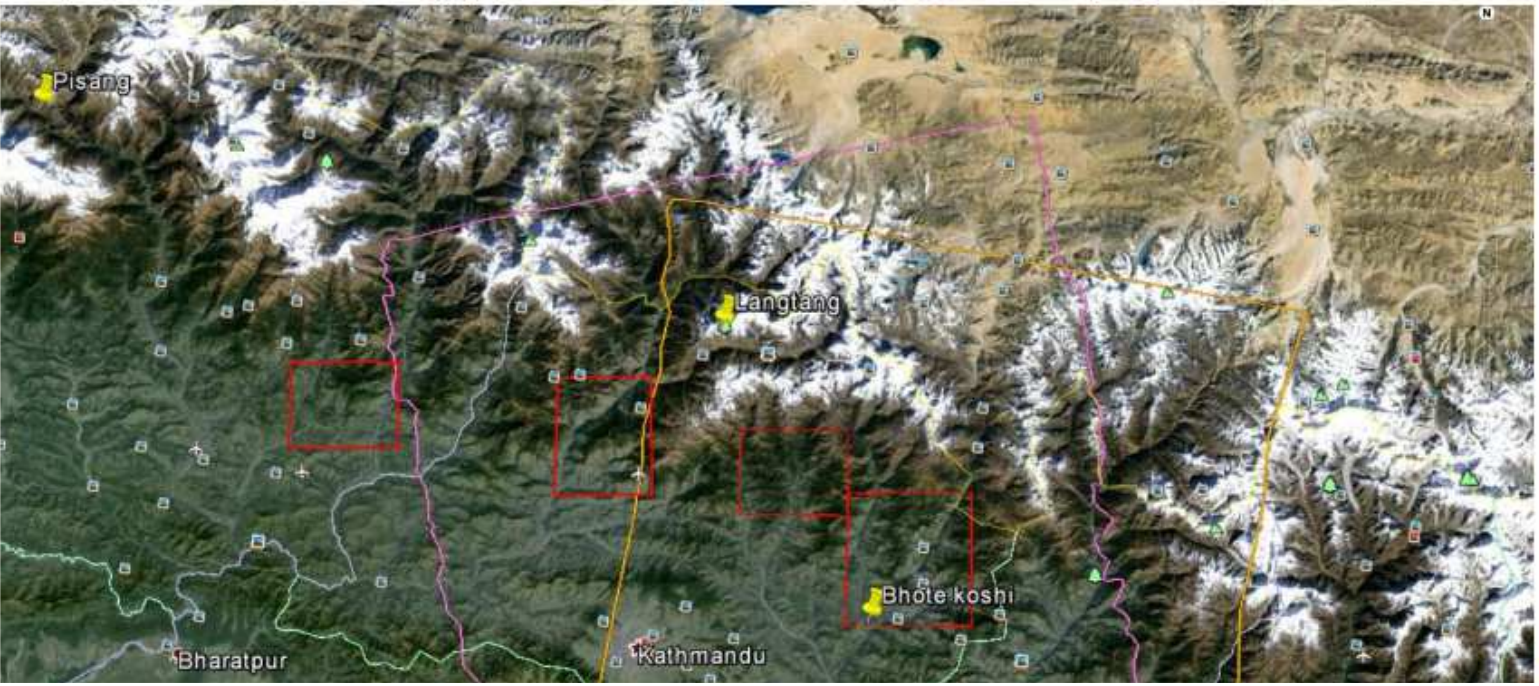
General Landslide Risk Assessment (Secondary Data)

Ongoing Monsoon Landslide Monitoring

Satellites are being specially tasked to collect images throughout the monsoon

Purple - Radarsat ascending; yellow – Radarsat descending; red – very high resolution optical over four sites



British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Durham University

UKaid
from the British people

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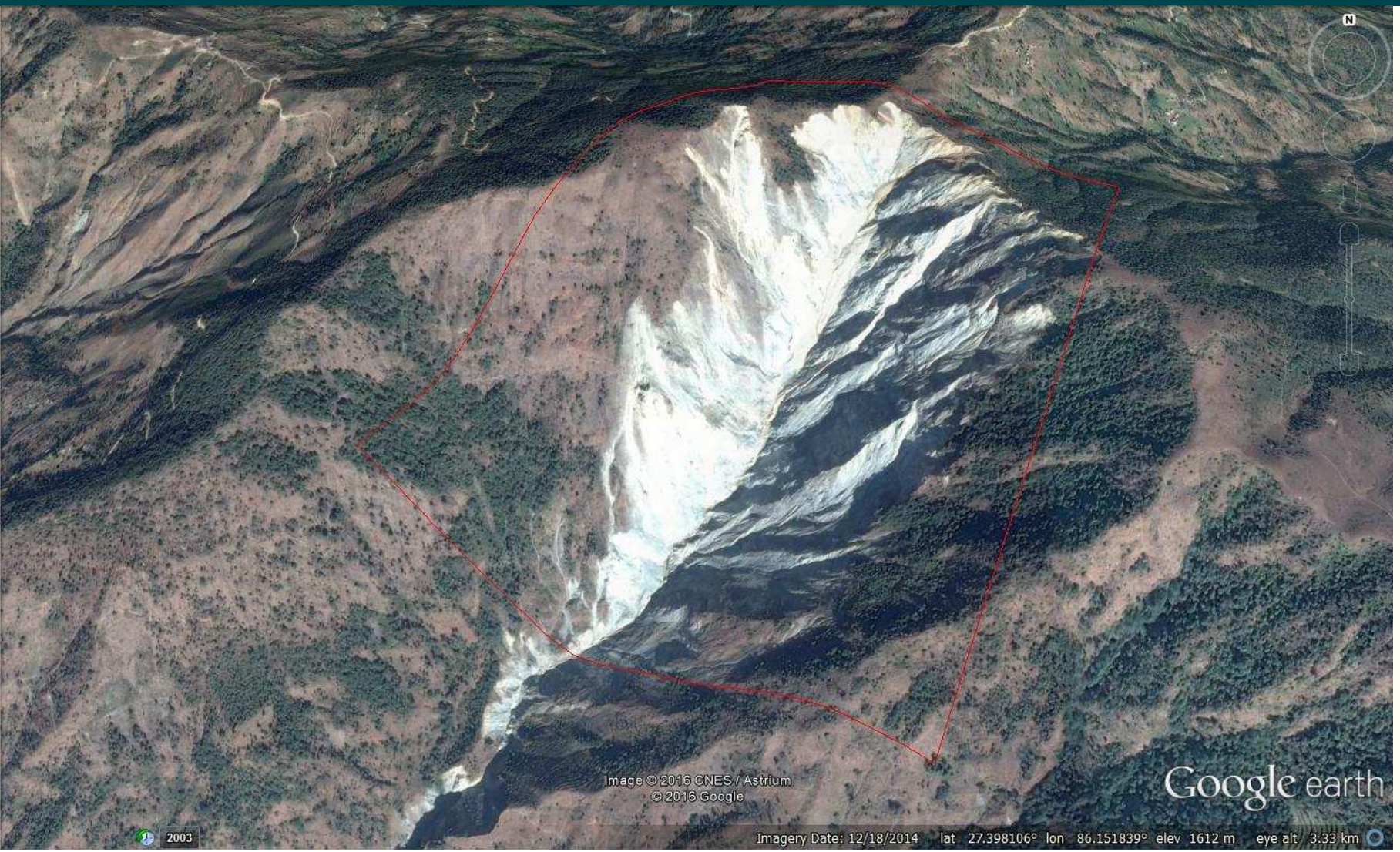
Specific Landslide Risk Assessment



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Zooming In…

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Adding Slope Perspective…

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Landslide Risk In Nepal

- **Some experts has estimated that the average number of small and big landslides in Nepal reaches as high as 12,000 per year**
- **More than 200 people are killed due to landslides and floods annually.**
- **Nearly 700 Million Rupees per year is estimated direct economic loss**

Technical Challenges

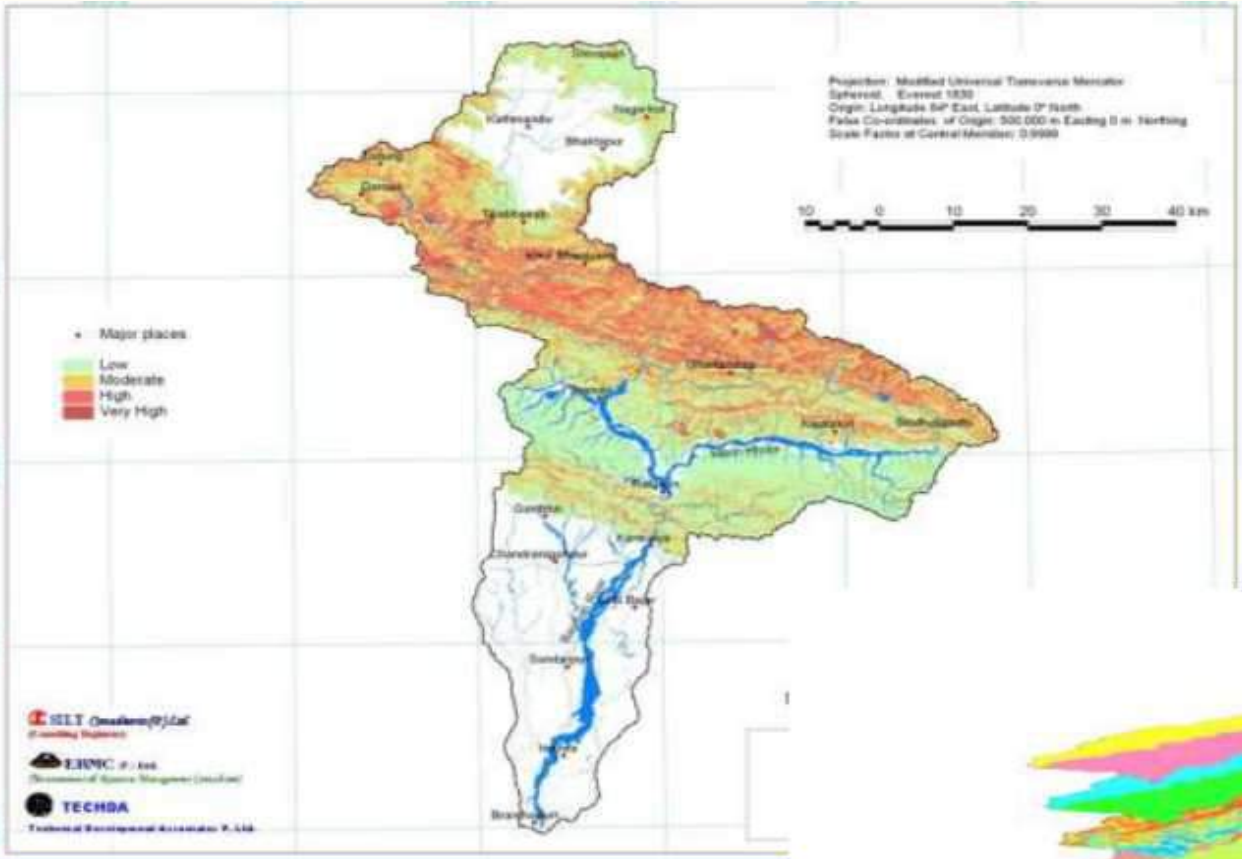
- **Most of the landslides observed on mountain tops and mid slopes are rock fall and translational landslide. Some of the landslides near valley, along both sides of streams/rivers are deep seated rotational landslides**

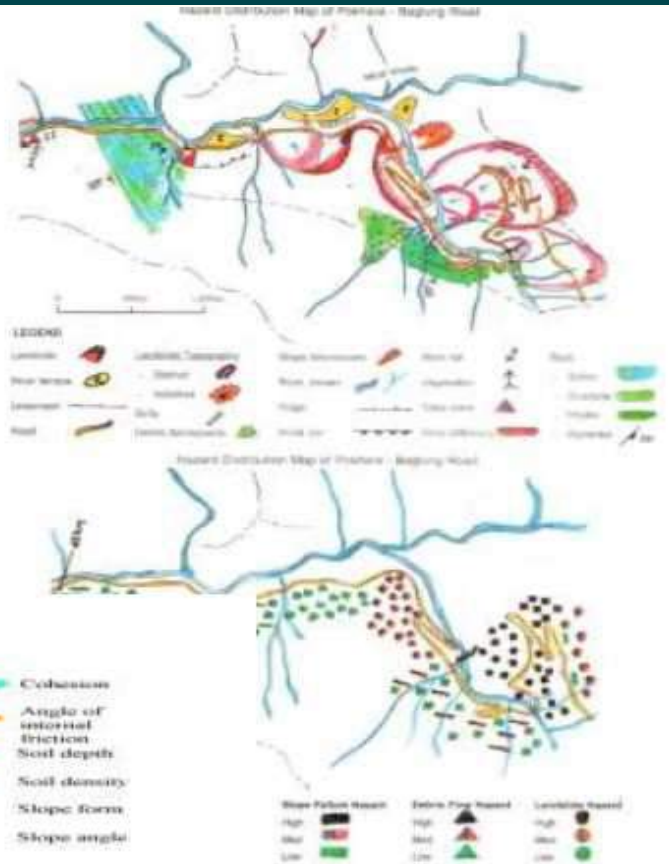
- **Credible complete data base of landslides and cracked areas is still unavailable.**

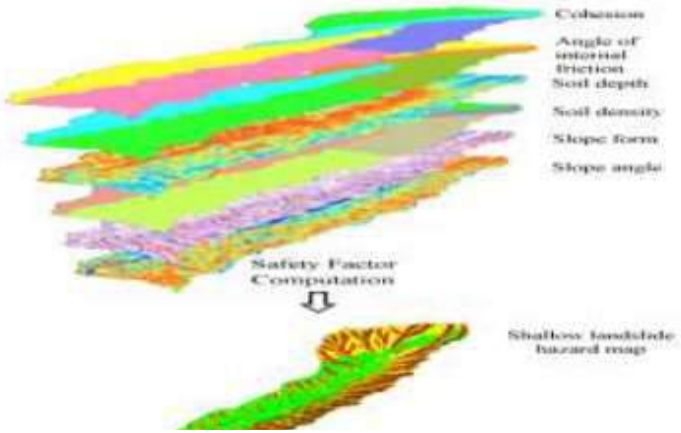
- **There is no harmonized methodology of landslide inventory, hazard, vulnerability and risk mapping**

- **There is need of a credible knowledge base on landslide monitoring, early warning and rehabilitation tools and techniques to address the problem.**

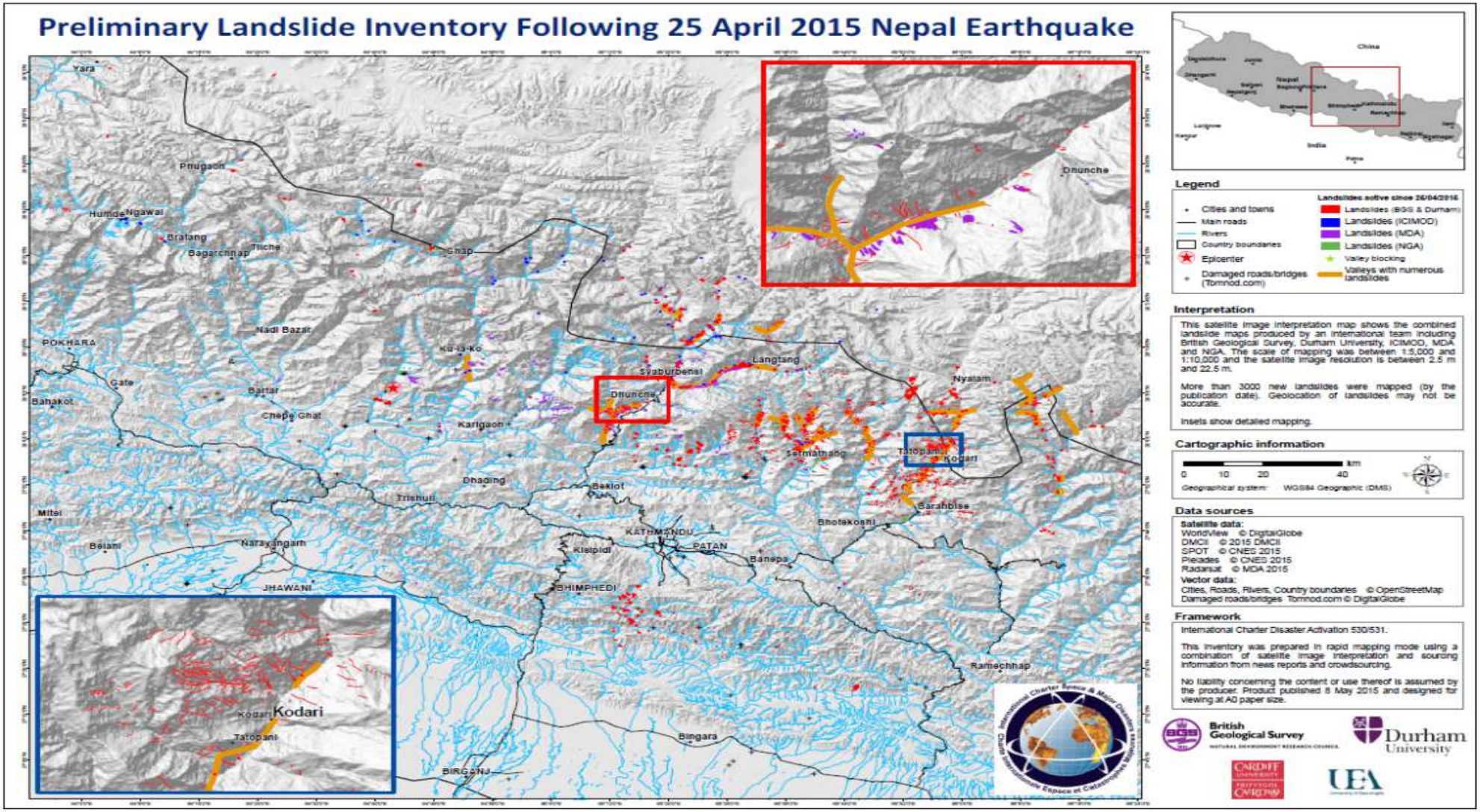
Landslide Risk Mapping







Contributing to the Knowledge Base…



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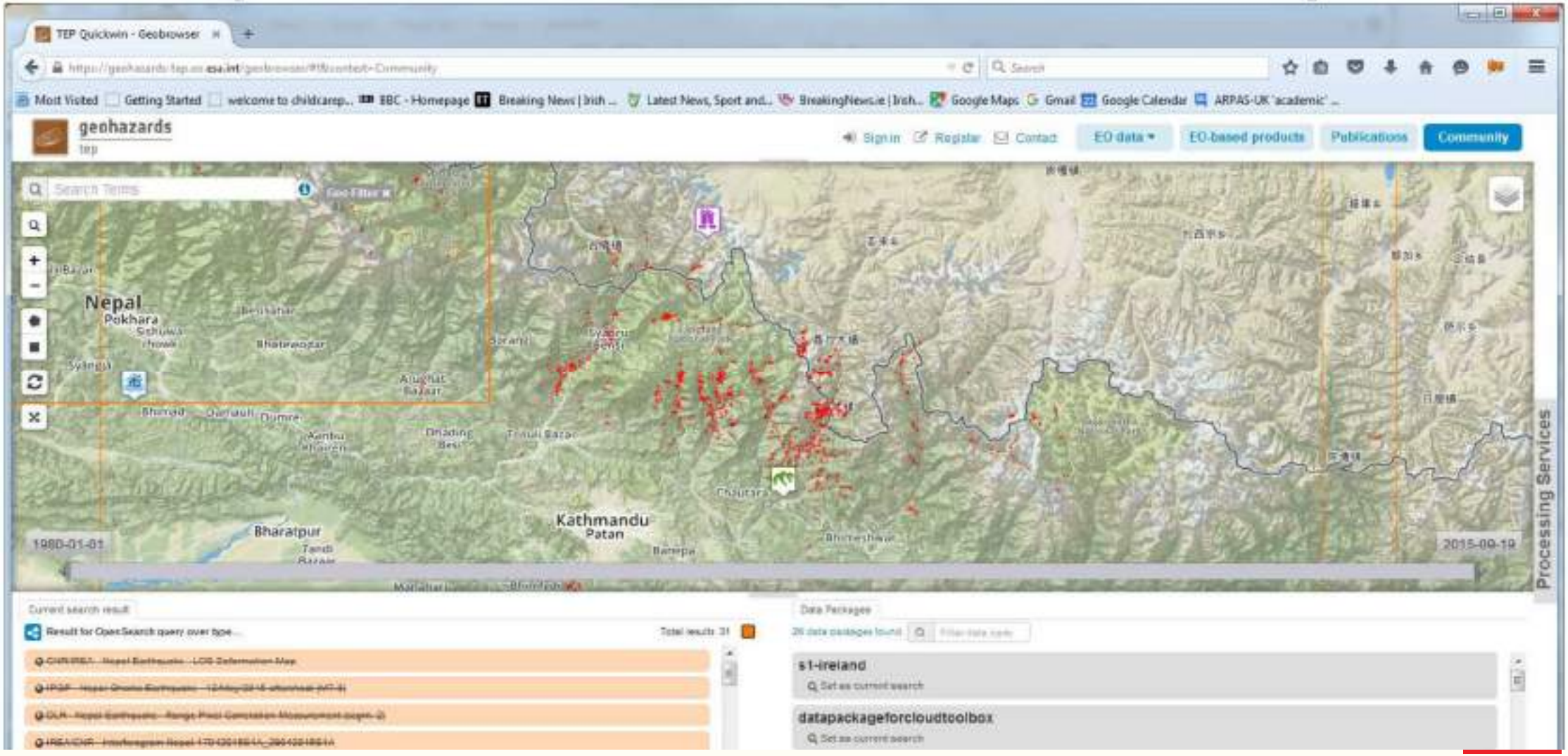
The Beginning Stages…