# CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Conclusions

Based on the results of spatial analysis and the integration of geophysical–biophysical parameters in this study, several key conclusions can be drawn as follows:

1. Geothermal potential zones in Surian area are characterized by a combination of low NDVI values, high LST, and high FFD that spatially correspond and overlap with fault lines and active surface manifestations. The highest concentration is located in the central to western parts of the study area, reflecting a strong correlation between subsurface geothermal activity, vegetation stress, surface temperature increase, and fracture morphology.
2. The presence of high-potential zones around major faults and identified hot springs reinforces the validity of the integrative approach used. This indicates that the NDVI, LST, and FFD parameters are collectively capable of capturing both thermal and structural indications of active geothermal systems.
3. Several potential zones with high integration scores were also identified without direct association with surface manifestations. This finding suggests the potential presence of latent or hidden geothermal systems that have not yet been revealed through conventional visual observations.
4. The use of the Analytical Hierarchy Process (AHP) method to integrate the three parameters has resulted in a practical and systematic geothermal potential map. This approach has proven effective as a preliminary decision-making tool for spatial data–based geothermal exploration planning.

## 5.2 Recommendations

1. This study is an initial exploratory investigation based on satellite data with limitations in spatial and temporal resolution. Therefore, the spatial interpretation accuracy needs to be further validated through more in-depth

geoscientific approaches.

2. Further research using subsurface geophysical methods such as gravity, geomagnetic, and electrical resistivity surveys is recommended. These methods will provide information about subsurface structures and hydrothermal systems that cannot be directly detected by surface data.
3. Potential zones without clear surface manifestations should be prioritized in field exploration activities. Terrestrial geological surveys, soil temperature measurements, hydrogeochemical mapping, and geophysical modelling are suggested to confirm the presence of latent geothermal systems and to assess their technical and economic feasibility for development.