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Analyzing the Occurrence Trend of Sediment-Related Disasters and Post-Disaster Recovery Cases in Mountain Regions in North Korea Based on a Literature Review and Satellite Image Observations

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1. Background

- Occurrence of floods and sediment-related disasters due to forest degradation in North Korea since the 1970s
- Lack of information on the occurrence of sediment -related disasters and the status of erosion control works in North Korea

- Investigation of spatiotemporal trends of sediment-related disasters in North Korea from 1960 to 2019 and post-disaster recovery cases based on a literature review and satellite images

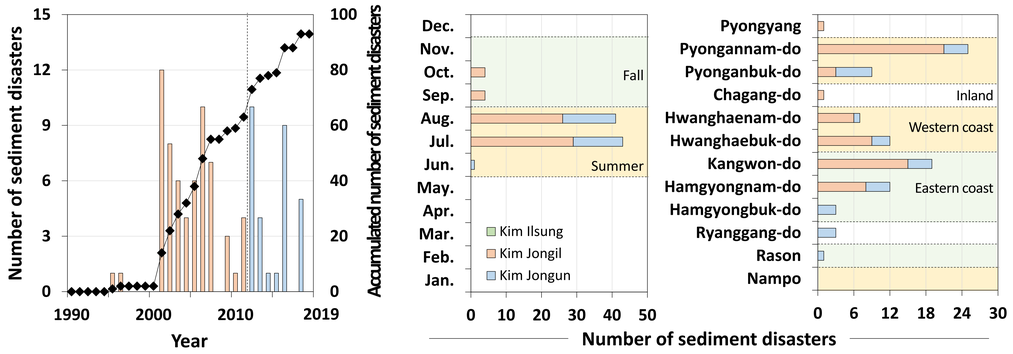
- Need to collect reference information to expand inter-Korean exchange and cooperation in forest rehabilitation and erosion control works of North Korea

2. Methods

- Spatiotemporal trends of sediment-related disasters
  ☞ Literature review (news paper, report, and article)
- Post-disaster recovery cases
  ☞ Satellite Image (Google Earth)

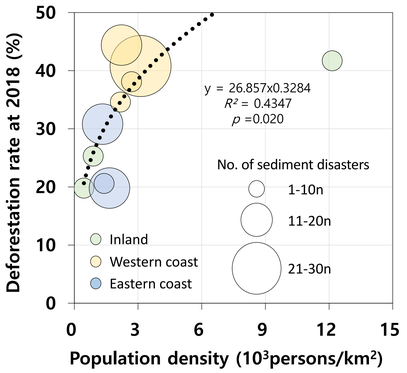
3. Temporal and spatial distribution of sediment-related disasters reported

- Occurrence status of sediment-related disasters was initially externally reported in 1995 (during the Kim Jongil era); their main triggering factor was heavy summer rainfall.
- Sediment-related disasters occurred more frequently on the west coast than on the east coast.



4. Sediment-related disasters for the relationship between population density and deforestation rate

- Forest degradation rate was positively correlated with population density and occurrence number of sediment -related disasters was relatively high on the west coast region, where both variables showed high values.
- This indicates that human activity was a major cause of forest degradation and thus, significantly affected sediment-related disasters in mountain regions.



5. Sediment-related disasters and post-disaster recovery cases

- Sediment-related disasters due to shallow landslides, debris flow, and slow-moving landslides were observed in undisturbed forest regions and human-impacted forest regions, including terraced fields, opencast mines, forest roads, and post-wildfire areas, via satellite image analysis.
- These disaster-hit areas remained mostly abandoned without any recovery works, whereas hillside erosion control work (e.g., tree planting with terracing) or torrent erosion control work (e.g., check dam, debris flow guide bank) were implemented in certain areas.