Remote Sensing Application For Landslide

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Remote Sensing Application Center is one of the government agencies under the National Institute Of Aeronautics and space (LAPAN). That provides information based on Remote Sensing data. One of information about disaster events that could be obtained using remote sensing imagery.
Remote Sensing Application Center and UN-SPIDER

UN-SPIDER welcomes two new Regional Support Offices

On the sidelines of the fifteenth session of the Scientific and Technical Subcommittee of the Committee of the Peaceful Uses of Outer Space, which took place in Vienna, Austria from 11 - 22 February 2013, UN-SPIDER signed agreements with two new partners to establish Regional Support Offices (RSOs). On 12 February 2013, during the 4th annual UN-SPIDER Regional Support Offices meeting, the official signing ceremony for the International Centre for Integrated Mountain Development (ICIMOD) was held making ICIMOD the fourteenth RSO. ICIMOD is a regional intergovernmental learning and knowledge sharing centre serving the eight regional member countries of the Hindu Kush Himalayas – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. The arrangement was formalized through a Memorandum of Understanding signed between ICIMOD and the UN Office for Outer Space Affairs (UNOOSA). Joining the network of RSOs, ICIMOD will work closely with UN-SPIDER to use space-based information and services for disaster management and emergency response in the Hindu Kush Himalayan region.

On 19 February, 2013, LAPAN, the Indonesian National Institute of Aeronautics and Space became UN-SPIDER’s fifteenth Regional Support Office by signing a Memorandum of Understanding with UNOOSA. LAPAN is the Indonesian government space agency responsible for long-term civilian and military aerospace research. In September 2013, UNOOSA and LAPAN will jointly organize a Conference on Integrated Space Technology Applications to Climate Change, taking place in Jakarta, Indonesia.

Recommended Practices:
Using Space Technologies for Disaster and Risk Management
UN-SPIDER interview: Kamel Tichitli about the locust infestations in Algeria and Libya
UN-SPIDER’s 4th Annual Meeting of Regional Support Offices
Indonesia Located in near Equator line so it made Indonesia Has only Two Season Rainy Season and Summer Season. So the duration of season in Indonesia is quite a lot. various types of disasters that occur generally in Indonesia
Landslides In Indonesia

Sukabumi landslide kills four, 41 missing
Arya Dipa
The Jakarta Post
Bandung / Tue, January 1, 2019 / 10:37 am

Search for missing goes on after Sukabumi landslide
Arya Dipa
The Jakarta Post
Bandung / Wed, January 2, 2019 / 09:40 am

Navy Dispatches Marines to Aid Banjarneagara Lanslide Victims
19 December 2014 10:49 AM

The Banjarneagara landslide in Central Java, Indonesia: 32 dead, 76 missing
Posted by Dana Pekry

The Banjarneagara landslide

Latest reports suggest that 32 bodies have been recovered so far, with a further 18 people thought to be missing. The Ministry of Red Cross has received 570 calls from people who are worried about their relatives. Some of those reported missing were elsewhere at the time of the demolition. A further 19 people were injured, 11 of those seriously.

This image, from the Jakarta Post, shows the landslide site from above to the air.
Disaster Emergency Response Mapping
INFORMATION MUST BE SHARE QUICKLY!!

1. Geography Coordinate Location
2. Total Area Affected By Landslide
3. Building Damaged By Landslide
Information in Landslide Using Remote Sensing
Distribution of landslide in Karangkobar

- Landslide materials are split into two due to containment of solid stones underneath that move following the slope.
- The landslide’s length reached 1,2 km.
- Landslide material struck residential area at the bottom in less then 5 minutes.

Source: National Disaster Emergency Agency (BNPB)
Information in Landslide Using Remote Sensing
Sectors that can be analyzed more deeply

1. Land Use Change
2. Rainfall pattern
3. Geological
4. Loss Of Economies
Land Use Changes

Land Use in 2000

Land Use in 2018
GsMap data To Measure Rainfall Rate
Ground Movement

Ground Movement

[Map showing ground movement with various color-coded areas and a legend]

Unsur
- Alur Aliran Bahan Rombakan
- Danau
- Menengah
- Rendah
- Sangat Rendah
- Tinggi
- <all other values>
## Efforts

8. The NDMA/BNPB is calculating the lost and damages caused by the slide.

9. The community expected that their relocation area will be safer and within the vicinity of Karangkobar sub district. Relocation priority for Jemblung village community who escaped the disaster, while communities from the surrounding area will follow if they wish.

10. Banjarneura’s Regent will allocate the budget to free land and other infrastructure facilities. The NDMA/BNPB has been requested to provide a budget to construct houses for the relocated community.

11. The main principal of relocation is to build back better and safer. What to be reconstructed is not only the house but its community and life.

Source: National Disaster Emergency Agency (BNPB)
Conclusion

1. Landslides as a disaster could be mapped with Remote Sensing.
2. LAPAN has used a lot of Remote Sensing data to Mapping disaster affected by join UN-SPIDER Program and join International Charter Disaster.
3. Remote Sensing is useful for rapid mapping of the impact of disasters, especially landslides.
Links To Remote Sensing Application Center Information

http://pusfatja.lapan.go.id/simba/tanggapbencana/index.php/home

https://sipandora.pusfatja.lapan.go.id

Source: National Disaster Emergency Agency (BNPB)
Terima kasih

www.pusfatja.lapan.go.id