



**19th International Geography
Olympiad**

FIELDWORK EXERCISE

Resource Booklet

Indonesia, 2023

The Dilemma of Cimenyan as a Conservation Zone

Bukit Pakar is located in Cimenyan District, part of Bandung Regency and also part of the Greater Bandung Area. Cimenyan is designated as a conservation and groundwater recharge zone to preserve the environmental sustainability of the whole Bandung Area. The area provides essential environmental services, such as fresh water and clean air, and also helps protect the Greater Bandung Area from natural disasters such as flooding and mass movements.

To ensure sustainable development in the area, there are several limitations in developing Cimenyan District, such as the prohibition of constructing heavy and/or polluting industries, changing forest land use, conserving biodiversity, and prohibition of building near sources of water such as lakes, rivers, and water springs, or areas with steep slopes (over 40% inclination).

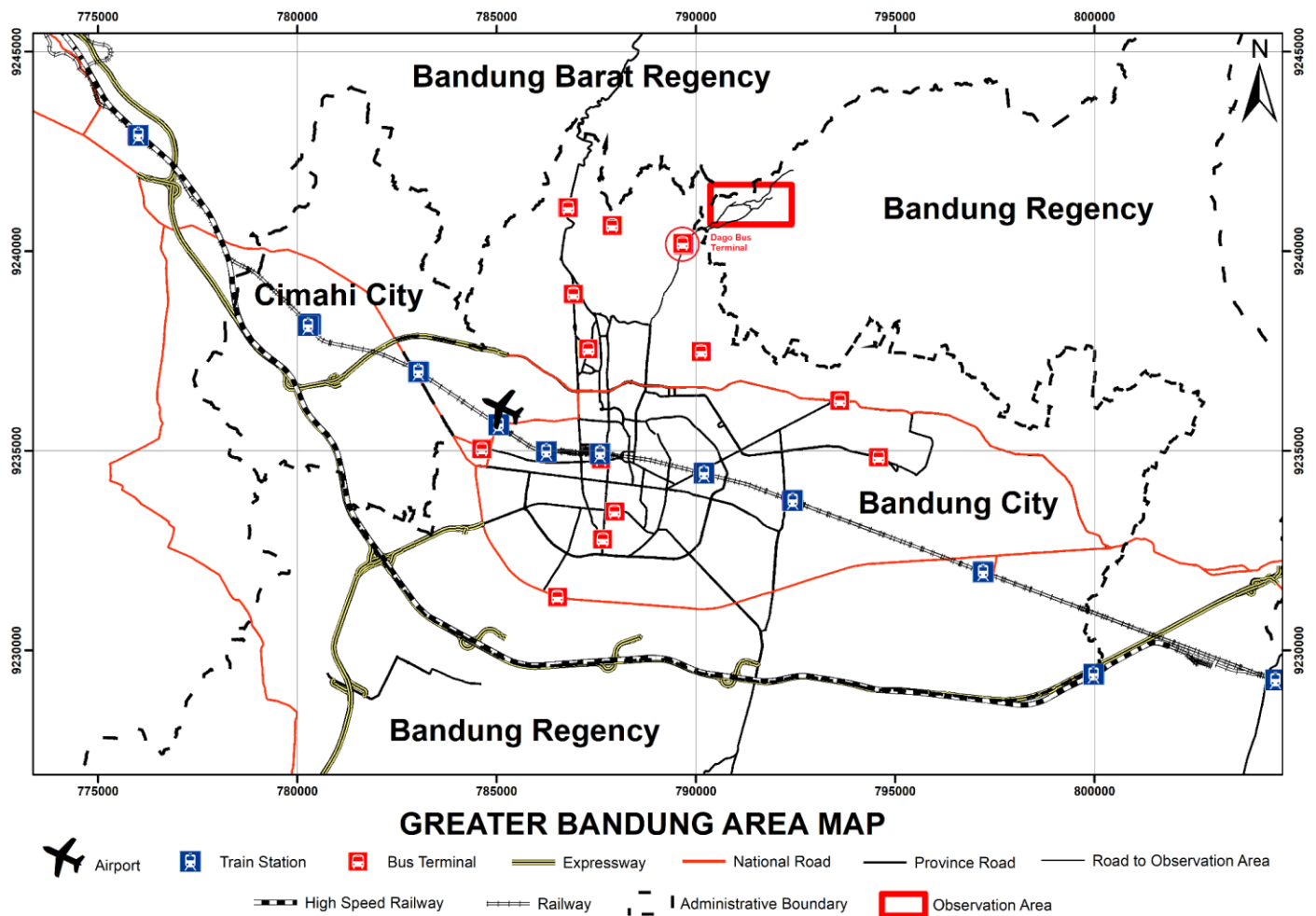


Figure 1. Cimenyan and Bukit Pakar in the Greater Bandung Area

Source: Processed using data from OpenStreetMap and Geospatial Information Agency, 2021

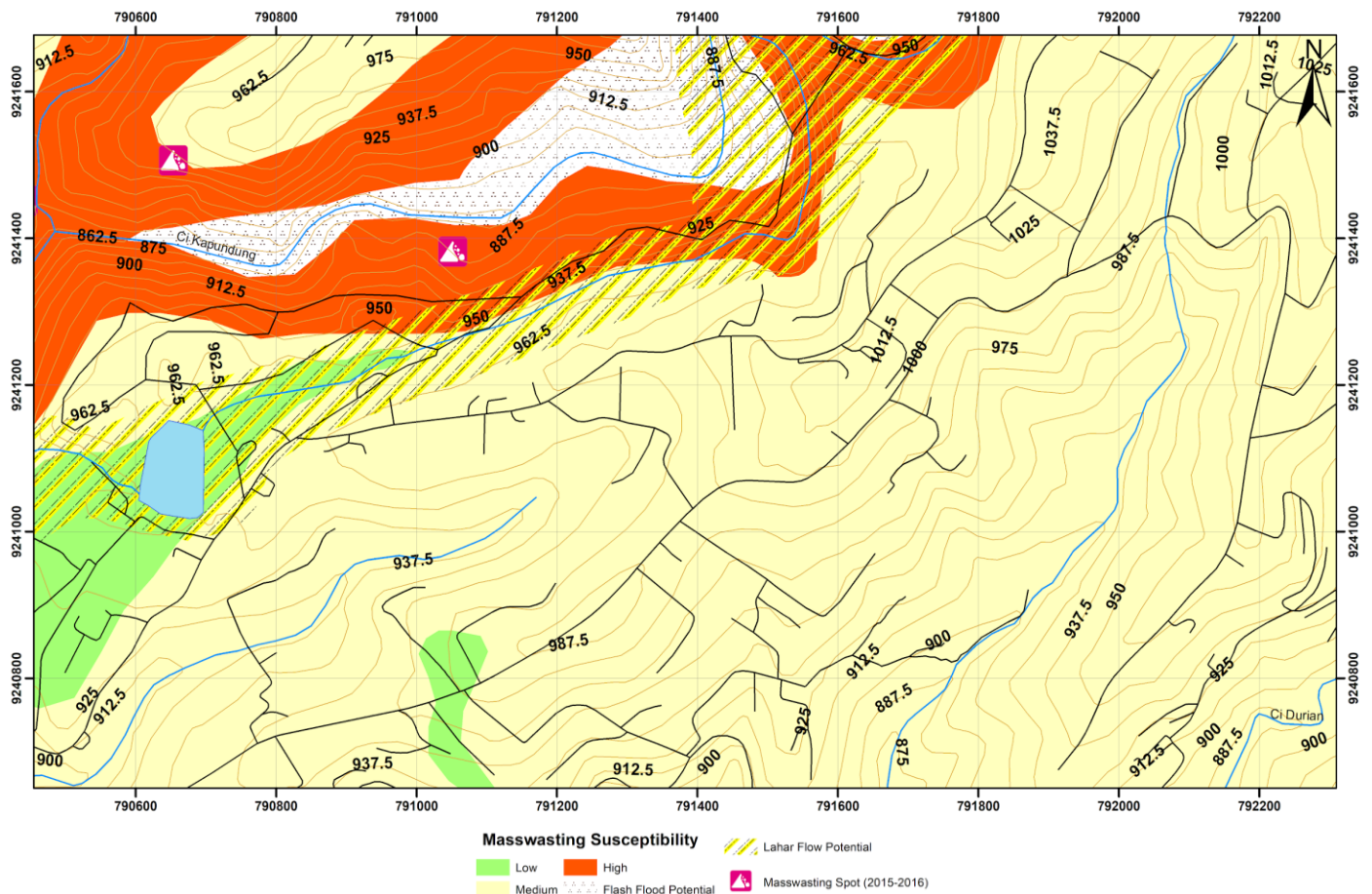


Figure 2. Disaster Susceptibility Zones in Bukit Pakar

Source: Geological Bureau, Ministry of Energy and Mineral Resources, 2019

However, Cimenyan is also facing a dilemma of its own. Since the early 2000s, many people have settled in Cimenyan due to its proximity to Bandung and other centers of growth in the Greater Bandung Area. The rapid population growth coupled with a growing productive age population and the need to lift them out of poverty has forced the local government to develop Cimenyan District instead of keeping it as a conservation zone. Due to its fertile soil and decent rainfall, the local government has developed Cimenyan as an agricultural center, replacing its tropical forests with the now iconic hill farms. Now, Cimenyan has become one of the main vegetable-producing centers in Greater Bandung supplying Bandung City and Bandung Regency.

Table 1. Population Growth of Bandung and Cimenyan

Areas	2017	2018	2019	2020	2021
Cimenyan	119,360	121,304	123,196	114,567	115,626
Bandung Regency	3,657,701	3,717,291	3,775,279	3,623,790	3,666,156
Bandung City	2,497,938	2,503,708	2,507,888	2,510,103	2,527,854

Source: Indonesian Statistical Agency, 2022

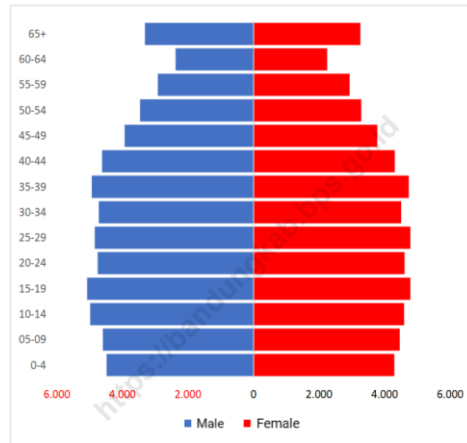


Figure 3. Population Structure of Cimencyan in 2021

Source: Indonesian Statistical Agency, 2022

This rapid development has successfully boosted the local economy and lifted many out of poverty. However, this has caused a disturbance in the local ecoregion which greatly impacted the surrounding areas. There has been a significant increase in flooding, tripling from 12 floods in 2012 to 50 in 2021. Besides flooding, significant development in Northern Bandung, especially around Cimencyan has caused widespread water pollution due to massive industrial and household waste that is dumped into the surrounding environment.

Creative Sector in Bukit Pakar as an Engine of Growth



Figure 4. Creative Sector in Bukit Pakar

Source: Multiple local news agencies

Note: Clockwise from top-left to bottom left: Selasar Sunaryo Artspace, Wot Batu Sculpture Park, Fashionable Restaurants, and Hillside Cafes.

Bukit Pakar’s creative sector is expected to be an engine of growth that is friendly to the environment. To kickstart the development, the government has transformed Juanda Forest Park into a conservation center that can double as a limited tourism spot. It has attracted campers, joggers, and even students wanting to learn more about nature and conservation. The private sector has also constructed many restaurants and art spaces near

Juanda Forest Park and along the Bukit Pakar area overlooking Bandung City. There is also a lively community of cyclers and art students from nearby universities congregating in the hillside cafes and restaurants on the weekends.



Figure 5. Interesting Spots in Bukit Pakar

Source: Multiple local news agencies

Note: Clockwise from top-left to bottom left: Scenic views, undulating hills, street vendors, and lush forests of the Juanda Forest Park.

These developments build upon Bukit Pakar’s clean air, lush vegetation, and scenic views of the surrounding area to create a unique value proposition to attract many kinds of tourists. Even though the majority of its visitors are locals looking to relax and unwind, Bukit Pakar has something to offer for everyone, even thrill-seeking mountain bikers and runners are accommodated. Several spots are very popular for street vendors specifically serving these types of tourists, these are frequently located in intersections and junctions with high accessibility and are directly on the path of the morning ride routes of several running and cycling communities in Northern Bandung.

Development Challenges in Bukit Pakar



Figure 6. Angkot as a Public Transport Mode

Source: Multiple local news agencies

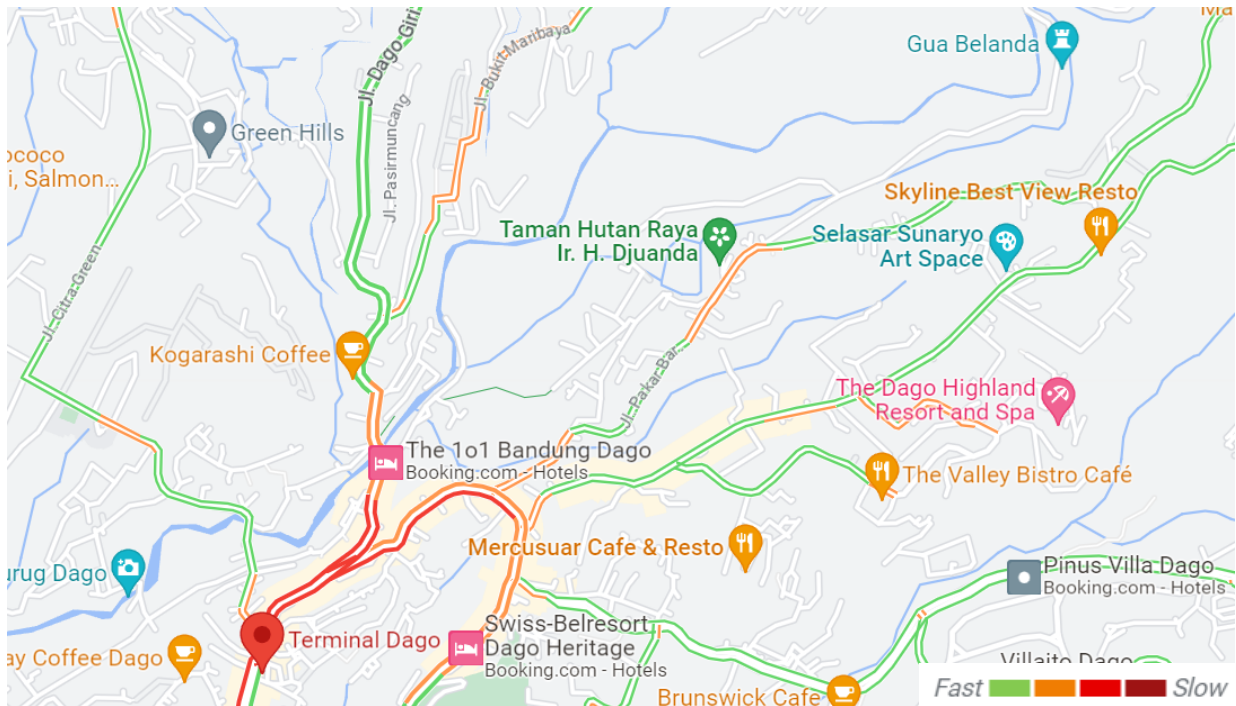


Figure 7. Average Traffic Speed of Bukit Pakar and Surrounding Areas

Source: Google Maps, 2023

Bandung's premier public transport is the Angkot which functions similarly to a bus rapid transit, but at a smaller scale using regular vehicles instead of buses. Bandung also has a BRT system in the form of Trans Metro Bandung that uses large buses, however, the system is still much smaller compared to the Angkot. Currently, Bukit Pakar is not served by any form of public transportation. The closest available transit station is Terminal Dago (dago station) to the southwest. This forces tourists and locals visiting the area to use their private vehicles, causing frequent traffic jams and widespread air pollution in Bukit Pakar.

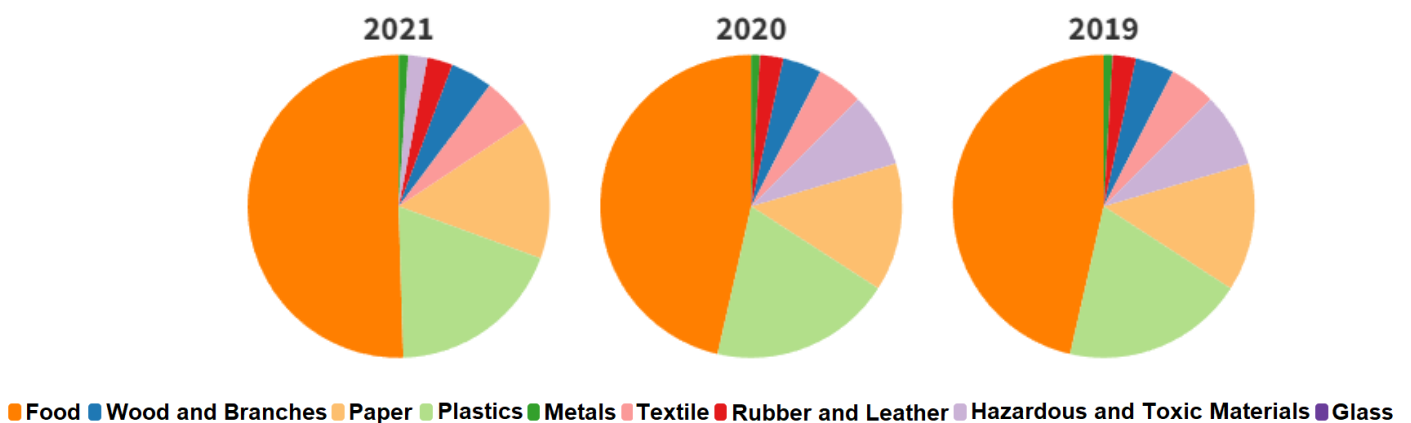
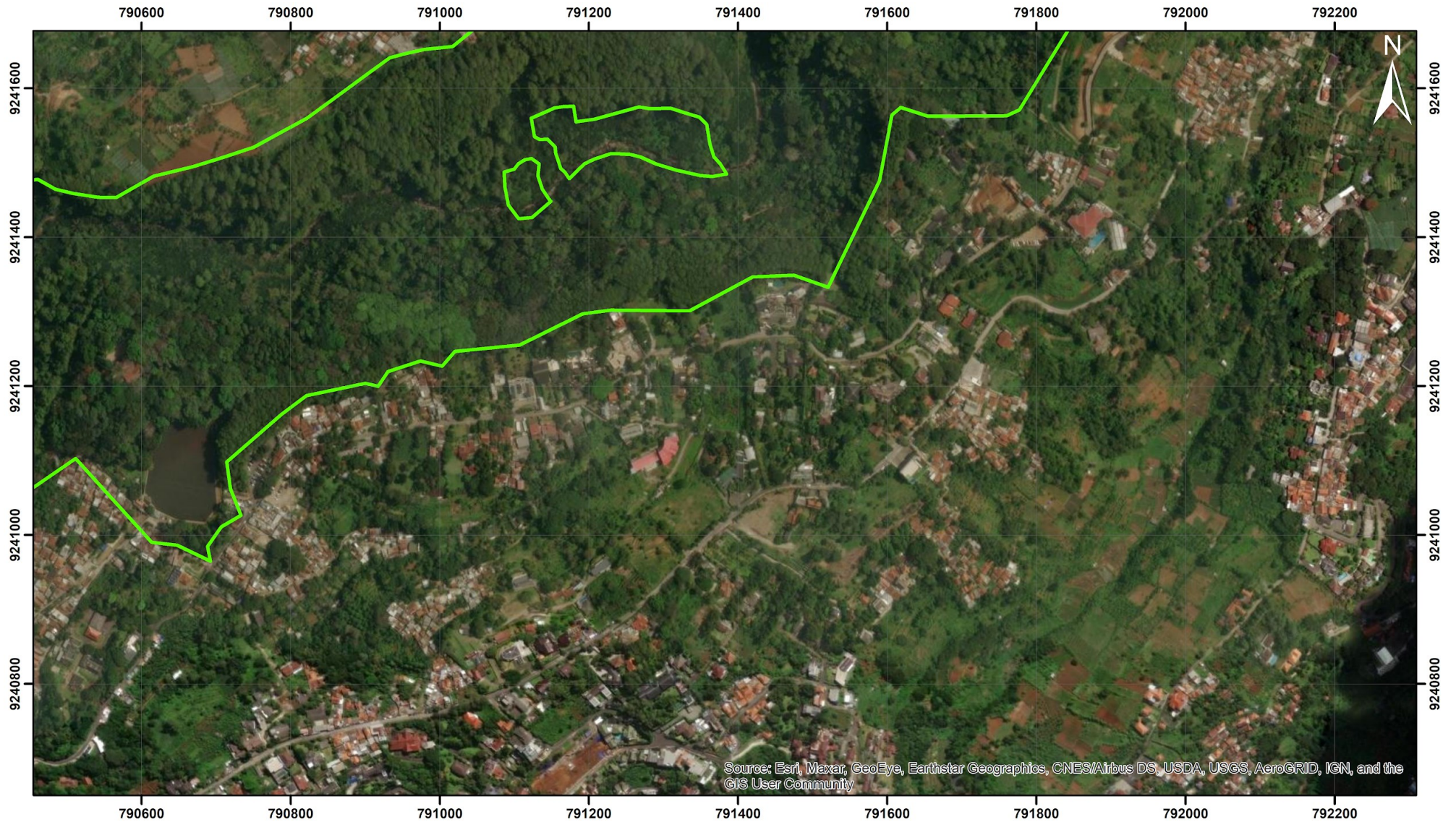


Figure 8. Estimated Composition of Bandung Regency's Waste

Source: Bandung Regency Government, 2022

Another problem is pollution, Bukit Pakar's trash disposal capacity can't keep up with the amount of waste produced, which is roughly twice the current processing capacity. The lack of trash storage and processing facilities in Bukit Pakar is thought to be one of the main causes of public littering and widespread pollution of the surrounding ecosystem. Another reason for the environmental degradation would be the heavy pollution in the Cikapundung River due to the industries upstream in the Bandung Regency.



 Juanda Forest Park Area

SATELLITE IMAGERY MAP (2023)

Figure 9. Satellite Image Map of Bukit Pakar Area

Source: ESRI, 2023

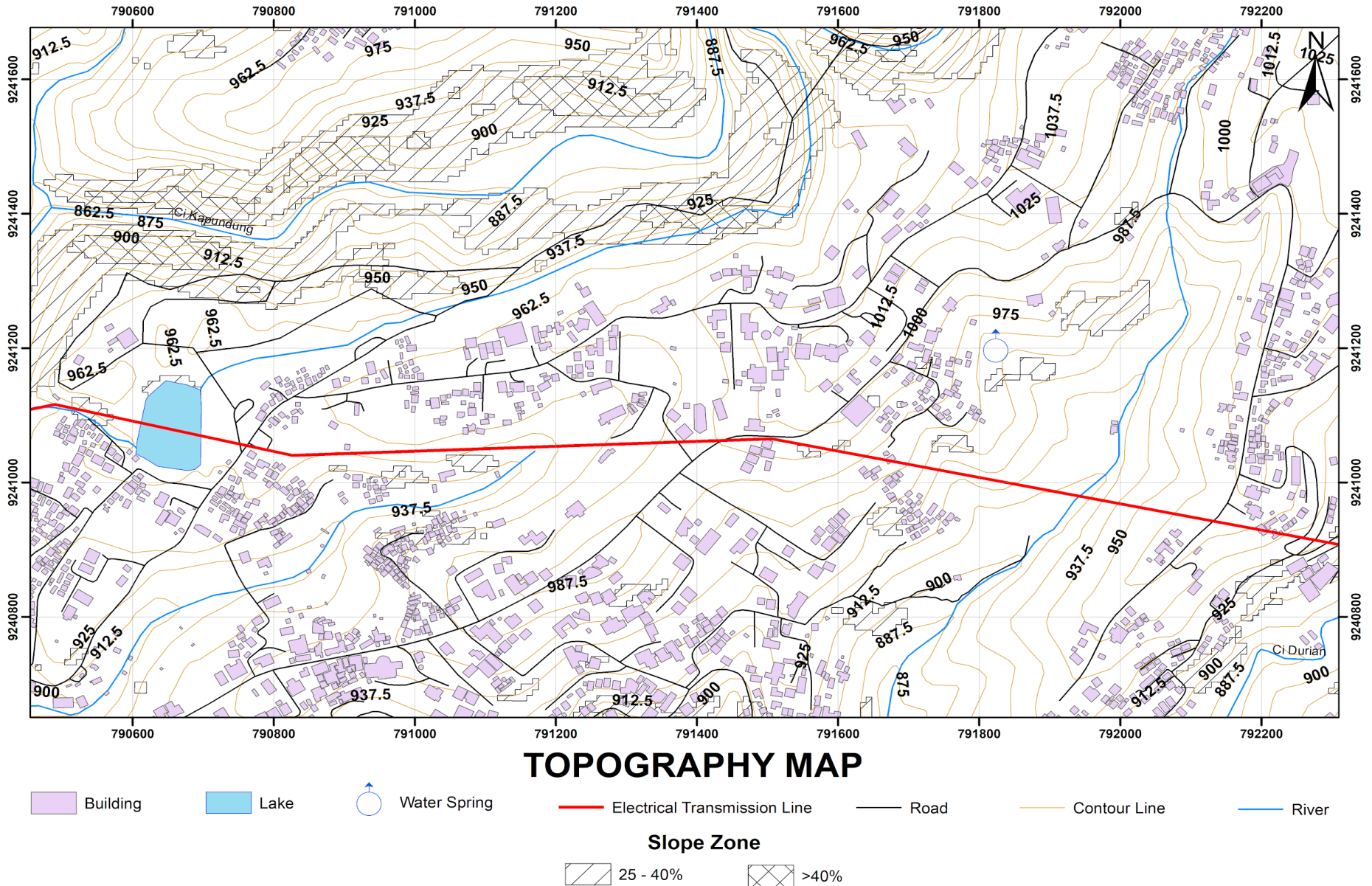


Figure 10. Physical Condition of Bukit Pakar Area

Source: Processed using data from Bandung Municipal Government and Geospatial Information Agency, 2023

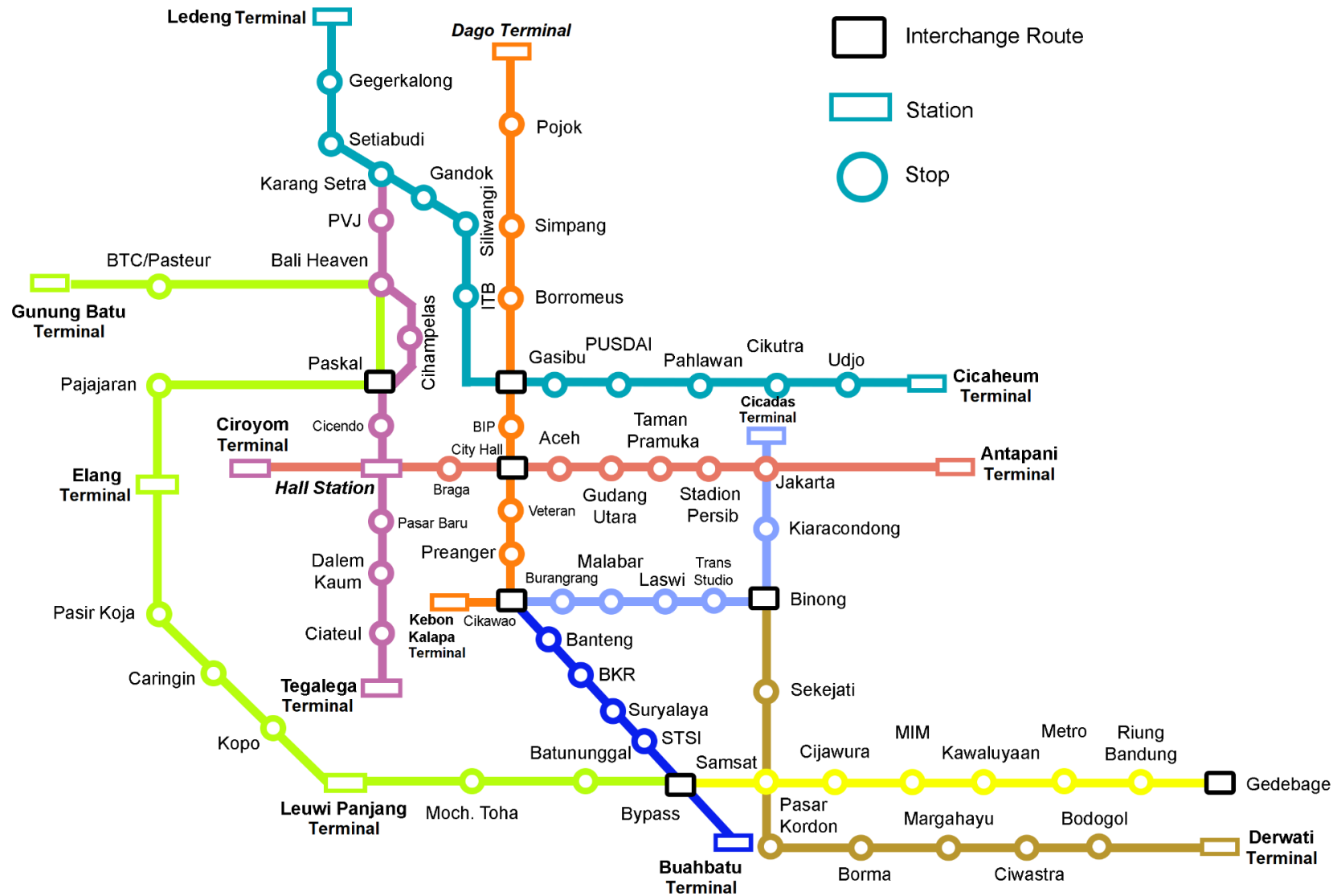


Figure 11. Angkot Route in Bandung City and Bandung Regency

Source: Processed using data from YourBandung, 2015