



Direktorat Jenderal Mineral dan Batubara
Kementerian Energi dan Sumber Daya Mineral

SPATIAL DATA UTILIZATION TO MONITOR MINERAL AND COAL MINING

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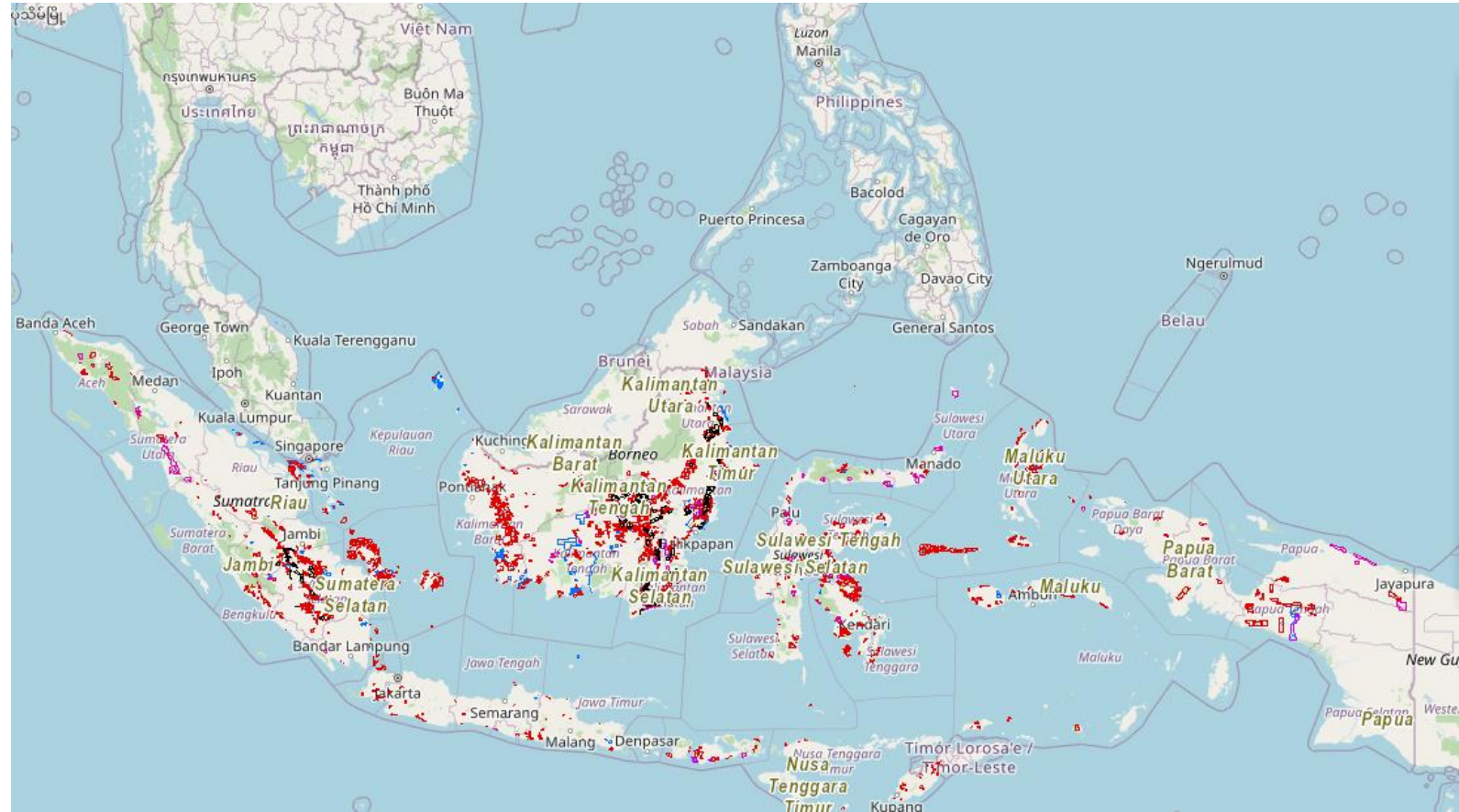
DIRECTORATE OF MINERAL & COAL' ENGINEERING & ENVIRONMENT
MINISTRY OF ENERGY & MINERAL RESOURCES
REPUBLIC OF INDONESIA



MINING SPATIAL DATABASE & WEB BASED GIS

Minerba One Map Indonesia (MOMI)

- mining concessions
- forest area
- administrative boundaries
- mineral & coal potentials

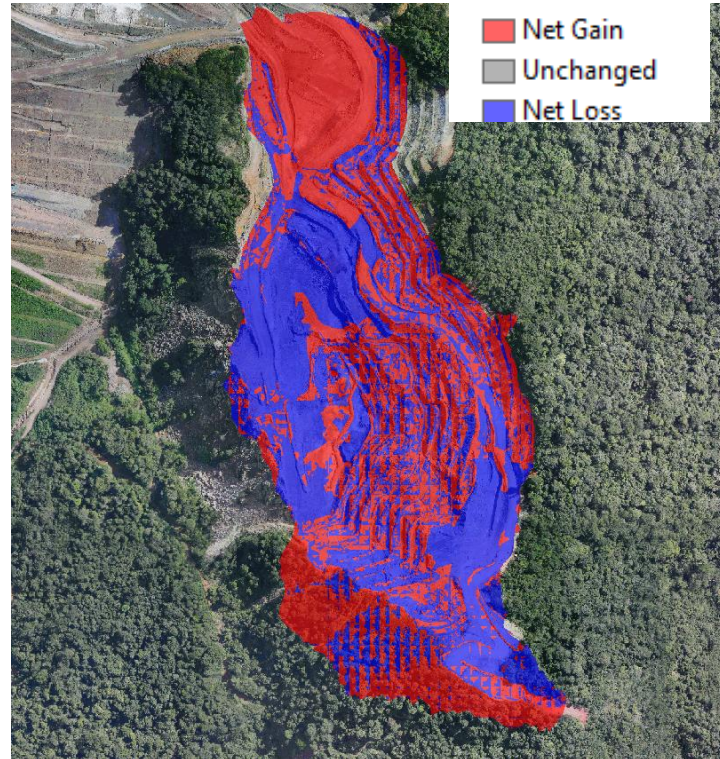


CURRENT USE OF SPATIAL DATA FOR MINE MONITORING

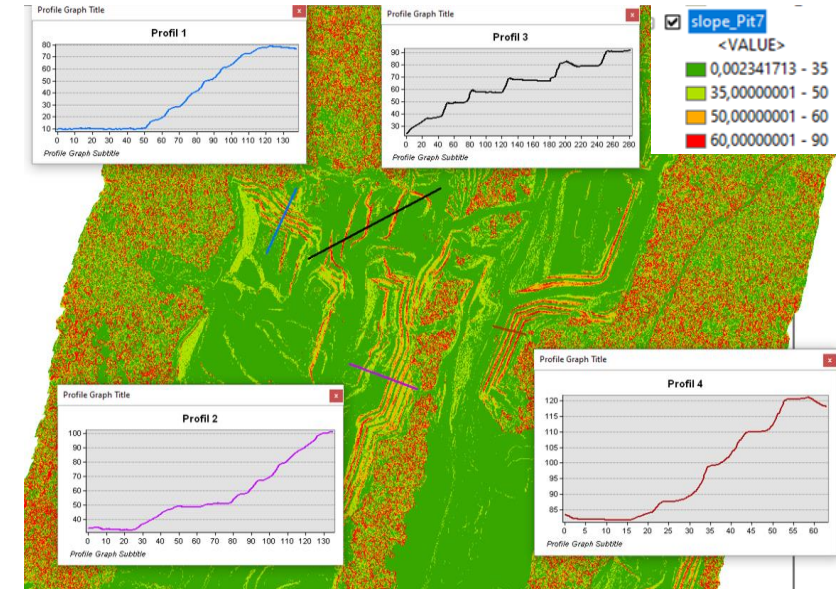
- High spatial resolution of RGB Images & DEM
- UAV platform is preferable



Land clearing, pit, disposal, infrastructure lateral progress



Pit, disposal, stockpile progress (cut & fill)



Slope geometry & road grade evaluation

CURRENT USE OF SPATIAL DATA FOR MINE MONITORING

- Multispectral Images
- Satellite platform is preferable



mine rehabilitation/reclamation
progress

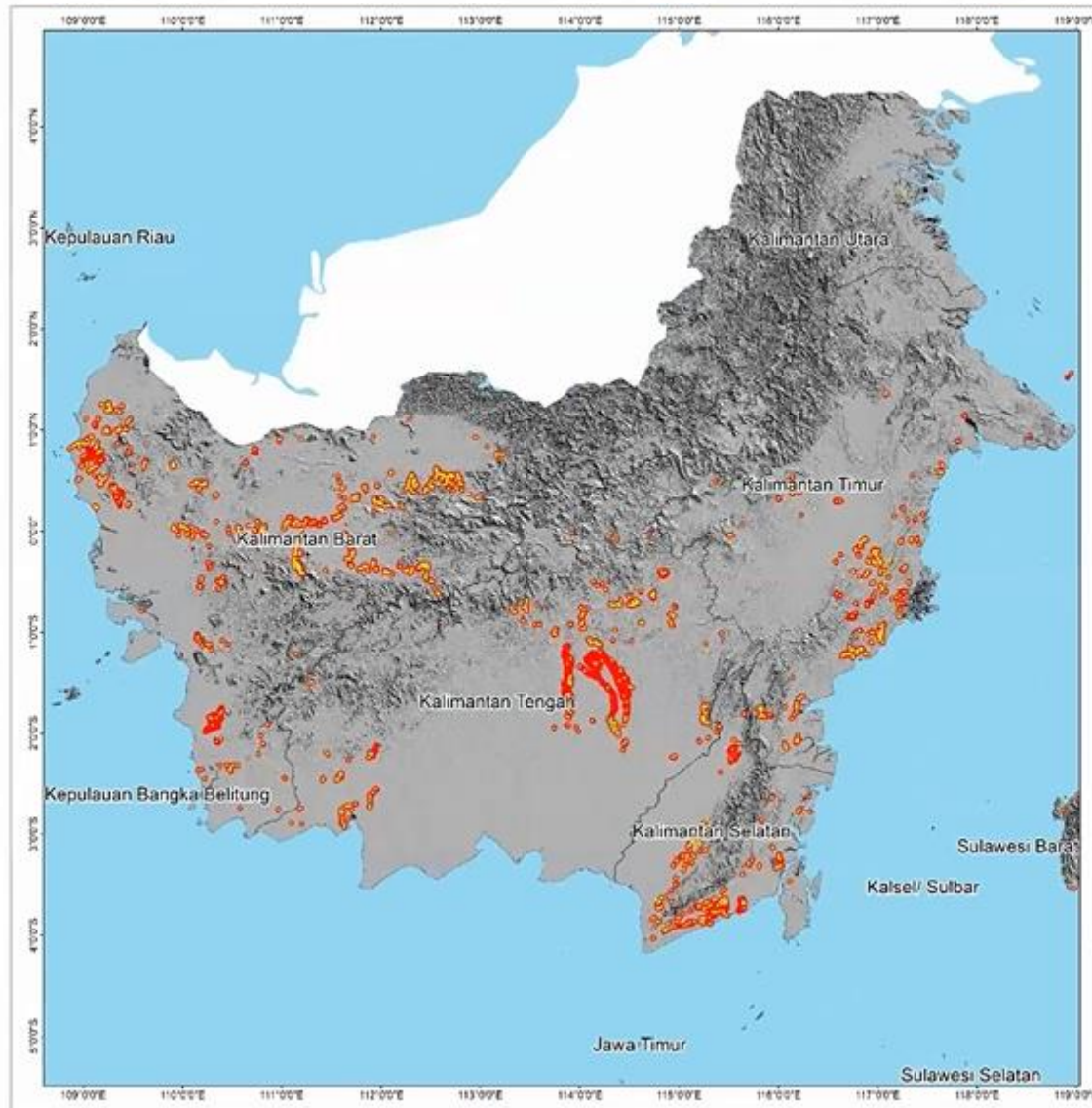


environmental impact



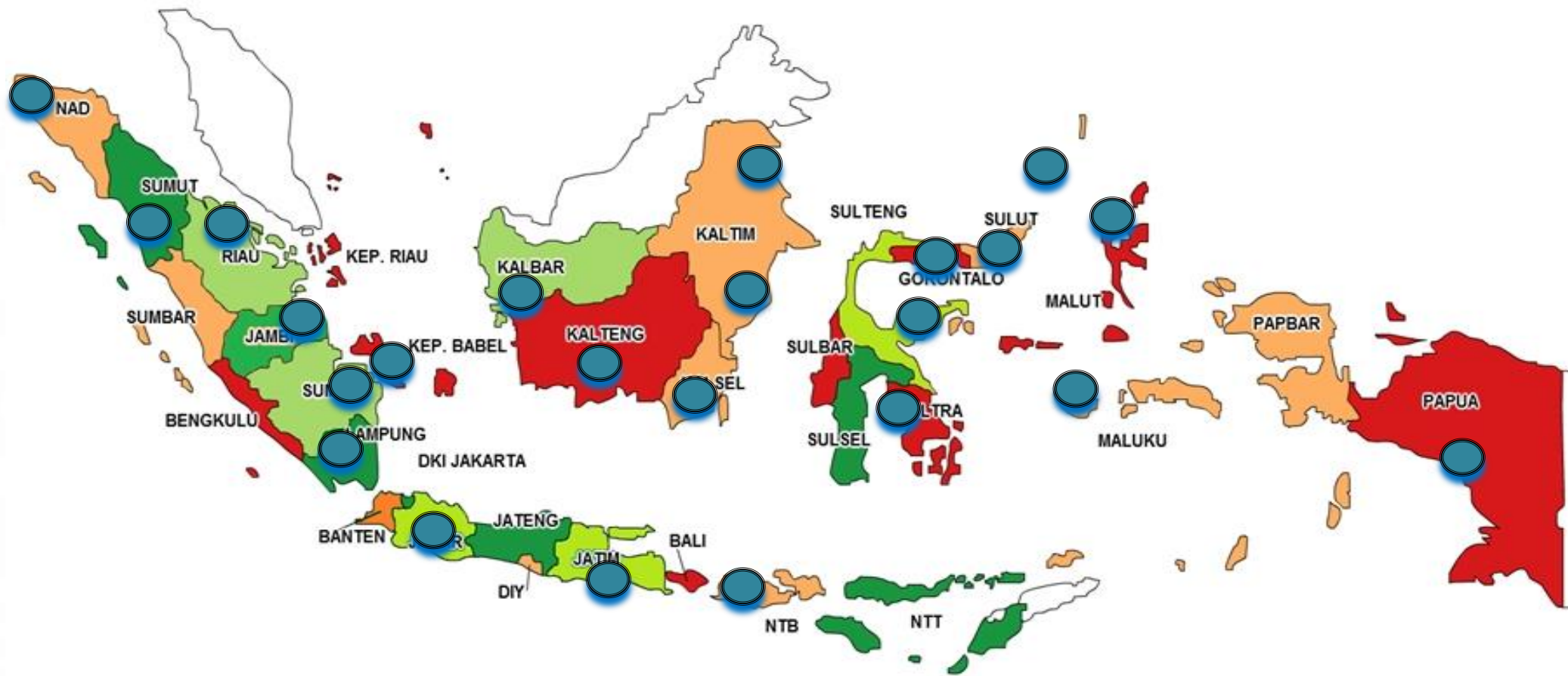
mine water management

ILLEGAL MINING IDENTIFICATION & ANALYSIS



1. The analysis consists of identifying illegal mining location and calculating the area of land disturbance
2. The illegal mining in Borneo is estimated about 146,870.6 Ha

DISTRIBUTION OF ILLEGAL MINING LOCATIONS IN INDONESIA



Locations of illegal mining activities are almost in all provinces of Indonesia

THE IMPACTS OF ILLEGAL MINING ACTIVITIES

- 1 Legal mining land occupation
- 2 Safety hazard and risk (causing fatality)
- 3 Landscape change and environmental degradation
- 4 Forest destruction
- 5 Potential escalation of social and security disruptions
- 6 Economic loss of more than 113 million USD (2019)

CHALLENGES & OPPORTUNITIES OF UTILIZING SPATIAL DATA FOR ILEGAL MINING

01 Cloud cover

02 Spatial resolution

03 The use of other available spatial data

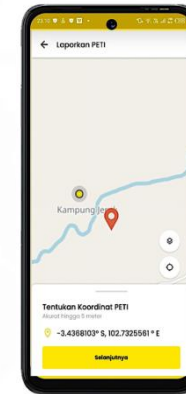
04 Further analysis (e.g. environmental degradation, identification of mining commodities, economic lost)

05 Spatial database development (pit & disposal, infrastructure, reclamation)

CURRENT & FUTURE DEVELOPMENTS

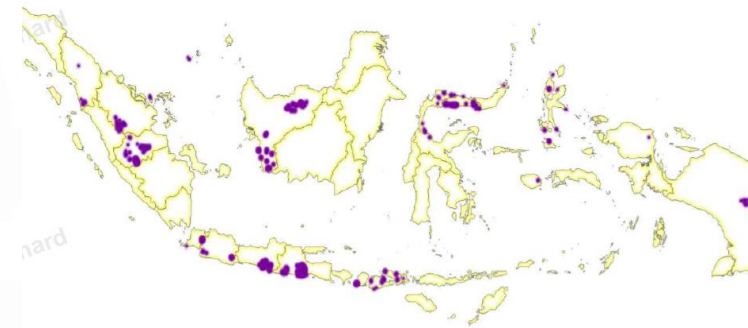
01

Mobile apps. for reporting and mapping Illegal Mining (Minerba Online Reporting System for Illegal Mining/MORSI)



02

Formalization of artisanal mining (dedicated area of 58.025 ha)



03

Task Force for handling the Illegal Mining (identification & monitoring, law enforcement, mine rehabilitation)



THANK YOU



**DIREKTORAT JENDERAL
MINERAL DAN BATUBARA**
KEMENTERIAN ENERGI DAN SUMBER DAYA MINERAL



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