



Implementation of the Green Open Space Policy Regarding the Provision and Arrangement of Kaombona City Forest Areas, Manikulore Koʻa Palu City

Rafiuddin¹, Sitti Aminah¹, Andi Sahri Alam^{2*}, Tri Wahyuni Dyah Wulandari¹

¹Faculty of Agriculture, Universitas Muhammadiyah Palu, Palu, Indonesia.

²Faculty of Forestry, Universitas Tadulako, Palu, Indonesia.

Received: May 03, 2024

Revised: June 28, 2024

Accepted: August 25, 2024

Published: August 31, 2024

Corresponding Author:

Andi Sahri Alam

andisahrialam77@gmail.com

DOI: [10.29303/jppipa.v10iSpecialIssue.8304](https://doi.org/10.29303/jppipa.v10iSpecialIssue.8304)

© 2024 The Authors. This open access article is distributed under a (CC-BY License)



Abstract: This research was conducted to look at implementing the Green Open Space Policy regarding the Provision and Arrangement of City Forest Areas. Based on the research results, the Provision and Arrangement of RLH in the Kaombona City Forest Area is based on planning, analysis, design, implementation, and maintenance. In the Implementation of the Policy for Providing and Arranging Green Open Space in the City Forest Area of Mantikuloie District, Palu City, the development of the City Forest has been very beneficial for urban areas as well as maintaining environmental sustainability and making it clean. However, the provision and arrangement activities are still 20% complete from the Masterplan concept which is considered to have still deficiencies including the design, implementation, and maintenance processes, namely the facilities and services of the Kaombona City Forest which are currently still under construction, apart from the play area buildings, not all road access has been built, and there are still many buildings that have not been completely built, some roads have not been asphalted, street lighting is inadequate and there are many more sports and recreation facilities that have not been completed.

Keywords: Green open space; Implementation; Policy

Introduction

Green open space (RLH) is a stretch of open land without buildings that has a definite size, shape, and geographical boundaries with any tenure status, in which there are woody and perennial green plants, with trees as the main characteristic plants and vegetation. others (plants, shrubs, grasses, and other ground cover plants), as complementary plants, as well as other objects that also complement and support the function of the RLH in question (Nugroho et al., 2022). Various efforts have been made by the Palu City Government to green the area, including by creating urban forest areas and open spaces so that they become clean and green (Timbang et al., 2023; Hantari et al., 2024). The development of Palu City is progressing rapidly which

has an impact on the occurrence of pressures on the physical environment, so efforts are needed to prevent and overcome activities that have an impact on environmental sustainability (Ulrich et al., 2019; Kuswandi et al., 2020). One of the efforts taken is to carry out money management activities which include money management planning (Topa et al., 2018; Lusardi, 2019).

Following the Regional Regulations of the City of Palu Number 16 2011 concerning the Palu City Regional Spatial Plan for 2010-2030, the City of Palu is creating several green areas for various purposes. In this regional regulation, it is stated that there are plans to develop protected areas in the city of Palu, among others, protected forests, locally protected areas, city green open spaces (RH), natural and cultural reserves, natural disaster protected areas, and geological protected areas

How to Cite:

Rafiuddin, Aminah, S., Alam, A. S., & Wulandari, T. W. D. (2024). Implementation of the Green Open Space Policy Regarding the Provision and Arrangement of Kaombona City Forest Areas, Manikulore Koʻa Palu City. *Jurnal Penelitian Pendidikan IPA*, 10(SpecialIssue), 396-403. <https://doi.org/10.29303/jppipa.v10iSpecialIssue.8304>

(Ismeti et al., 2023; Wirawan et al., 2021; Kautsary, 2022; Labambe, 2024).

Provision and Arrangement of RLH in the Kaombona City Forest Area, namely Utilization of the Kaombona City Forest As an open green area, the city of Palu still contains 20% of the city's forest area, which is planted with plants that are vulnerable to barren conditions, and only a few facilities are available from the initial concept of the master plan for the maintenance aspect which also still needs to be improved (AbdelRahman, 2023).

Based on the description that has been presented in the background, the community does not yet know how to implement the Green Open Space Policy regarding the Provision and Arrangement of the Kaombona City Forest Area in Mantikuloie District, Palu City. This research aims to find out how the Green Open Space Policy is implemented regarding the Provision and Arrangement of the Kaombona City Forest Area in Mantikuloie District, Palu City. It is hoped that this research will provide benefits and information for the community and government as well as for the Muhammadiyah University of Palu regarding the implementation of the Green Open Space Policy on the Provision and Arrangement of the Kaombona City Forest Area in the Mantikuloie District, Palu City, and also to complete the author's studies or the requirements for completing the Bachelor's Degree major forestry.

Method

The location of this research is in the Green Open Space (RLH) Area of the Kaombona City Forest in Mantikuloie District, Palu City. This research was conducted in August-October 2022. The tools used in this research were laptops, stationery, and cell phones to take documentation. The method used in this research starts from the preparation, and collection of primary data collected is data regarding the general condition of urban forests, Planning master, ecological conditions, economic conditions, social conditions, and data on the physical condition of the research location to determine the type and form of forest in Kaombona City, economic data obtained from various sources such as literature on research results, the internet, magazines or other scientific results, data management, data analysis and preparation of research papers.

Data Collection Techniques

The data collection technique in this research was carried out through several methods, namely:

Field Observation

Field observations were carried out by going directly to the field (Kaombona City Forest) to find out

directly the situation and condition of the Kaombona City Forest location, Palu City.

Interview

Interviews with respondents (people in the area) and key information, namely, the Secretary of the Palu City Public Works Department, Head of the Mayor's Legal Department, Young Expert Spatial Planners at the Palu City Land and Spatial Planning Service, Head of the Palu City Legal Subdivision and MSMEs.

Questionnaire

The questionnaire technique is a data collection technique that is carried out by presenting questions to respondents. The form of this research questionnaire is open-ended, namely questions that can provide answers directly.

Documentation

Documenting various objects in the research location (Kaombona City Forest).

Result and Discussion

Implementation of the Green Open Space Policy regarding the Provision and Arrangement of Palu City Forest Areas

The implementation of the green open money (RLH) policy regarding the provision and arrangement of the Kaombona City Forest Area in Palu City is seen to still contain various shortcomings, including the maintenance of forest areas which has not been maximized so that the benefits and functions of the city forest include; Suppress air, water and soil pollution, Prepare and store kaïbon and as a place where animals and fauna live, it certainly experiences ecological instability. RLH's policy regarding the Provision and Arrangement of the Kaombona Palu City Forest Area is carried out through Planning, Analysis, Planning, Implementation, and Maintenance.

Planning

The provision of a city forest park will create funds for social interaction and economic empowerment of the community so that future RH management can be successful by creating an orderly, beautiful, and comfortable Palu City. For this reason, the Palu City Government is trying to organize the RLH so that it is beneficial for the people of Palu City. In Public RLH planning, components that need to be paid attention to include location, broad achievement targets, cost requirements, and implementing agents. In the planning for the development of a City Forest in Mantikuloie District, Kalisa Village, Palu City, Sulawesi, around 7.500 plants have been planted in Palu's forest, including 1,000 types of groves, and mahogany. 2.500 sticks, and

tiembesi 4.000 sticks. The City Forest will plant various types of trees endemic to Sulawesi, shade trees, and trees that can grow in the area, which are planted in the city forest conservation zone.

Planting

This tree is used to reduce hot city temperatures, freshen the air, and can also reduce air pollution and waste. It is explained in the urban forest master plan that many facilities will later be built in the urban forest, such as recreation areas and sports areas that can be used by local communities as a place to hang out or carry out sports activities (Jeanes et al., 2019).

Analysis

The analysis must look at the RLRW Regional Spatial Plan. With the Mayor of Palu's plan, namely developing RLH in this city forest or another name, arboretum, the city forest area was a big agenda at that time because it had the potential for taific power. Financing also comes from self-management, the private sector, and banking. Seeing the condition of the forest allocation that I have been maintaining, it looks like an area that is barren and does not have the potential to be visited by the public for recreation or sports, the Palu City Government is determined to make maximum use of the assets (land and buildings) on Jalan S. Païman Palu which are currently This is used by the Department of Industry, Trade, Cooperatives and SMEs of Palu City, and the assets on Jalan Soekaino Hatta Palu which are currently used as a residential area as well as a golf course covering an area of 105 Ha with the approval of the Governor of Sulawesi, while land use will be carried out under the provisions applicable to the location in question. while still paying attention to the main function of the location as a Community/City Forest reserve and the City Government is permitted to cultivate the said land with the principle that the land remains owned and recorded in the Central Sulawesi Government Inventory book.

Analysis Results Regarding Utilization

It is felt that it is still necessary to realign and relocate culinary business actors in the Kaombona City Forest Area, so that the designation of the green open area in the Kaombona City Forest Area is truly appropriate, as well as the need for additional infrastructure and lighting facilities (Harjanti & Anggraini, 2020; Penggayuh et al., 2023).

Planning

The process mechanism for preparing the master plan began with collaboration with the Bandung Institute of Technology (Dzakiy et al., 2024). An MOU of cooperation and design was created which was then

submitted to the provincial government to create a loan-to-use MOU. Furthermore, the Palu City Government carried out urban forest planning, formulating that the Kaombona City Forest Area of Palu City was designed as an RLH area in which sports facilities, entertainment, and entertainment pools would be built to utilize the natural resources, as a place of research (education) for students, university students, and the general public. Meanwhile, for the time being, culinary tourism is provided for business actors (MSMEs) affected by natural disasters (earthquake, tsunami, and liquefaction and the planting of endemic trees which are beneficial in creating a microclimate and at the same time as a wildlife ecosystem.

The arrangement of the urban forest will be accompanied by the construction of several structuring facilities and sports facilities (Maruna et al., 2019; Paudel & States, 2023; Lee & Kim, 2022). Several facilities have been made available, among others; basketball court, futsal court, volleyball court, gate, amphitheater, road, road network, and several roads that have had their repair work done. The Palu City Government has deliberately built several sports facilities in the forest area of the city forest in the hope that the forest can be maintained. Kaïena, the basic concept of aïboetum urban forest development, namely making the urban forest belong to the people of Palu City which has value education, tourism, and ecology. So, it's not just a matter of arranging the forest by planting trees. Rather, it is designed as a tourist attraction for the community that has educational value (Andari et al., 2020).

As for art lovers, if you come at the right moment, you can watch art performances such as Drama or watch song performances to entertain visiting tourists. Apart from traveling to enjoy the cool atmosphere of the Palu City Forest, tourists can also enjoy delicious culinary delights at this location. There are many places to eat or cafes in Kaombona City Forest Park. Residents sell a variety of food at affordable prices (Nandi et al., 2021; Enthoven et al., 2021). The main public facilities such as toilets are also available, so tourists can use them as needed. Jejeian waïung which sells various fast food and drinks and rents Koïea-style clothes is located in the easternmost part of the City Forest Area. In front of the entrance to the City Forest Area, there is an ALV Adventuïe racing vehicle whose route is made around the intersection of three main roads entering the Kaombona City Forest area.

However, the Palu City Government cannot complete development work in the Palu City Forest due to the status of the land as belonging to the Government. Regional District of Central Sulawesi. The Kaombona City Forest Area is an area of the Central Sulawesi Regional Government whose management was handed over to the Palu City Regional Government for 5 (five)

years according to the MoU, which was then handed back to the Central Sulawesi Regional Government. After the lease period for the City Forest, its storage cannot continue, because the City Forest does not belong to the Palu City Government.

Implementation

The basis for the implementation of the RLH Provision and Arrangement Policy in the Kaombona City Forest Area, namely the use of the Kaombona City Forest as a green open space area for the city of Palu, still allows 20% of the area of the said city forest, to be planted with plants that are susceptible to barren conditions, which only in the form of facilities for maintenance aspects also still need to be improved. As previously explained, in the Kaombona City Forest area there are 6 zones, and all of them have not been utilized: Zona Foíest Cottage (Forest Cottage); By the 2019 City Forest Masteíplan, this zone will be developed into several parts, namely: Lobby and management; Meeting Building; Retention Lake; d. Foísest Cottage; Eco Pool; Aíea Paíkí. However, currently, the Forest Cottage Zone is still not utilized by the community in the Kaombona City Forest Area.

Exhibition and Culinary Zones are the zones that will be in the Future

It will be used as a place for exhibitions and culinary delights. Apart from that, an exhibition area, culinary area, entertainment lake, area geíbang, and paíkí area will be built. However, currently, this zone has not been utilized by the community in the Kaombona City Forest Area.

Viewing Deck Zone

The 2019 City Forest Master Plan will be built into several parts such as the Plaza Viewing Deck, viewing deck, café & restaurant, BMX support, entertainment lake, and secondary park. But, for now, the zone. This area has not been utilized by the community in the Kaombona City Forest Area. Some of the facilities that are available and can be utilized by the local visitor community are:

Laman City

City parks are a form of RLH that is widely used by the community to carry out various kinds of activities ranging from recreation, sports, and passive activities, as a form of RLH, city parks have ecological, socio-cultural, aesthetic, and economic functions. (Astíiana, 2014).

The location of the city park is adjusted to the applicable provisions, namely the Regulation of the Minister of the Republic of Indonesia Nomor P.71/Menhut-11/2009 concerning the administration of urban forests. Kaíena Park still exists in the Kaombona

City Forest Area of Palu. As far as possible, utilize land that has not yet been developed so that the activities that will be developed are a combination of ecological interests, family tourism, and sports as much as possible (Briffa et al., 2020).

Sports Center

Tourists who visit the Palu City Forest shelter can not only enjoy open natural views. However, you can also take advantage of sports facilities such as skating rinks, basketball courts, golf, futsal, football, and even playgrounds (jogging). Apart from being synonymous with sports, this park also provides other sports facilities which are usually frequently visited during the holidays. The urban forest area has an area of more than 100 hectares, including the golf course and KNPI building, and is scheduled to be added to the SELQ location covering an area of 34 hectares. At this location, sports facilities such as; a swimming pool, panggona circuit, and rock climbing wall.

Kulineí Kaombona area Built-up Urban Forest Area

By this government, at first, it looked restless and dull. However, since it became a location for disaster victims, it has become a relatively livelier area. Their activities are mostly active in the culinary field. Like a welcome response, forest activities which were previously dominated by local women for morning exercise, became livelier and more active among the wider community after being complemented by the culinary efforts of disaster victims (location actors). Users of urban forests are becoming more active and disaster victims are becoming more active in the culinary trade, so they are indicated to be able to forget the past disasters that have befallen them (Aulia et al., 2023). Implement Mayor's Ordinance No. 31 of 2019 concerning the Kaombona City Forest Park, Article 1 states that the city forest park is a medium of active and passive recreation for the community that has functional value.

Apart from the place created by the local community, apart from earning income from sales, it also provides a recreational atmosphere for visitors to the people of Palu City. The culinary spaces in this area were formed not just to fulfill or create new culinary and tourism areas. However, it also creates places that support social interaction in society. Gathering activities, chatting, hanging out, or discussing various things are carried out by the visiting community. The large number of people visiting with friends and family shows that this culinary area is liked by all levels and ages of the people of Palu City. The formation of this kuline is an opening for the death of this hillside location which was previously full of bushes. This area was relocated to revive the surrounding area. This space becomes a field

for the culinary business community. Both day and night, this money is turned on by culinary practitioners, both traders and visitors. Traders offer many local Sulawesi culinary delights as visitors' favorite foods when enjoying the shores of Ialise Beach (Enggriani et al., 2023).

Stall

Hundreds of women survivors of disaster victims in Palu received assistance and business assistance. The assistance and business assistance provided is an effort by the Stu Kaisa Kaiya Foundation to revive the economy through the concept of "Geiai Women Beíceita". The government launched many women's business groups in the Kaombona City Forest Area, Palu City. The assistance is then used to open or create a new business, either a business that is run alone or a business that is run as a group. There are aid recipients who open businesses individually, for example opening small kiosk businesses and there are those who run businesses by creating business groups and marketing. its current business products (Dwivedi et al., 2021; Haleem et al., 2022).

Pasaí Arts

The Palu City Government has designated a location as a marketplace for arts and crafts and processed food products typical of the City of Palu. The location is in the Kaombona City Forest Area which is located in Ialise Village, Mantikuloie District. The construction of this first art market was the idea of the Mayor of Palu after the September 2018 disaster. Apart from being the focus of the industrial arts center and processed food typical of Palu City, Pasaí Art in the Kaombona City Forest will later become one of the icons of Palu City. The development of this Art Market cannot be separated from the support of business actors, especially in the craft industry in the city of Palu. The Community Empowerment Institute (LPM) of Ialise Village manages the temporary use of the cultural arts zone of the MSME arts market block in the Kaombona City Forest, Palu. This was marked by the handing over of a decree (SK) regarding the temporary use of the arts and culture zone of the MSME arts market block in the Kaombona Palu City Forest by the Mayor of Palu (Nurkomala et al., 2023).

Four Residences

The community uses the Kaombona city forest land to be able to meet the living needs of their families or fulfill their physiological needs, namely clothing, food, and shelter. The shelter was built by the Palu City Government to accommodate the people of Palu City who lost their homes after the natural disaster and

tsunami occurred in Palu (Iuchi et al., 2023; Tjitrawati & Romadhona, 2023).

Kantoí Neighborhood

Palu City Public Works (PU) Department for temporary work in the Kaombona Palu City Forest Area. It is planned that this semi-permanent building will be occupied for the next two years. The Head of the Palu Public Works Department said that this temporary kanto was built semi-finished with a budget of IDR 200 million. The walls are made of carcinoid. However, the money is sufficient to back up all official activities. The Public Works Department does not yet have a permanent kantoí. Finally moving from one place to another. (Paluekspies.com). Therefore, his party took the initiative to utilize a plot of land in the area of the Forest. Then build a semi-permanent kantoí by utilizing inventory materials in the PU kantoí that can still be used. According to him, official activities in the urban forest area are not just official duties (Bamwesigye et al., 2023; Li et al., 2023; Pregitzer et al., 2019; Yamaki, 2016).

Moreover, his party can temporarily directly monitor all activities that are taking place in the area. Ieidalam will initiate greening programs in urban forest areas. One of them is a partnership with banking to support the program (Paluekspies.com) Gambaí 8 Kantoí Palu City Public Works Department The Kaombona City Forest Reserve which is being developed in Palu, apart from being a location for the growth of endemic tree species, the area is also used as a sports, arts, research (education) area and various facilities that support the economic activities of local communities and communities affected by natural disasters (Indrayanti et al., 2019).

The implementation has not been maximal in terms of planning because only a few percent have been realized from the Masteíplan Concept. As seen now, the City Forest Area is being utilized well in terms of facilities. Because of the culinary problems since the post-disaster and the sellers who were temporarily relocated, this is because economic performance has improved, and the community have appreciated the city forest as one of their favorite places on holidays or relaxing holidays. Apart from being a place for recreation or sports. The City Forest is also a place for families or friends to gather to spend time or hang out (Menezes et al., 2019).

Maintenance

Kaombona City Forest Maintenance was effective after natural disasters (earthquake, tsunami & liquefaction), namely from 2020 to 2022, but after the area was returned to the Regional Government of Sulawesi in the middle of 2022, maintenance of the facilities and endemic plants being cultivated was no

longer adequate because the maintenance budget was no longer summarize from the Palu City APBD. The participation of the local community and culinary business actors in maintaining and maintaining the facilities in the City Forest Area is quite high in maintaining cleanliness by placing rubbish bins in each business place (Keramitsoglou & Tsagarakis, 2018; Hajam et al., 2023). However, recently the Palu City Government has prepared human resources and waste transportation facilities which are being operated every day (Riadi, 2024; Pheakdey et al., 2022). Several facilities in the Kaombona City Forest Area are well maintained, including entertainment facilities, lighting, and several business premises. Apart from that, there is liana grass still growing around the facility.

Conclusion

Based on the results and discussion, the conclusion is drawn that the implementation of the green open money (RH) policy regarding the provision and arrangement of RLH in the Kaombona City Forest Area includes planning, analysis, planning, implementation, and maintenance. In the Implementation of the Policy for Providing and Arranging Green Open Space in the City Forest Area of Mantikuloie District, Palu City, the development of City Forests has been very beneficial for urban areas in terms of aesthetics and protection as well as maintaining the preservation of biodiversity. However, the activities of providing and This arrangement is still 20% complete from the Master Plan Concept which is considered to still have shortcomings including the design, implementation, and maintenance processes, namely the design and maintenance of the Kaombona City Forest which is currently still in the development stage.

Acknowledgments

Thanks to all parties who have supported the implementation of this research. I hope this research can be useful.

Author Contributions

Conceptualization; R.; methodology; S. A.; validation; A. S. L.; formal analysis; T. W. D. W.; investigation; R; resources; S. A.; data curation; A. S. L.; writing – original draft preparation; T. W. D. W.; writing – review and editing; R.; visualization; S. A.: All authors have read and agreed to the published version of the manuscript.

Funding

Researchers independently funded this research.

Conflicts of Interest

The authors declare no conflict of interest.

References

- AbdelRahman, M. A. E. (2023). An overview of land degradation, desertification and sustainable land management using GIS and remote sensing applications. *Rendiconti Lincei. Scienze Fisiche e Naturali*, 34(3), 767–808. <https://doi.org/10.1007/s12210-023-01155-3>
- Andari, R., Supartha, I. W. G., Riana, I. G., & Sukawati, T. G. R. (2020). Exploring the Values of Local Wisdom as Sustainable Tourism Attractions. *International Journal of Social Science and Business*, 4(4). <https://doi.org/10.23887/ijssb.v4i4.29178>
- Aulia, R., Kaswanto, K., Arifin, H. S., Mosyaftiani, A., Syasita, N., Wahyu, A., & Wiyoga, H. (2023). Assessing the benefits and management of urban forest in supporting low carbon city in Jakarta, Indonesia. *Biodiversitas Journal of Biological Diversity*, 24(11). <https://doi.org/10.13057/biodiv/d241136>
- Bamwesigye, D., Fialova, J., Kupec, P., Yeboah, E., Łukaszkiwicz, J., Fortuna-Antoszkiewicz, B., & Botwina, J. (2023). Urban Forest Recreation and Its Possible Role throughout the COVID-19 Pandemic. *Forests*, 14(6), 1254. <https://doi.org/10.3390/f14061254>
- Briffa, J., Sinagra, E., & Blundell, R. (2020). Heavy metal pollution in the environment and their toxicological effects on humans. *Heliyon*, 6(9), e04691. <https://doi.org/10.1016/j.heliyon.2020.e04691>
- Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., Jain, V., Karjaluoto, H., Kefi, H., Krishen, A. S., Kumar, V., Rahman, M. M., Raman, R., Rauschnabel, P. A., Rowley, J., Salo, J., Tran, G. A., & Wang, Y. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management*, 59, 102168. <https://doi.org/10.1016/j.ijinfomgt.2020.102168>
- Dzakiy, U. N., Matsuura, Y., Simatupang, T. M., & Prasetyo, E. A. (2024). Practical model of technology commercialisation at an Indonesian University: A case study from Institut Teknologi Bandung. *Journal of Open Innovation: Technology, Market, and Complexity*, 10(3), 100341. <https://doi.org/10.1016/j.joitmc.2024.100341>
- Enggriani, M., Ratu Bilqis, L. D., Adawiyah, R., Maulana, A., & Rachim, F. (2023). Culinary Tourism of Traditional Market Snacks in Jabodetabek. *TRJ Tourism Research Journal*, 7(2), 268. <https://doi.org/10.30647/trj.v7i2.238>
- Enthoven, L., & Van Den Broeck, G. (2021). Local food systems: Reviewing two decades of research. *Agricultural Systems*, 193, 103226. <https://doi.org/10.1016/j.agsy.2021.103226>

- Hajam, Y. A., Kumar, R., & Kumar, A. (2023). Environmental waste management strategies and vermi transformation for sustainable development. *Environmental Challenges*, 13, 100747. <https://doi.org/10.1016/j.envc.2023.100747>
- Haleem, A., Javaid, M., Asim Qadri, M., Pratap Singh, R., & Suman, R. (2022). Artificial intelligence (AI) applications for marketing: A literature-based study. *International Journal of Intelligent Networks*, 3, 119–132. <https://doi.org/10.1016/j.ijin.2022.08.005>
- Hantari, A. N., Pratama, A. S., & Herliani, D. (2024). Sustainable environmental development by improving design of the Kerkof City Forest in Garut Regency. *E3S Web of Conferences*, 506, 10003. <https://doi.org/10.1051/e3sconf/202450610003>
- Harjanti, I. M., & Anggraini, P. (2020). Green Open Space Functions in Kauman Area, Semarang City, Indonesia. *Journal of Architectural Design and Urbanism*, 3(1), 1–9. <https://doi.org/10.14710/jadu.v3i1.7164>
- Indrayanti, L., Rotinsulu, J., Yanarita, Y., & Sosilawaty, S. (2019). Peat Swamp Forest; Management and Development of Indigenous Species to Support Economic Local People at Periphery Forest (Case Study in Central Borneo, Indonesia). *Journal of Ecological Engineering*, 20(4), 76–83. <https://doi.org/10.12911/22998993/102791>
- Ismeti, I., Palipadang, L., Tavip, Moh., & Weri, A. (2023). Regional Government Responsibility Related to Disaster Mitigation through Human Rights-Based Spatial Policies in Palu City. *International Journal of Disaster Management*, 5(3), 213–226. <https://doi.org/10.24815/ijdm.v5i3.30987>
- Iuchi, K., Takagi, H., Jibiki, Y., Kondo, T., Kusunoki, A., Hanifa, N. R., Pelupessy, D., Gayathri, R. T., & Olshansky, R. (2023). Questioning the hazard map-based rebuilding process: Learning from the 2018 Sulawesi earthquake in Indonesia. *Coastal Engineering Journal*, 65(1), 126–148. <https://doi.org/10.1080/21664250.2023.2165430>
- Jeanes, R., Spaaij, R., Penney, D., & O'Connor, J. (2019). Managing informal sport participation: Tensions and opportunities. *International Journal of Sport Policy and Politics*, 11(1), 79–95. <https://doi.org/10.1080/19406940.2018.1479285>
- Kautsary, J. (2022). Infrastructure design and multi disasters-based land use as the main key to Palu resilience city. *IOP Conference Series: Earth and Environmental Science*, 955(1), 012017. <https://doi.org/10.1088/1755-1315/955/1/012017>
- Keramitsoglou, K., & Tsagarakis, K. (2018). Public Participation in Designing the Recycling Bins to Encourage Recycling. *Sustainability*, 10(4), 1240. <https://doi.org/10.3390/su10041240>
- Kuswandi, Y., Erwindi, J., Dwi Hadian, Moh. S., & Muslim, D. (2020). Disaster Mitigation for Palu City Residents in Dealing with Liquefaction Disasters in Accordance of Spatial Patterns of Palu City, Central Sulawesi Province, Indonesia. *Journal of Geoscience, Engineering, Environment, and Technology*, 5(4), 219–226. <https://doi.org/10.25299/jgeet.2020.5.4.5653>
- Labambe, M. (2024). Predicting Waste Production Trends in Palu City Using Linear Regression Analysis. *Advance Sustainable Science Engineering and Technology*, 6(3), 0240306. <https://doi.org/10.26877/asset.v6i3.523>
- Lee, J., & Kim, D.-H. (2022). Urban Forest Visit Motivation Scale: Development and Validation. *Sustainability*, 15(1), 408. <https://doi.org/10.3390/su15010408>
- Li, S., Chen, T., Chen, F., & Mi, F. (2023). How Does the Urban Forest Environment Affect the Psychological Restoration of Residents? A Natural Experiment in Environmental Perception from Beijing. *Forests*, 14(10), 1986. <https://doi.org/10.3390/f14101986>
- Lusardi, A. (2019). Financial literacy and the need for financial education: Evidence and implications. *Swiss Journal of Economics and Statistics*, 155(1). <https://doi.org/10.1186/s41937-019-0027-5>
- Maruna, M., Crnčević, T., & Milojević, M. P. (2019). The Institutional Structure of Land Use Planning for Urban Forest Protection in the Post-Socialist Transition Environment: Serbian Experiences. *Forests*, 10(7), 560. <https://doi.org/10.3390/f10070560>
- Menezes, M., Arvanitidis, P., Smaniotta Costa, C., & Weinstein, Z. (2019). Teenagers' Perception of Public Spaces and Their Practices in ICTs Uses. In *CyberParks – The Interface Between People, Places and Technology* (Vol. 11380, pp. 109–119). Springer International Publishing. https://doi.org/10.1007/978-3-030-13417-4_9
- Nandi, R., Nedumaran, S., & Ravula, P. (2021). The interplay between food market access and farm household dietary diversity in low and middle income countries: A systematic review of literature. *Global Food Security*, 28, 100484. <https://doi.org/10.1016/j.gfs.2020.100484>
- Nugroho, H. Y. S. H., Nurfatriani, F., Indrajaya, Y., Yuwati, T. W., Ekawati, S., Salminah, M., Gunawan, H., Subarudi, S., Sallata, M. K., Allo, M. K., Muin, N., Isnani, W., Putri, I. A. S. L. P., Prayudyarningsih, R., Ansari, F., Siarudin, M., Setiawan, O., & Baral, H. (2022). Mainstreaming Ecosystem Services from Indonesia's Remaining Forests. *Sustainability*, 14(19), 12124. <https://doi.org/10.3390/su141912124>
- Nurkomala, N., Diswandi, D., & Fadliyanti, L. (2023). The Role of Community Empowerment Institutions

- for Village Development. *European Journal of Development Studies*, 3(3), 76–82. <https://doi.org/10.24018/ejdevelop.2023.3.3.268>
- Paudel, S., & States, S. L. (2023). Urban green spaces and sustainability: Exploring the ecosystem services and disservices of grassy lawns versus floral meadows. *Urban Forestry & Urban Greening*, 84, 127932. <https://doi.org/10.1016/j.ufug.2023.127932>
- Penggayuh, D., Munibah, K., & Ardiansyah, M. (2023). The Impact of Changes in Land Use on Green Open Space and Comfort Index in Semarang City, Indonesia. *Jurnal Pengelolaan Sumberdaya Alam Dan Lingkungan (Journal of Natural Resources and Environmental Management)*, 13(4), 683–693. <https://doi.org/10.29244/jpsl.13.4.683-693>
- Pheakdey, D. V., Quan, N. V., Khanh, T. D., & Xuan, T. D. (2022). Challenges and Priorities of Municipal Solid Waste Management in Cambodia. *International Journal of Environmental Research and Public Health*, 19(14), 8458. <https://doi.org/10.3390/ijerph19148458>
- Pregitzer, C. C., Ashton, M. S., Charlop-Powers, S., D'Amato, A. W., Frey, B. R., Gunther, B., Hallett, R. A., Pregitzer, K. S., Woodall, C. W., & Bradford, M. A. (2019). Defining and assessing urban forests to inform management and policy. *Environmental Research Letters*, 14(8), 085002. <https://doi.org/10.1088/1748-9326/ab2552>
- Riadi, S. (2024). Examining the Indonesia Bureaucracy Response and Problem in Pandemic Times: A Preliminary Diagnostic Study. *KnE Social Sciences*. <https://doi.org/10.18502/kss.v9i7.15501>
- Timbang, G., Malik, S. M., Salhudin, & Fernanda. (2023). Socio-Ecological Adaptation Of The Kaili Rai Community Settlement In Taripa Village, Sindue District. *IOP Conference Series: Earth and Environmental Science*, 1157(1), 012012. <https://doi.org/10.1088/1755-1315/1157/1/012012>
- Tjitrwati, A. T., & Romadhona, M. K. (2023). Affliction in the post Palu disaster: State failure to implement human rights standard on disaster management. *Cogent Social Sciences*, 9(1), 2233255. <https://doi.org/10.1080/23311886.2023.2233255>
- Topa, G., Hernández-Solís, M., & Zappalà, S. (2018). Financial Management Behavior Among Young Adults: The Role of Need for Cognitive Closure in a Three-Wave Moderated Mediation Model. *Frontiers in Psychology*, 9, 2419. <https://doi.org/10.3389/fpsyg.2018.02419>
- Ulrich, T., Vater, S., Madden, E. H., Behrens, J., Van Dinther, Y., Van Zelst, I., Fielding, E. J., Liang, C., & Gabriel, A.-A. (2019). Coupled, Physics-Based Modeling Reveals Earthquake Displacements are Critical to the 2018 Palu, Sulawesi Tsunami. *Pure and Applied Geophysics*, 176(10), 4069–4109. <https://doi.org/10.1007/s00024-019-02290-5>
- Wirawan, R. R., Hasibuan, H. S., & Tambunan, R. P. (2021). Suitability of Post-Disaster Coastal Land Cover with Spatial Pattern Plan of Palu City. *IOP Conference Series: Earth and Environmental Science*, 940(1), 012004. <https://doi.org/10.1088/1755-1315/940/1/012004>
- Yamaki, K. (2016). Role of social networks in urban forest management collaboration: A case study in northern Japan. *Urban Forestry & Urban Greening*, 18, 212–220. <https://doi.org/10.1016/j.ufug.2016.06.009>