

GEO-HAZARD RISK MANAGEMENT AND COLLABORATION NEEDS WITH HYDROMET SERVICES

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South Asia HydroMet Services Forum II (SAHF II)

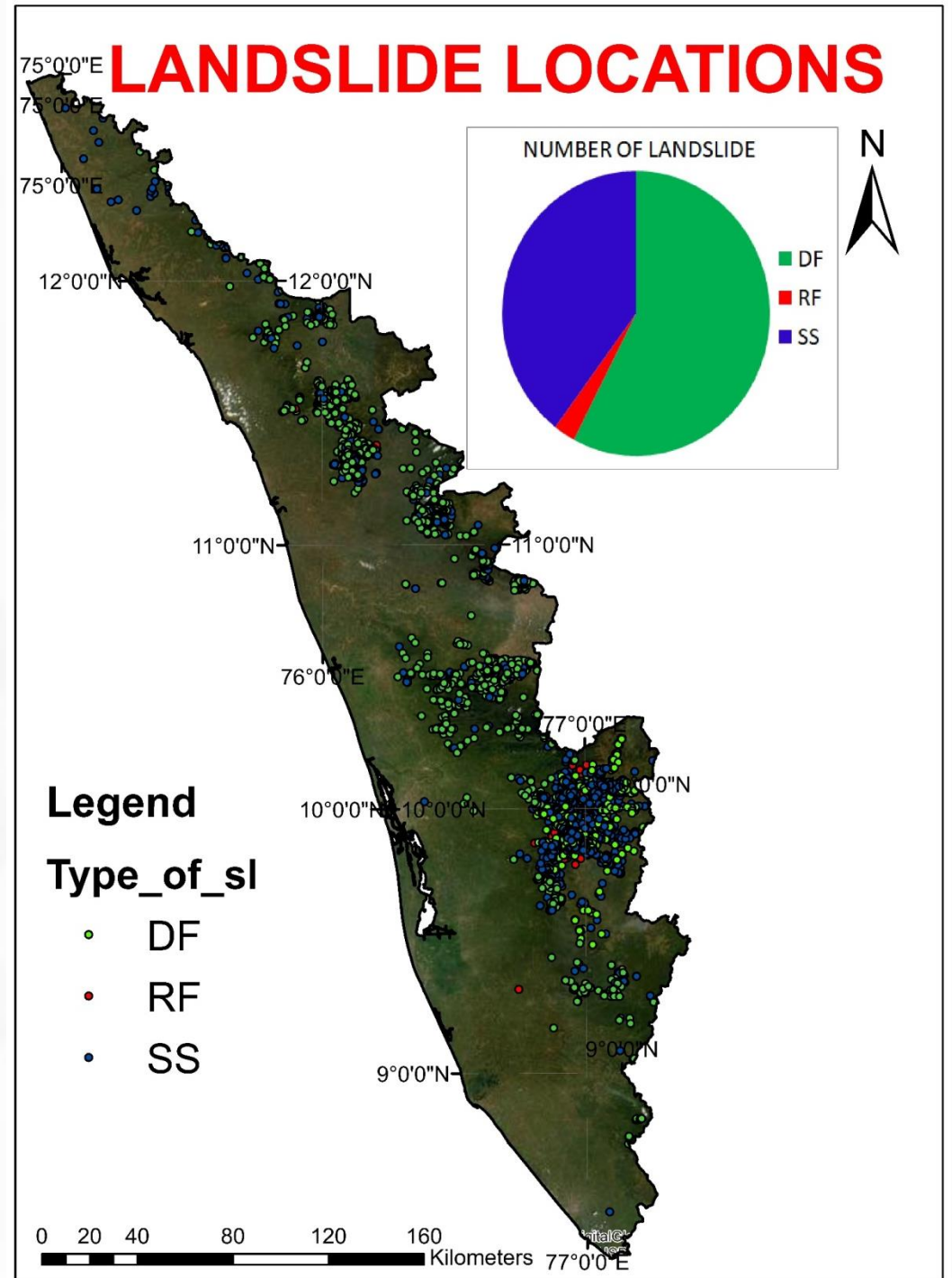
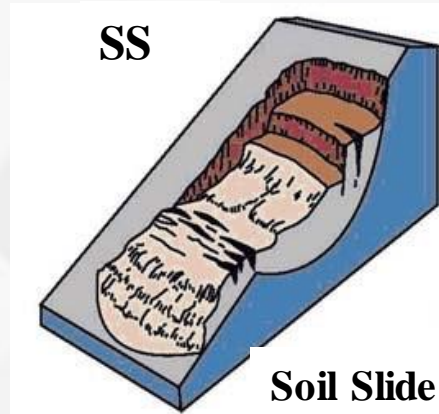
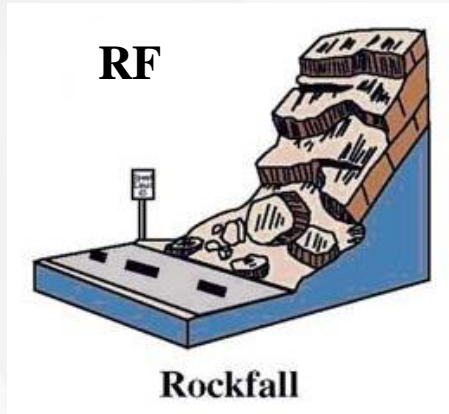
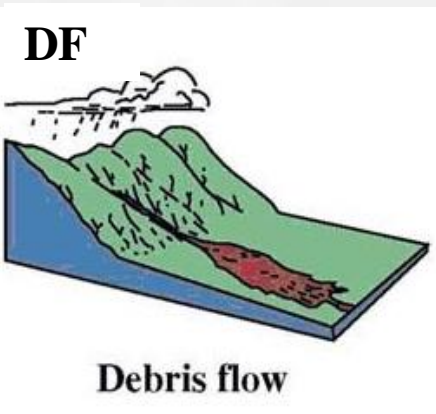
In Kathmandu

November 20, 2019



Landslides in Kerala, India (2018)

Total no of landslides- 3703



Landslide - A Very Difficult Disaster to Manage

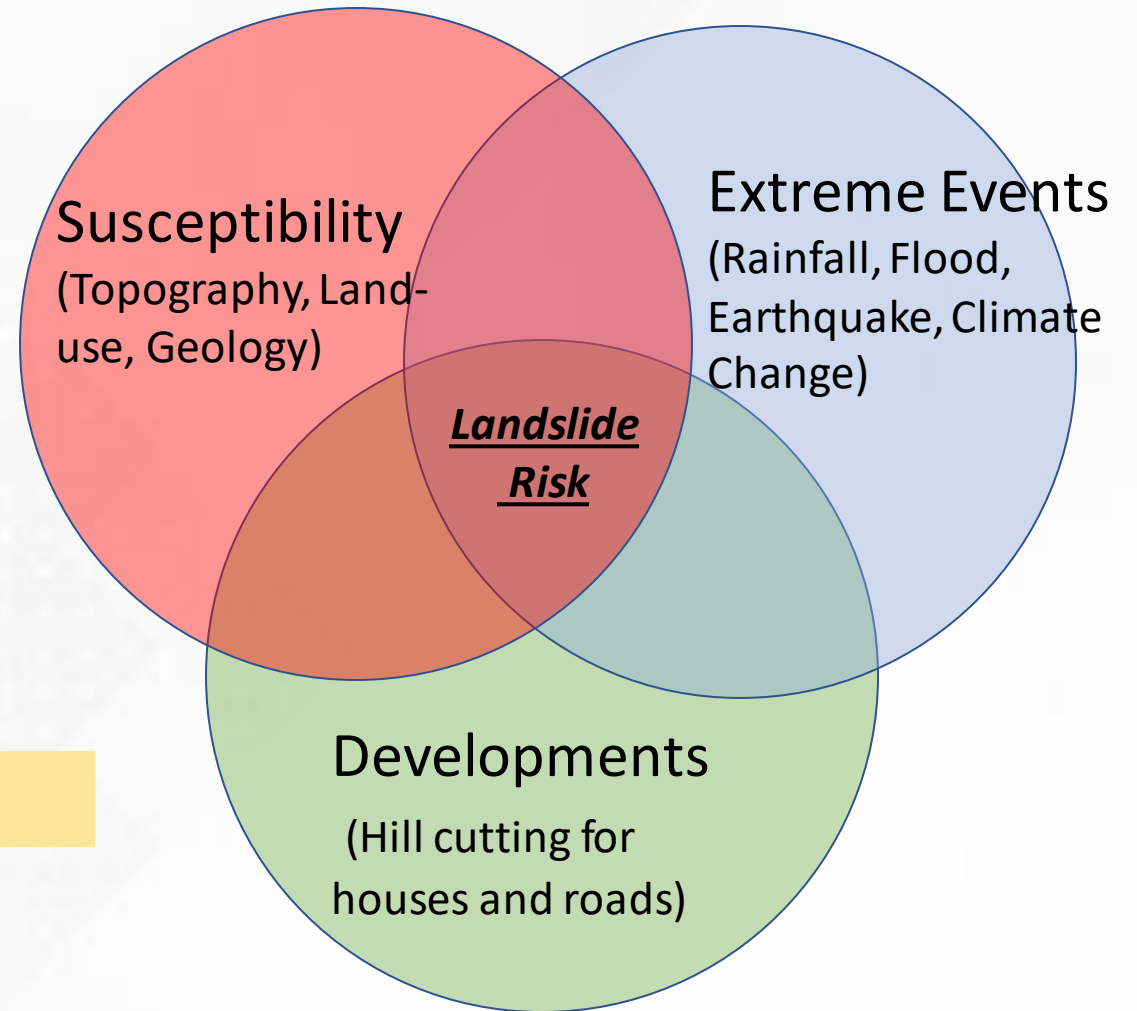
- Difficult to predict when and where landslides occur
- Landslides cost human lives and destroys assets
- Landslide risk is increasing with human activities & Climate Change



Landslide Disaster Risk

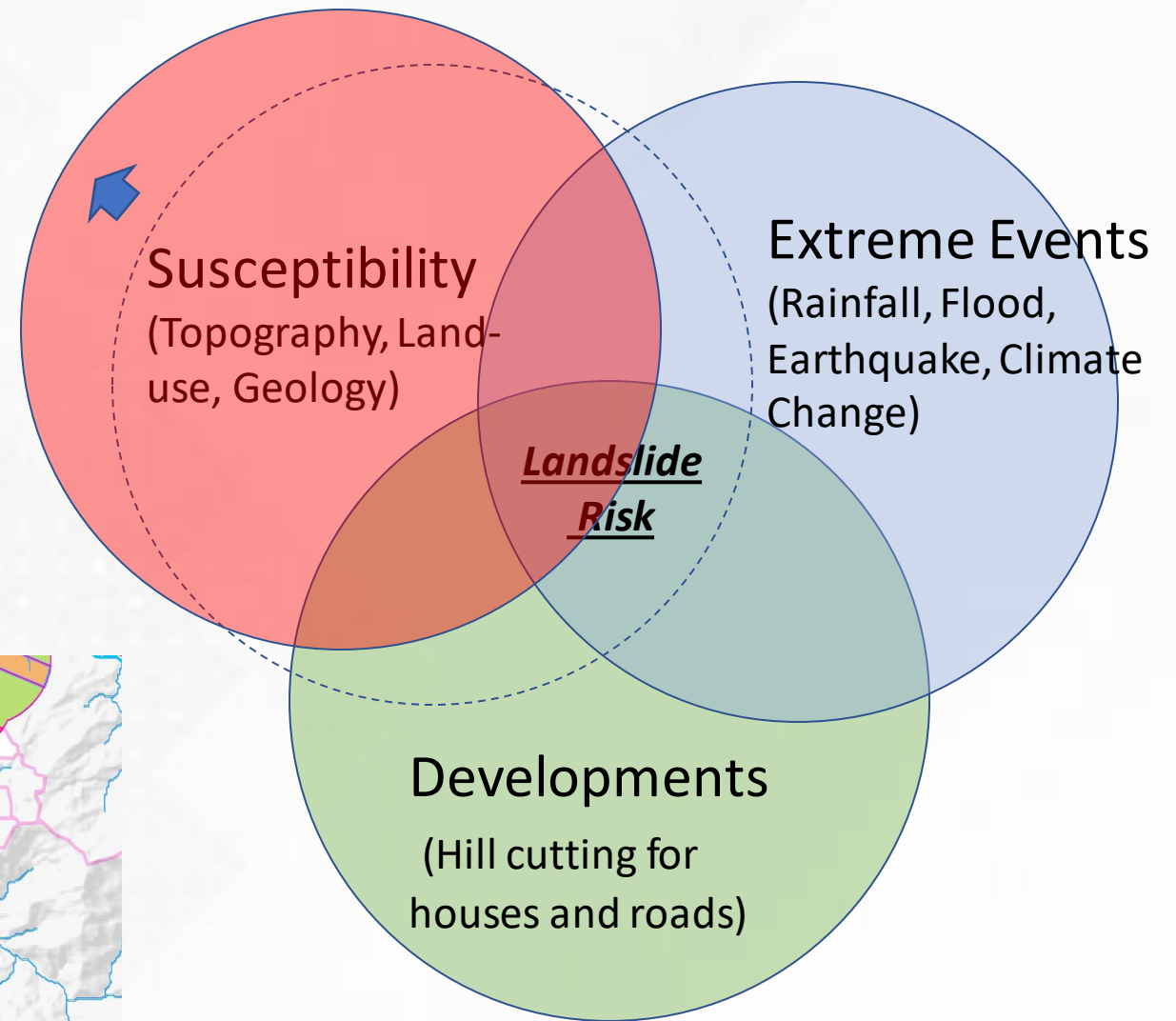
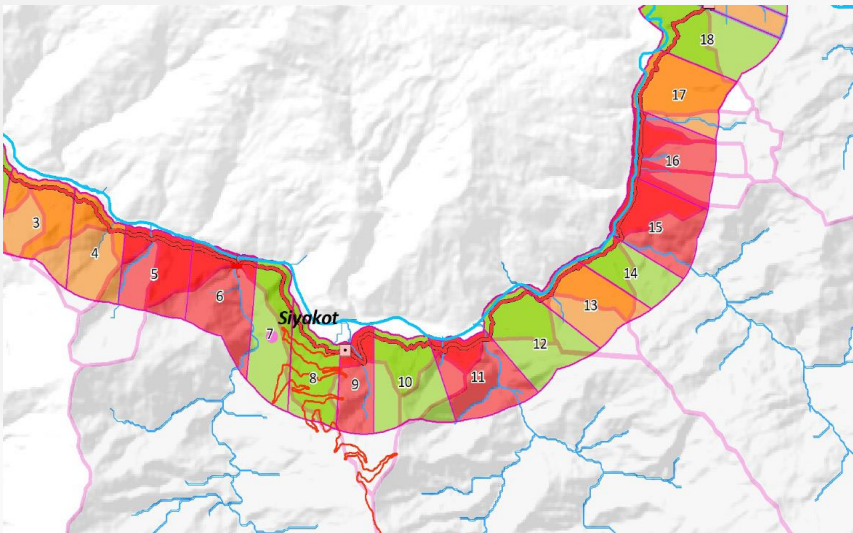
Landslide Disaster Risk is interpreted as a combination of **Landslide Susceptibility, Developments, and Extreme Events**

How can we reduce landslide disaster risk?



Landslide Susceptibility

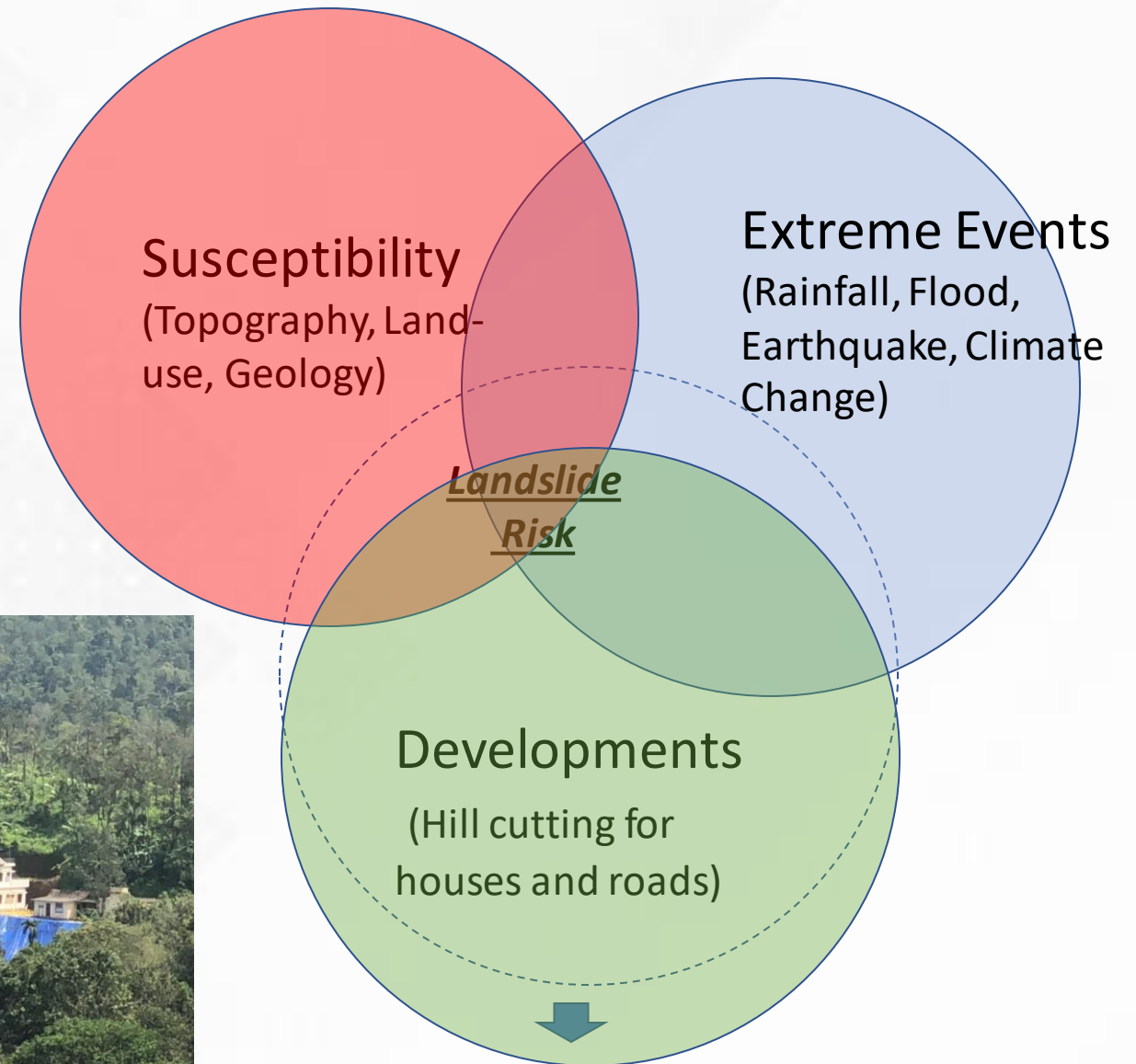
- **Landslide Susceptibility should be assessed and mapped**
- Susceptibility mapping requires **high resolution GIS data** (e.g., topological data, up-to-date land use data, etc.)
- **Landslide consequences** need to be assessed



Risk-Informed Planning

Understanding of landslide risks enables risk-informed planning for roads, zoning, building code, emergency response

Build capacities for landslide risk reduction enables development in high risk areas (e.g., slope protection technologies)

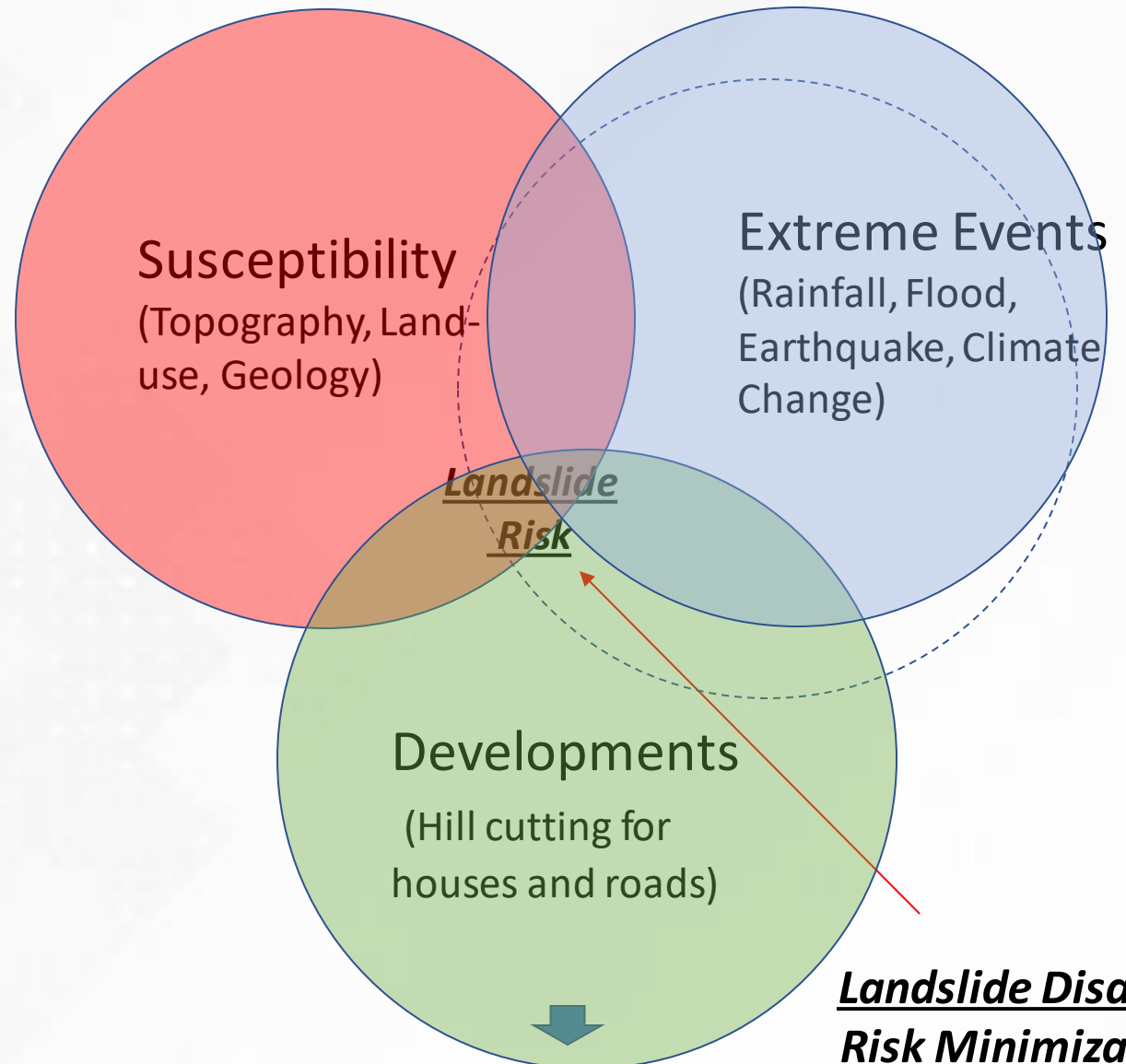


Extreme Events

Clarification of roles and responsibilities for landslide warning services: e.g., In Japan landslide warning is jointly issued by the JMA and local governments.

Develop landslide warnings with emergency operation agencies: Common understanding of scientific and technical limitations of landslide warning is important. Also, regular verification process (after rainy season) should be in place.

Continuous effort of developing effective landslide warnings: Landslide warning should be spatially and timely specific and accurate for users including start and end time of warnings although it is very difficult. JMA calculate real time soil saturation based on real time rainfall for landslide warning.



Landslide Disaster Risk Minimization

Conclusions

- Landslide is a very difficult disaster to manage, but landslide risk management is important to protect lives and assets
- Landslide disaster risk is a combination of Landslide Susceptibility, Development Activities, and Extreme Events, and each component has different ways of risk reduction
- Landslide disaster management needs close coordination and collaboration with HydroMet service agencies to provide accurate site-specific warnings