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## **ACTIVE FAULTS AND THEIR IMPLICATIONS FOR REGIONAL DEVELOPMENT AT THE SOUTHERN PART OF WEST JAVA, INDONESIA**

**Key words: active fault, GIS, morphotectonic, regional development, West Java**

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## INTRODUCTION

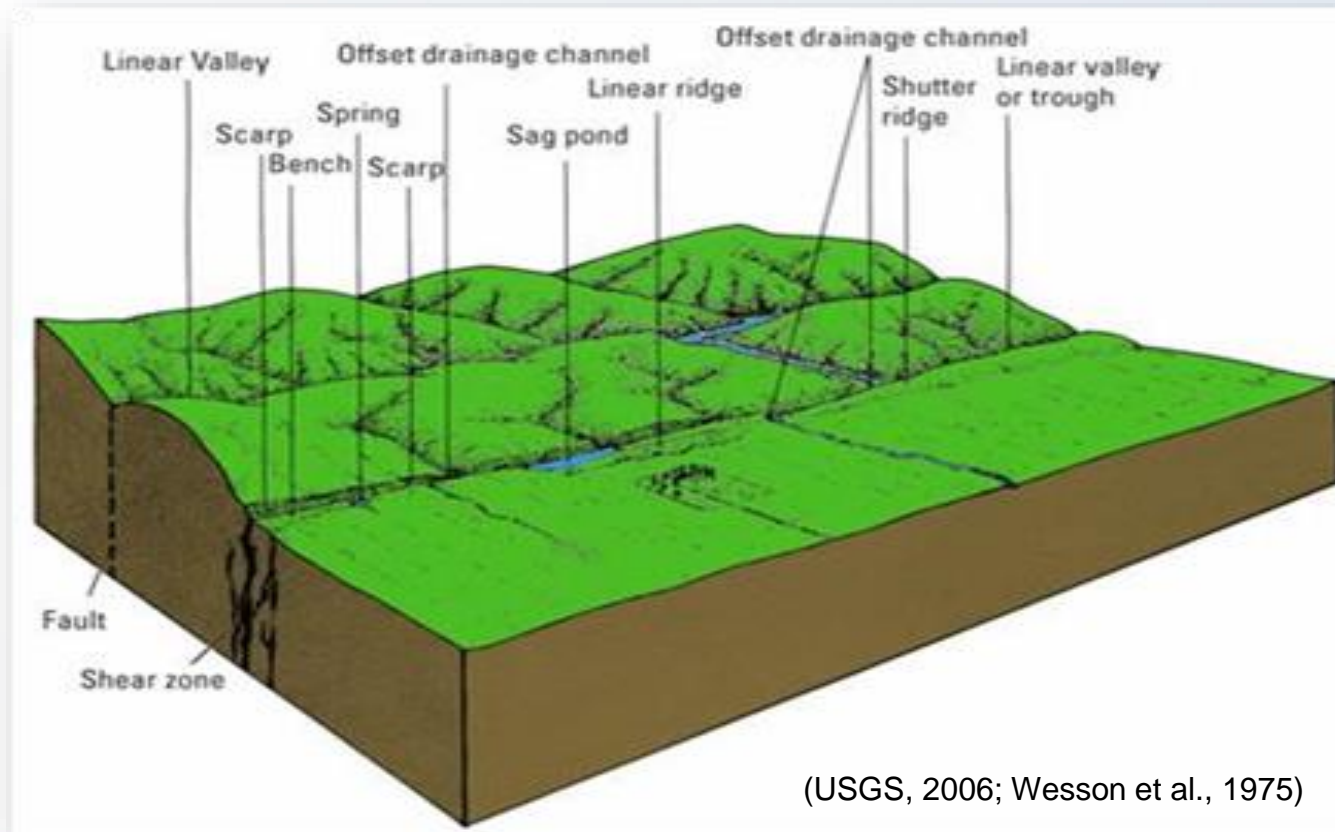
- **Global issue: Environmental degradation & comfortable residence**
- **The crust of the earth is moving → The high intensity of movement can be a source of disaster & a threat to the safety of mankind, example: active fault <sup>1)</sup>**

**1) Fault: area of fractures followed by a relative displacement of the rock block against the other one.**

- **Active fault**
- **Potentially active faults**
- **The fault is not active**



## Morphotectonic → the character of the landscape associated with tectonic (Doornkamp, 1986)



(USGS, 2006; Wesson et al., 1975)





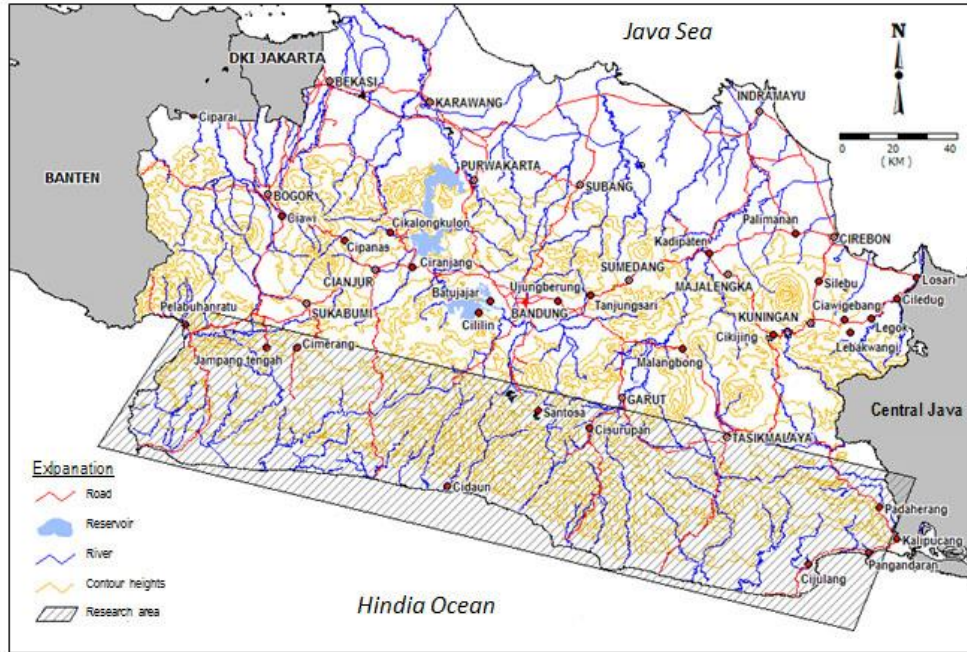
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Recovery

from disaster

106° E; 6° S



109° E; 8° S

- ➔ accessibility → steep slope & limited road access → makes the most of these areas still isolated
- ➔ physiographic: the Southern Mountains Zone

The results of previous research → an association between morphometric watersheds, morphotectonic, & the presence of active faults.

The condition was thought to be linked with the threat zone of geological disasters, exp: earthquake, landslides, extreme erosion, etc.



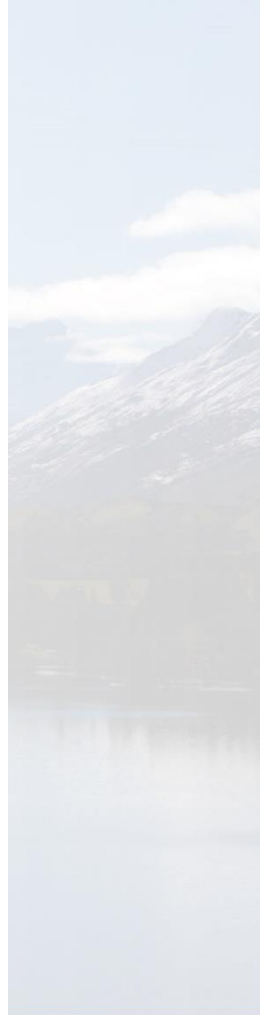
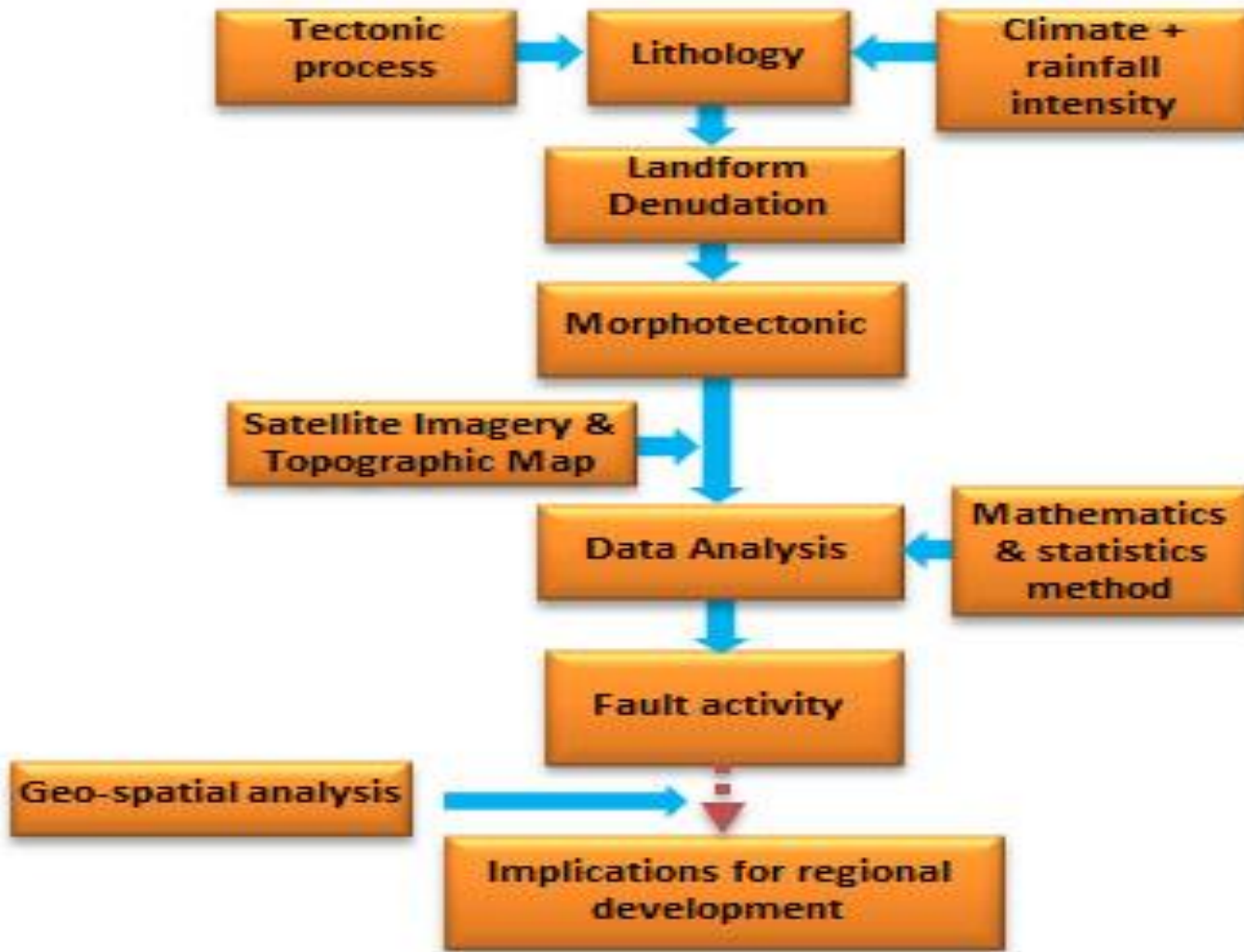
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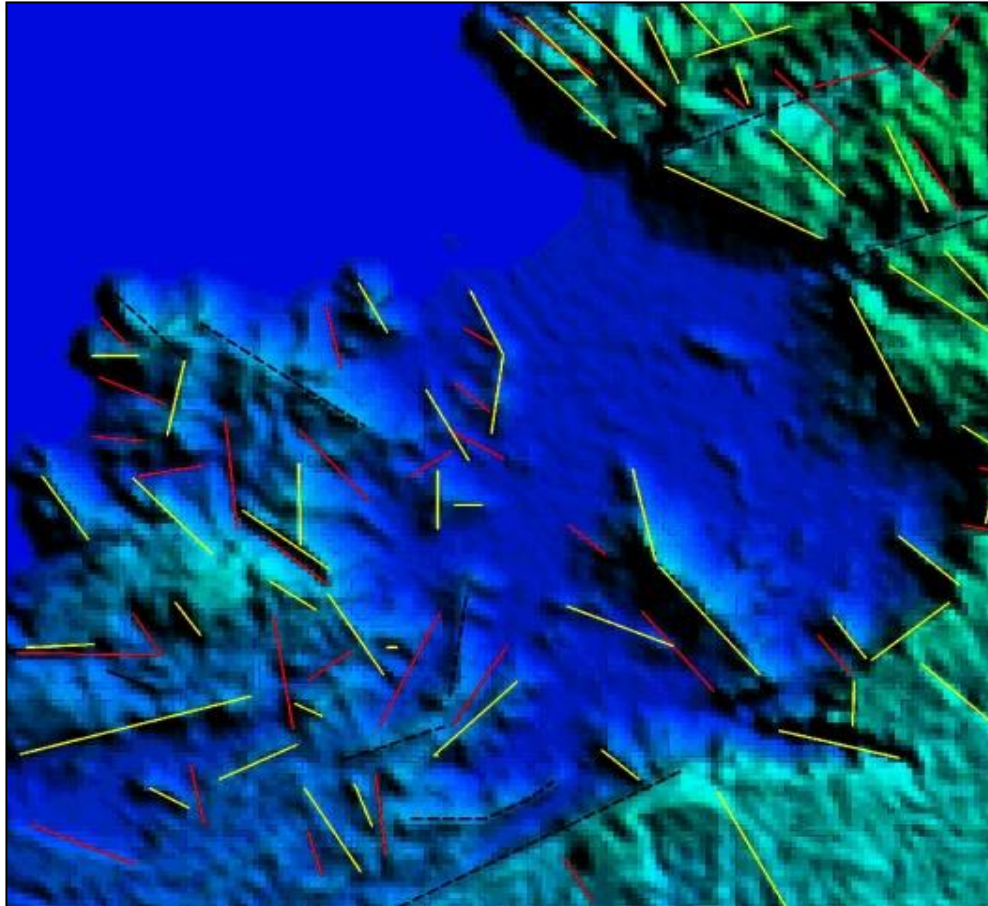
METHODOLOGY



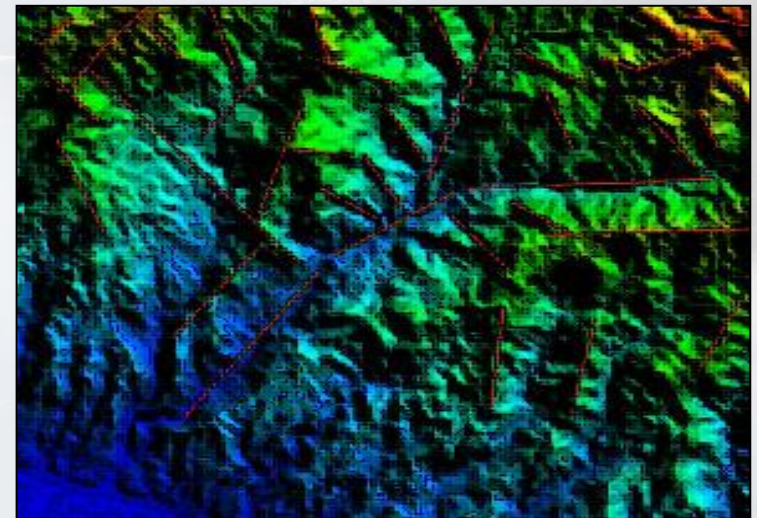




## RESULT AND DISCUSSION



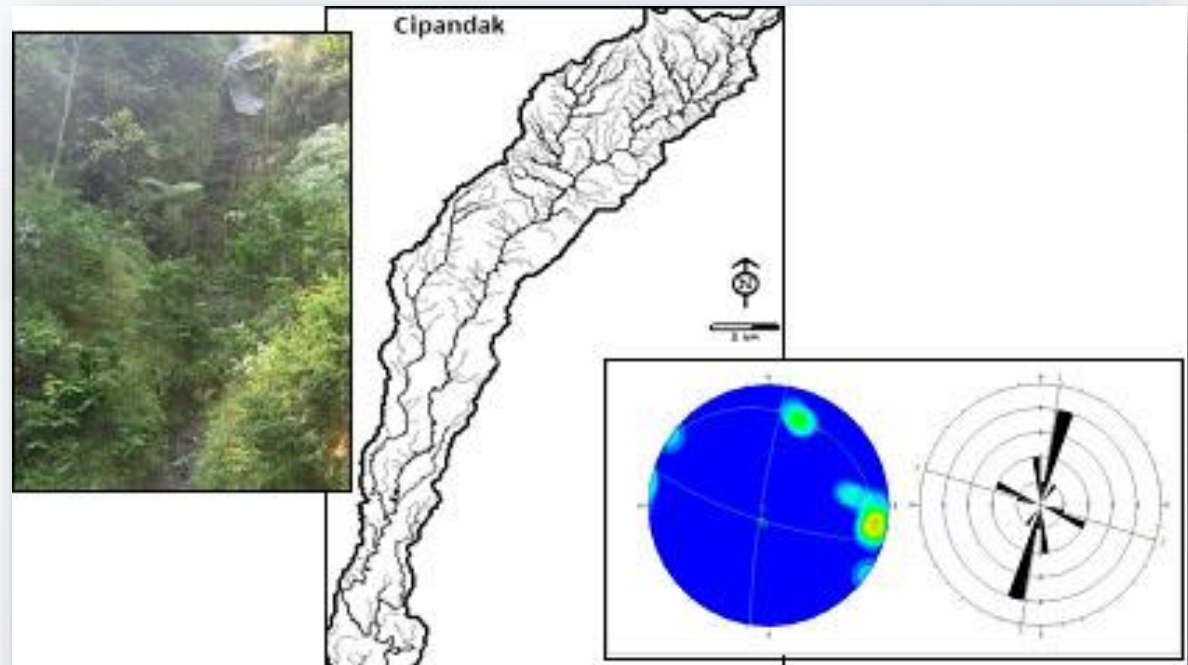
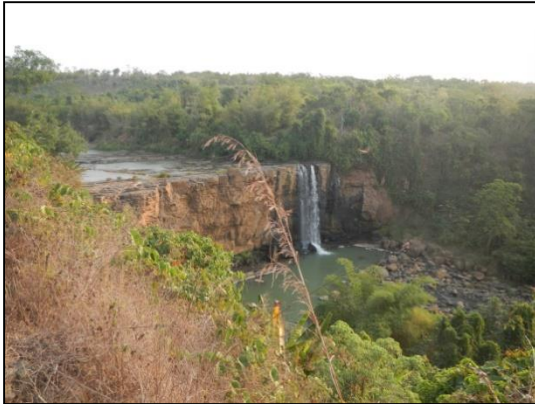
**Tectonic features on  
satellite imagery**





## Morphotectonic as active fault indication

Other morphotectonic phenomenon: ridge, waterfalls, valleys shaped "V", and triangular facets.



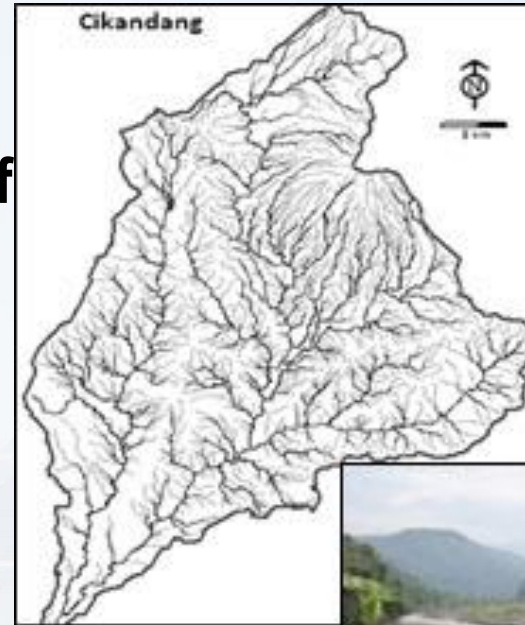




**Based on the analysis in the various clusters, the southern part of West Java region vulnerable to the threat of geological hazards, including seismicity<sup>2)</sup> & ground movement<sup>3)</sup>.**

**2) Seismicity besides caused by the subduction zone in the southern part of Java, also can be caused by fault movement on land.**

**3) Furthermore, the effects of the earthquake is the landslides.**



- Detailed classification of areas prone to earthquakes & landslides are very important.
- More comprehensive understanding of this will help the sustainability of development in this region, especially the pathways of road infrastructure and other facilities.





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Morphotectonic phenomena and landslides

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## CONCLUSION

Interpretation of satellite images can help to recognize the existence of fault in southern part of West Java.

Some morphometric variables and morphotectonic can be key in determining the presence of quaternary fault.

Morphotectonic study results support the interpretation that the units morfografi associated with tectonic referable initial zoning for landslides

indicate the existence of empirical evidence related to the existence of active faults are found along the path of landslides, especially in the southern Sukabumi dan Garut region.

Potential earthquake due to shifting fault should also be wary, related to infrastructure development in the South West Java.