

Community Perceptions on Environmental Impact Assessments in the Construction of the Toll Road between Solo and New Yogyakarta International Airport, in Indonesia

ABSTRACT

Background and Objective: The development of toll roads between Solo and New Yogyakarta International Airport of Indonesia is part of the government's endeavor to improve the accessibility, connectivity, and capacity of inter-regional transportation networks in order to considerably boost economic growth through increased regional links. The research will analyze at the socio-cultural circumstances, social conflict, public health, and community views and attitudes about toll road building. **Research Methods :** This study employs a qualitative and quantitative technique, which involves in-depth interview observation processes. The data analysis comprises the identification, categorization, and interpretation of community opinions as perceived by 200 respondents from impacted communities. **Result:** The majority of respondents were male, 106 (53%), with the highest degree of education being senior high school a total of 118 respondents (59.50%). The majority of their jobs were as private employees number 84 respondents (42%), with an average salary of Rp. 3,195,000. The surrounding community is religious, with 106 respondents (84%) actively engaged in Islamic studies in a mutually beneficial atmosphere, and 171 respondents (88.5%). Conflicts in society are always addressed pleasantly, according to 198 respondents (99%). **Theoretical and practical implications:** The community does not oppose toll road building, according to 188 respondents (94%) since they feel it would serve regional interests. Environmental impact analysis is carried out in a proportionate manner by incorporating the community through public engagement. Implementation of public consultation throughout ten time periods. The outcomes of public consultations are utilized to provide supporting and critical comments. 42 community figures were chosen as members of the Environmental effect Assessment technical team, which was in charge of overseeing the execution of environmental effect management and monitoring. Changes in public views and attitudes about toll road development must be regulated and monitored to ensure that the public impression of toll roads remains favorable throughout construction. **Recommendations:** Project implementers are responsible for the impacts caused and comply with all detailed provisions in accordance with management and monitoring plan documents that have been approved by the Ministry of Environment.

Keywords: Community Perceptions, Public Consultation, Community Involvement, Solo-New Yogyakarta International Airport Toll Road, Environmental Impact Assessment

1. INTRODUCTION

The Jogja-Solo Toll Road Project is a cooperation project between the government and business entities, as agreed upon by the Republic of Indonesia's The Ministry of Public Works and Housing through the signing of a Guarantee and Regress Agreement. The Jogjakarta-Solo Toll transportation project intends to improve the accessibility, connection, and capacity of Yogyakarta and Solo's interregional transportation networks. This effort is intended to significantly boost economic growth by improving regional connections. This effort is intended to significantly contribute to economic growth by enhancing connections across areas^{[1][2]} please write fill the citation. The development of the Jogja-Solo toll road has the potential to considerably boost regional connectivity and economic growth; yet, this effect is inextricably linked to a variety of challenges that people face. One of the issues that may occur is the socioeconomic impact, particularly on locals living near the development site. Problems with acquiring property for toll road development, which may result in population migration, can generate stress and uncertainty in people's lives^[3]. The construction of the Jogja-Solo toll road has the potential to cause negative impacts, especially during the construction phase which causes noise disturbances, air pollution and traffic jams which can disrupt the activities of local communities. Several locations along the construction of the Jogja-Solo Toll Road experienced traffic jams during construction, resulting in long travel times and making mobility difficult for local communities.^[4]

Perceptions can be used to evaluate sociocultural changes among impacted people. If the public sees the development of a toll road as advantageous, they will respond positively, and vice versa. Increasing regional linkages has the potential to greatly enhance local communities' social and economic lives by accelerating transportation and facilitating access to numerous areas. If properly administered, the Jogja-Solo Toll Road has the ability to stimulate local economic growth and enhance the welfare of the surrounding community ^[5]. The building of the Jogja-Solo toll road has the potential to open up new investment possibilities and attract business people to the region. The provision of adequate infrastructure can entice major enterprises and small and medium businesses to operate in the region., so that it can create employment and raise local incomes. In a social setting, toll road connectivity may improve community relationships while also facilitating cultural exchange and social activities ^[6]. Toll road development, with proper planning, has the potential to be a driver for long-term economic growth and increased community welfare across the region. Public perception is the process by which people arrange and interpret their sensory experiences in order to provide meaning to their surroundings. Each person's view will vary based on their degree of experience, knowledge, maturity, and skill. Public perception is vital in assessing the effects of toll road development. Community engagement is one facet of judging the effectiveness of development through the perspectives provided by the community, particularly impacted communities.^[7]

To promote a more complete research and expand the depth of the analysis of all consequences, toll road construction plans are divided into two sections: Yogyakarta Segment 1 (Sta. 35+600 - Sta. 61+600) and Yogyakarta Segment 2 (Sta. 61+600 - Sta. 96+592). Land cover characteristics change, particularly between urban and non-urban regions, which are a combination of peri-urban and rural^[8]. Land cover in urban regions is dominated by medium to high density communities, trade services, and other public amenities. Meanwhile, non-urban regions will be dominated by low to medium density towns dotted with rice fields or plantations^[9]. The Yogyakarta urban region (Yogyakarta City, Sleman Regency, and Bantul Regency) has evolved into a single urban area, making administrative borders less obvious. However, the presence of a ring road in Yogyakarta City appears to be a physical barrier separating urban and non-urban regions. To define urban and non-urban regions, the Yogyakarta West Ring Road will be employed as the physical

border for segmenting toll roads in this study.

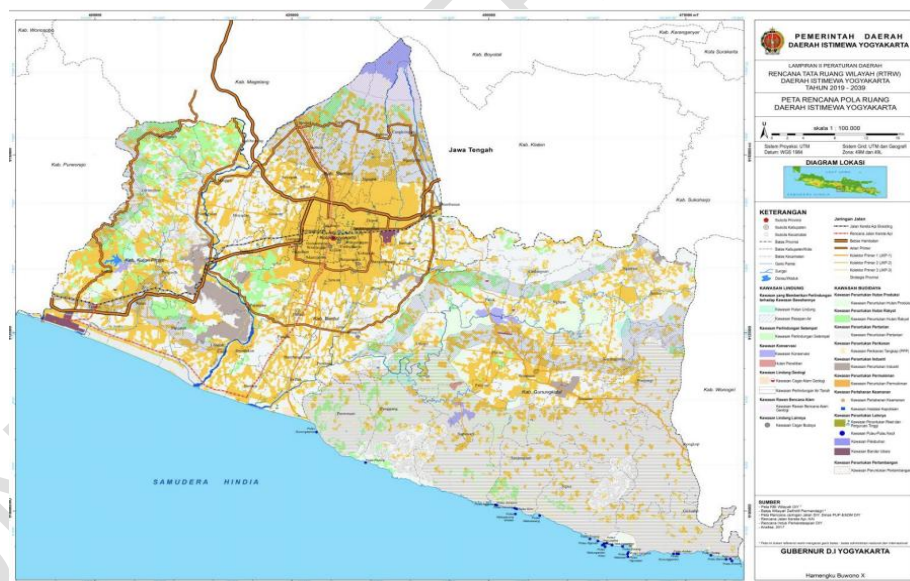
The implementation of toll road construction necessitates community support, which is participatory by involving the community. This is an indicator of problems arising from toll road construction, and it serves as the foundation for the need for appropriate and sustainable environmental management and monitoring.[10]

The Research Objectives and Questions

- a. The main objectives of this research attempts to identify the socio-cultural implications of the building of the Solo-Yogyakarta toll road (New International Yogyakarta International).
- b. The specific purpose of learning is to identify and solve issues that have the potential to cause conflict among social groups, communities, or organizations in a sociocultural culture that still values kinship, in order to settle disputes via discussion and consensus.

2. RESEARCH METHODS

The fig. 1 below is the site of the Solo-Yogyakarta toll road in the Special Region of Yogyakarta is intended to run through the administrative districts of Sleman, Bantul, and Kulon Progo Regencies, with a land acquisition area of 6,808,048 m² and a length of 60.9 kilometers. The toll road development will begin at Tamanmartani Village, Kapanewon Kalasan, Sleman Regency, and finish in Sindutan Village, Kapanewon Temon, Kulon Progo Regency. Figure 1 depicts the Toll Road Trace Overlay with the Spatial Structure Plan Map of the Transportation Network System for the Special Region of Yogyakarta. Figure 2 shows of Overlay Toll Road Trace with Map of Spatial Structure Plan of Transportation Network System for Yogyakarta Special Region



Source : Research Findings (2023).

Fig 1. Overlay Toll Road Trace with Map of Spatial Structure Plan of Transportation Network System for Yogyakarta Special Region.

This study employs quantitative and mixed approaches. The socioeconomic characteristics of respondents, the amount of community awareness, community views, and toll road building concerns were all evaluated.

This study included both primary and secondary data. Primary data is gathered by observational data,

which includes visiting and watching everyday life and circumstances around people's houses, as well as in-depth interviews in which informants are asked a series of questions. Secondary data was gathered using a library strategy, which involves gathering a wide range of literature and data on land acquisition, study findings, and village statistics. [5] The number of respondents was 200 representing 42 sub-districts. Data analysis included identification, categorization and interpretation, through the results of community perceptions as conclusions from responses to the questions asked. [11] survey which was conducted on 3 – 10 July 2023.

The sampling method used in determining the research location was purposive sampling, by selecting locations crossed by toll road project construction. The number of respondents was 200, based on the Slovin formula computation of the number of households in each sub-district. Respondents were chosen at random to provide a more diverse set of data. The interview findings were converted into 9 transcripts, which were then evaluated and integrated with relevant data such as questionnaire results, documentation results, and news concerning toll road building issues. Mixed qualitative methods were used. Data is presented descriptively, explaining in detail the community's socio-cultural conditions, potential social conflict, public health components, changes in community perceptions and attitudes, community involvement results, and evaluation of plans for toll road development activities.

3. RESULTS AND DISCUSSION

Based on the findings of data gathering using a standardized questionnaire. This acquired data has already been checked to exclude any erroneous data that might compromise the outcomes of the study data analysis.

3.1 Description of the activity

The complexity of the development plan at the building stage is also taken into account in this study's segmentation process. An elevated toll road construction design will have a significantly different impact than toll road development with embankments or at grade [12]. Therefore, this segmentation will also take into account the type of construction that will be carried out later. Toll road construction which is dominated by elevated toll roads will be combined into a single segment, while plans for the construction of at-grade toll roads will be integrated into other segments. Yogyakarta Segment 1 (Sta. 35+600 - Sta. 61+600) is an urban region with dominant land cover in the form of medium- to high density residential neighborhoods, trade services, and public amenities; however, there are a few tiny portions that remain rice fields and plantations. Aside from that, this section includes all toll road improvements with elevated (flyover) construction along the Yogyakarta City Ring Road, which is an urban region. [13] Meanwhile Yogyakarta Segment 2 (Sta. 61+600 - Sta. 96+592), starting from Sta. 61+600, has less dense land cover than segment 1 and is dominated by low to medium density residential areas and rice fields and gardens. This entire segment will be built with At Grade construction and passes through several cultural heritage sites. Apart from that, in this segment a rest and service area will also be built [14] Therefore, the study focuses on segment 1 and segment 2.

3.2. Respondent Profile

Interviews were performed with 200 respondents, randomly selected from community groups in the impacted areas, as part of a socioeconomic impact assessment study. [15] The respondent is domiciled in Kapanewon Kalasan (Tamanmartani, Selomartani, Tirtomartani and Purwomartani subdistricts), Kapanewon Prambanan (Bokoharjo subdistrict), Kapanewon Depok (Maguwoharjo, Condongcatur and Caturtunggal subdistricts), Kapanewon Ngaglik (Sariharjo subdistrict), Kapanewon Mlati (Sinduadi, Sendangadi, Tlogoadi and Tirtoadi subdistricts) ,

Kapanewon Gamping (Trihanggo, Nogotirto, Banyuraden, Ambarketawang, Balecatu subdistricts), Kapanewon Godean (Sidoarum, Sidomulyo, Sidokarto subdistricts) Kapanewon Moyudan (Sumberrahayu subdistrict), Kapanewon Sedayu (Argomulyo subdistrict, Argosari), Kapanewon Sentolo (Banguncipto subdistrict, Kaliagung) , Kapanewon Nanggulan (Donomulyo Village), Kapanewon Wates (Wates Village), Kapanewon Kokap (Hargomulyo Village, Hargorejo), Kapanewon Pengasih (Compassionate Village, Sendangsari, Karangasari), Kapanewon Temon (Kulur Village, Kaligintung, Temon Wetan, Temon Kulon, Palihan , Janten, Karangwuluh, Sindutan, Kebonrejo). According to the interview findings, the majority of respondents, 106 (53%), were male, with the remainder 94 (47%) being female.

Respondent education stratification; In general, respondents have an appropriate level of education. This can be seen in the last level of education where the majority have completed: high school with a percentage of 59.50% (119 respondents); there were even respondents who had completed diploma to bachelor's degrees with a percentage of 22% (44 respondents); the remainder were respondents with a final education level of junior high school with a percentage of 14.50% (29 respondents), and respondents with a final education level of elementary school with a percentage of 4% (8 respondents).

People with a school diploma mean that the respondent is considered to be quite highly literate. Therefore, people with this level of literacy find it easier to obtain and interpret information regarding toll road construction..

3.2. Livelihoods and Income

Livelihoods also reflect the social state of the community. The respondent's livelihood is indicated by the sort of employment he or she has and the amount of money made from that job. Respondents' employment descriptions were fairly broad, with a predominance of private sector employees and housewives. However, when we look at the proportion of each type of job, respondents are mostly private sector employees. (42%, 84 respondents), housewives (24%, 48 respondents), casual daily workers (11.50%, 23 respondents), dealers (6%, 12 respondents), government officials (11%, 12 respondents), entrepreneurs (5%, 10 respondents), and military personnel (0.5%, 10 respondents). Respondents' earnings varied between Rp. 1,250,000 to Rp. 6,500,000, with an average of Rp. 3,195,000. Yogyakarta's regional minimum wage is IDR 2,324,775{16}, This demonstrates that the average income of respondents remains above average..

3.3. The Social and Cultural Conditions of Society

Aside from education, livelihood, and income, a description of the existence of social institutions in the community is also relevant since it illustrates how the community's social processes occur at the study area. This is evidenced by the prevalence of community activities and examples of peace culture in society. The culture of peace is also the community's local knowledge when confronted with rising societal forces that might lead to conflict and even dissolution. The socio-religious activities of the community around the research area are dominated by recitation activities (84%, 168 respondents), village cleaning (12%, 24 respondents), and earth alms (4%, 8 respondents){17}. This demonstrates that the inhabitants in the Toll Road Construction area are religious. Village cleaning activities are carried out on a regular basis by community groups, particularly on significant occasions and religious holidays. Mutual cooperation activities continue to exist in society, with 88.5% (117 respondents) being incidental mutual cooperation activities and 11.5% (23 respondents) being carried out routinely. This demonstrates that socio-cultural activities in the research area are still going well. {18}

3.4. Social conflict due to toll road construction

According to interview data, the degree of conflict in the lives of communities around the Toll Road Development Plan region (STA. 35+600 - STA. 96+592) happens infrequently (76%, 152 respondents), and never (24%, 48 respondents). As a result, it is possible to infer that the community around the toll road development plan (STA. 35+600 - STA. 96+592) is cohesive and harmonious. The community has local wisdom related to problem solving models so as to create an atmosphere of social order. This makes the people in the study area have a good culture of peace, thus showing the characteristics of an integrative society. Communities in the study region opt to handle conflicts via discourse (99%, 198 respondents), whereas 1% (2 respondents) are resolved legally. Behavior like this shows local wisdom in dealing with social problems in society. Societal culture usually handles conflict well, preventing conflict from developing into confrontation and allowing conflict to be resolved through dialogue and consensus.

3.5. Community Assistance for Establishing the location for the Solo-Yogyakarta-New Yogyakarta International Airport Kulon Progo Toll Road.

Based on the Table 1 below findings of public consultation in the context of choosing the location, residents impacted by the project are obliged to express their acceptance or rejection of the project to be executed. The results of observations and interviews conducted in 26 subdistricts in 10 Kapanewon along Yogyakarta Segment 2 showed that there was no emergence of self-help groups or community associations formed informally by affected residents to support or reject the Solo-Yogyakarta-NYIA Toll Road construction plan, Kulon Progo. These actions yielded the following information:

Table 1. Community support for toll road construction

No.	Location	Number of Fields	Agree	%	Neutral	%	Reject	%
1	Sleman	1617 m ²	1,552 m ²	96%	65	4%	0	0%
2	Bantul	663 m ²	630 m ²	95%	33	5%	0	0%
3	Kulon Progo	3335 m ²	3,102 m ²	93%	233	7%	0	0%
Total		5615 m ²	5,284 m ²	94%	331	6%	0	0%

Source : Research Findings (2023)

Table 1 reveals that there is no objection to the construction of the Solo-Yogyakarta-NYIA Kulon Progo Toll Road 5284m² (94% approved). Several causes or reasons for not having signed a land purchase agreement include the land still being in ownership dispute, a dispute over heirs, still being controlled by another party (as bank collateral), or the land owner not being present because they live outside the city. Potential disputes, related to the results of public discussions during location determination, and proposed opinions. Responses to public consultations regarding the Environmental Impact Study, as well as the process of procuring property for public use in other areas, indicate a conflict of community approval/rejection of the Toll Road. construction does not occur. The approach to society prioritizes a family approach to reach consensus. Changes in Social Conflict during land provision activities were concluded as a negative impact [19]

3.6. Public Health Components

Water Availability: Water availability is part of the social life of the community, because it is a source for the sustainability of the social life of the community. Water is a basic need for people to bathe and wash the toilet. However, because water is not only an economic object, but also a social object, water also has social value, and even in certain communities water has spiritual value [20]. In this study, the use of water for people's daily lives is water as a social object, because so far people in rural areas have used dug wells as their source of clean water, so they do not pay water tax. Water availability can be an important issue when there is disruption due to a project. Drilled wells are the main source of water for the community to fulfill 61% (122 respondents) of their water needs, and dug wells

account for 26% (52 respondents) and the remaining 13% (62 respondents) comes from mineral water sources in gallons. The large number of people who use drilled wells as a source of clean water means that there is no shortage of water during the dry season. Environmental Sanitation: Sanitation is one of the factors that can cause changes in a person's health status. Poor sanitation can be seen at a glance from the waste produced without further management. Poor sanitation will cause various health and comfort problems. The resulting impacts can last for a long period of time [20].

Based on data obtained from the Sleman Regency Statistics Agency, it is known that the average household with access to adequate sanitation during 2015 - 2020 was number 94.53%. The following is detailed data on households with access to adequate sanitation in Sleman Regency between 2015 and 2020. Based on statistics from the Bantul Regency Central Statistics Agency, the average number of houses with adequate sanitation between 2015 and 2020 was number 94.23%. Based on data collected from the Kulon Progo Regency statistical office, it is known that the average number of households that had access to proper sanitation during 2015 - 2020 was number 81.11%. Perkembangan akses sanitasi terbaik adalah kabupaten Sleman 94,53 %

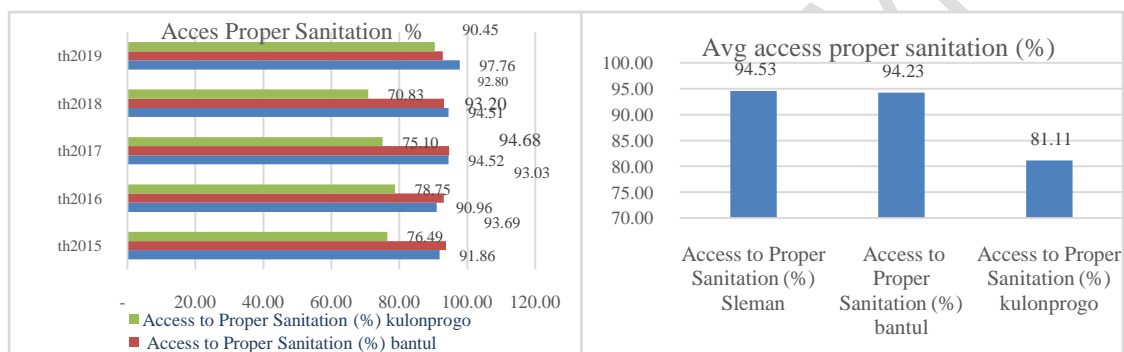


Fig 2. Access proper sanitation (%) in Sleman, Bantul and Kulonprogo districts

Source: Kulon Progo Regency Central Statistics Agency, 2021

The maximum incidence rate for respiratory illnesses in Sleman Regency was 18% in 2019, with the lowest being 7% in 2022. The average prevalence rate during the previous four years was 7%. Meanwhile, the highest incidence rate for respiratory illnesses in Bantul Regency was 11% in 2019, with the lowest at 2% in 2022. The average prevalence rate over the last five years was 7%, with the highest incidence rate of respiratory illnesses in Kulon Progo Regency in 2018 at 18% and the lowest in 2021 at 1%. The preceding five-year average prevalence rate was 11 percent. To calculate the predicted disease prevalence rate during toll road construction, specifically in 2023, a comparison will be made between the average disease prevalence at the study location and the estimated calculation after adding the Total Suspended Particulate parameter at the study location. The initiative is expected to raise the prevalence of acute respiratory tract infections by 23-70% in all study areas, with Kulon Progo Regency experiencing the greatest rise. In 2023, the incidence of acute respiratory illnesses caused by toll road building operations is 9 per 100 persons in the Sleman and Bantul Regencies and 20 per 100 residents in the Kulon Progo Regency region. The estimated results of the increase in the prevalence of acute respiratory infections with the project in the study area have a higher value when compared with the prevalence of acute respiratory infections in Yogyakarta Province, namely 6.9 per 100 population, Riskesdas standard [21]. Therefore, during toll road construction, the impact of decreasing air quality needs special attention so that the increase in the prevalence of acute respiratory infections can be reduced.

Table 2. The largest disease patterns in the districts of Sleman, Bantul and Kulonprogo

The type of disease	Sleman Regency			
	Th2020	Th2021	Th2022	Th2023
Dengue Fever (DHF)	810,00	282,00	330,00	146,00
Hepatitis	0,00	0,00	69,00	79,00
Malaria	0,00	0,00	12,00	14,00
Tuberculosis and acute respiratory	776,00	915,00	1.757,00	2.357,00
AIDS	418,00	433,00	24,00	61,00
HIV	113,00	126,00	220,00	237,00
Measles	67,00	64,00	272,00	411,00
Tetanus	0,00	0,00	0,00	17,00
Diarrhea	19.989,00	3.814,00	4.660,00	9.363,00

The type of disease	Bantul Regency			
	Th2020	Th2021	Th2022	Th2023
Dengue Fever (DHF)	1.222,00	189,00	956,00	78,00 *
Hepatitis	n/a	66,00	6,00 *	149,00 *
Malaria	3,00	1,00	1,00	n/a
Tuberculosis and acute respiratory	673,00	739,00	1.425,00	1.544,00 *
AIDS	38,00	11,00	52,00	8,00 *
HIV	103,00	38,00	160,00	50,00 *
Measles	n/a	3,00	63,00	n/a
Tetanus	n/a	4,00	16,00 *	6,00 *
Diarrhea	n/a	3.806,00	7.753,00	140,00 *

The type of disease	Kulon Regency			
	Th2020	Th2021	Th2022	Th2023
Dengue Fever (DHF)	194	214	270	68
Hepatitis	n/a	n/a	n/a	9
Malaria	13	18	68	10
Tuberculosis and acute respiratory	323	111	189	246
AIDS	20	24	23	7
HIV	29	16	23	42
Measles	26	38	n/a	0,00
Tetanus	n/a	n/a	n/a	0,00
Diarrhea	4768	2028	2676	3834

* Temporary data

Source: Yogyakarta Central Statistics Agency, 2021

Based on illness incidence, toll road construction may have an influence on the concentration of dust in impacted areas, resulting in acute respiratory infections that can worsen comorbidities such as TB. The incidence of tuberculosis and acute respiratory infections is highest in Sleman district, with a linear equation $y = 558.5x + 55$, followed by Bantul district $y = 329.9x + 270.5$, and Kulonprogo district $y = -15.3x + 225.5$. The drop in the prevalence of tuberculosis and acute respiratory sickness in Kulonprogo district is feasible because the toll road project has yet to begin operations in that region; toll road work has only reached Sleman and Bantul districts. Although the Tuberculosis and acute respiratory statistics cannot currently be utilized for justification and validation owing to a lack of data, they may be used to provide feedback and guidance in environmental management. (Fig 4)

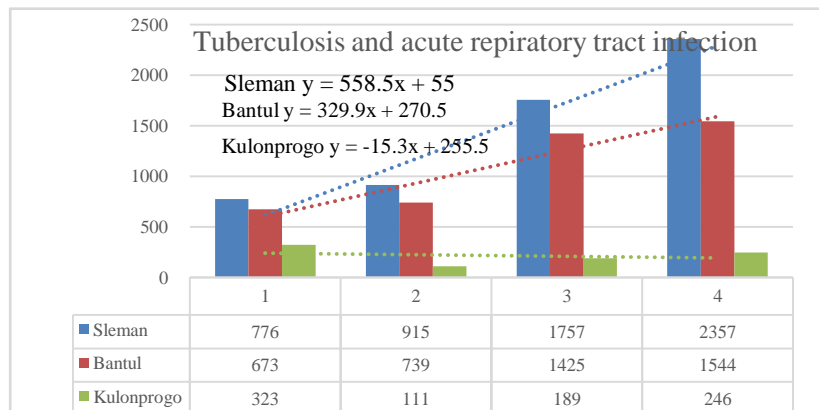


Fig 3. Trends in the incidence of tuberculosis and acute respiratory tract disease

3.7. Changes in Community Perceptions and Attitudes about Toll Road Construction

The results of the sociological survey show that respondents believe and agree, supporting that toll road construction will have a good impact. This is reflected in 67% (134 respondents) who consider toll road construction to be beneficial for regional interests. Meanwhile, only 4% (8 respondents) thought that toll road construction would not have a positive impact, while 29% (58 respondents) had a neutral opinion.

However, according to the findings of a sociological study, respondents maintain a neutral stance (29%, 58 respondents). This perception refers to a floating viewpoint or perspective. If opinion or perception is not well managed, it can lead to the formation of counterproductive worries and the rejection of toll road construction. Negative affects must be mitigated by including the community in toll road development, including the establishment of environmental management and monitoring. The table below demonstrates how changes in neutral impression can become good or negative depending on management. The neutral view of 29% (58 respondents) will enhance or support the development of toll roads from 67% (134 respondents) to 96% (192 respondents from 200 respondents), with an extra 29% collected from floating (neutral) respondents (58 respondents), or vice versa. If impact management is not implemented properly, unfavorable views will be 33%.

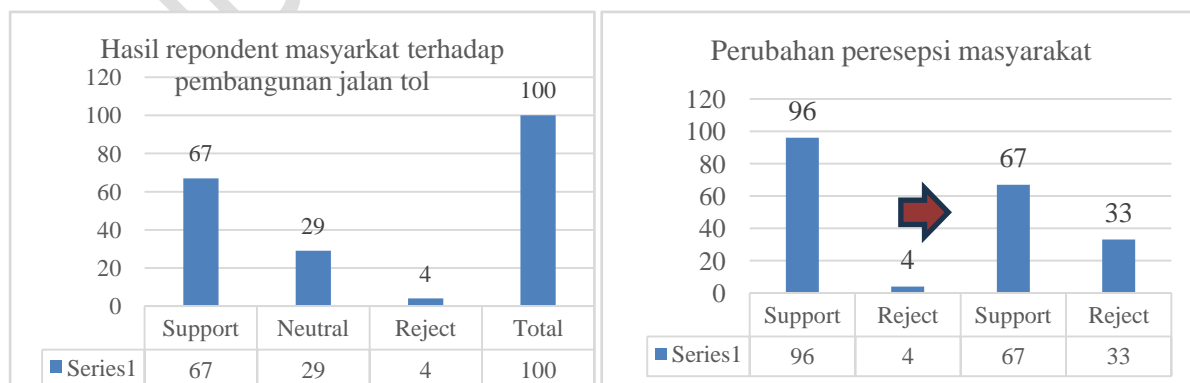


Fig 4. Results of responses regarding changes in community perceptions and attitudes about toll road construction

3.9. Community Involvement Results and Evaluation

Law no. 11/2020 concerning Job Creation Article 26 Paragraph 2) specifies that the compilation of Amdal papers is carried out by consulting communities directly impacted by company plans and/or actions. The preparation of Amdal documents is carried out by involving communities within the boundaries of the Amdal study area, consisting of communities that will benefit and communities that will suffer losses, communities that are directly affected, communities that have an interest in business plans and/or activities, and non-governmental organizations (NGOs) that have previously been proven to have provided guidance and assistance to directly impacted communities [22]. Community engagement is carried out proportionally, and the involvement of other groups outside the immediately impacted communities is carried out by the government through the Due Diligence Team depending on the province [23]. As an implementation of Minister of the Environment Regulation Number 17 of 2012 concerning Guidelines for Community Involvement in the Analysis Process Regarding Environmental Impacts and Environmental Permits, a socialization activity regarding the planned EIA preparation activities was held for the public [24].

This activity aims to offer the community with insight and information from associated parties, particularly people who will be affected by planned actions, environmental observers, and other interested parties. This socializing activity covers the activity's goals, objectives, and uses, as well as the potential outcomes. The socialization of the EIA preparation plan not only provides the community with more information about planned activities, but it also allows the initiator to obtain information about field conditions or suggestions for opinions and responses from the community, such as problems that arise as a result of the project's existence, as well as community suggestions and hopes.

Socialization of activity plans in the context of involving the community in the preparation of EIA Documents and providing recommendations on environmental suitability as a basis for issuing Environmental Permit decisions is accomplished in three ways: through media announcements, the creation and installation of X-Banners, and public consultation. Implementation is carried out employing methods Public consultation is carried out through face-to-face interviews, conducted by enumerators. The respondents questioned included village authorities, community leaders, and community representatives, as well as environmental observers from possibly affected villages.

The EIA documents for the construction of the Solo - Yogyakarta toll road were prepared in line with Republic of Indonesia Government Regulation Number 22 of 2021 on Environmental Protection and Management. According to Article 27 paragraph (1), preparation occurs in stages [25]. Article 28 paragraph (1) states that community groups are involved in preparing Amdal documents, therefore the Person in Charge of the Business must involve communities directly affected through the publication of business plans and public consultations. Which fig. Refer to?

Activities On June 20, 2023, the newspaper Kedaulatan Rakyat published announcements of company plans and activities related to the EIA research. Aside from employing daily mass media, announcements of business intentions and/or activities were carried out by posting posters and banners in 15 Kapanewon in the administrative territory of Sleman Regency. Bantul and Kulon Progo were affected [26].

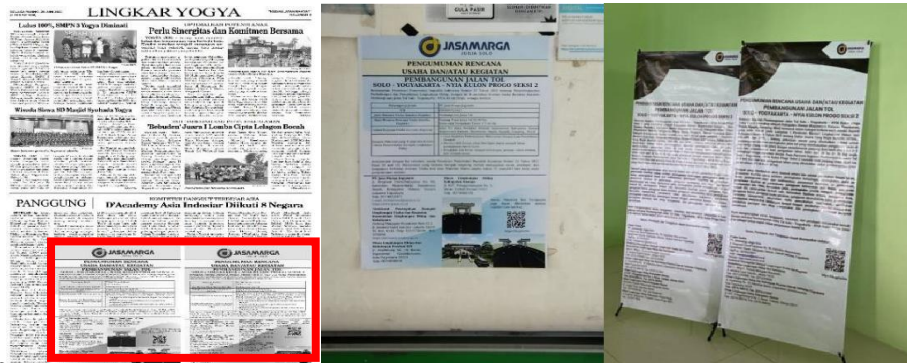


Fig 4. Announcement of Business Plans and Activities in the daily public media Kedai Rakyat (left), poster on Kapanewon Notice Board (center), and X Banner Announcement at Kapanewon Office (right)

Source : Research Findings (2023)

The EIA study area for the Solo - Yogyakarta Toll Road Development (STA. 35+600 - STA. 96+592) includes fifteen Kapanewons: Kalasan, Prambanan, Depok, Ngaglik, Gamping, Mlati, Godean, Moyudan, Sedayu, Sentolo, Nanggulan, Wates, Kokap, Pengasih, and Temon. The following are the specific administrative areas of the community that have been directly affected.

Table3. Areas Impacted by Toll Road Construction

Regency	Subdistrict	District	Regency	Subdistrict	District
Sleman	Kalasan	Tamanmartani	Bantul	Sedayu	Argomulyo
		Selomartani			Argosari
		Tirtomartani	Kulon Progo	Sentolo	Banguncto
		Purwomartani			Kaliagung
	Prambanan	Bokoharjo		Nanggulan	Donomulyo
	Depok	Maguwoharjo			Wates
		Condongcatur		Kokap	
		Caturtunggal			Pengasih
	Ngaglik	Sariharjo		Pengasih	
	Mlati	Sinduadi		Temon	
		Sendangadi			Karangsari
		Tlogoadi		Kulur	
		Tirtoadi		Kaligintung	
	Gamping	Trihanggo		Temon	Temon Wetan
		Nogotirto			Temon Kulon
		Banyuraden			Kebonrejo
		Ambarketawang	Janten		
	Godean	Balecatur	Palihan		
		Sidoarum	Karangwuluh		
		Sidomulyo	Sindutan		
Moyudan	Sumberrahayu				

Source : Research Findings (2023)

4.0. Implementation of Public Consultation

Given the high number of administrative districts immediately affected, it is recommended that the public consultation invitation be divided into ten time periods, with the intention that the event would be interactive or two-way discussion^[27]. The public consultation will take place on June 20-23, 2023, in figure 3 below with the following details:

1. Day/Date: Tuesday/20 June 2023, time: 08:00 WIB, Place: Kapanewon Gamping Meeting Room. Area coverage: Kapanewon Gamping area (Trihanggo, Nogotirto, Banyuraden, Ambarketawang and Balecatuur sub-districts)
2. Day/Date: Tuesday/20 June 2023, time 13:00 WIB, Place: Kapanewon Depok Meeting Room. Area Coverage: Kapanewon Depok area (Maguwoharjo, Condongcatur and Caturtunggal sub-districts) Kapanewon Ngaglik (Sariharjo sub-district)
3. Day/Date Tuesday/ 2023, Time: 13:00 WIB, Place: Kapanewon Pengasih Office Meeting Room. Area coverage: Kapanewon Pengasih area (Karahen Pengasih, Sendangsari, and Karangasari), Kapanewon Kokap (Kalurahan Hargomulyo and Hargorejo), and Kapanewon Wates (Kalurahan Wates).
4. Day/Date: Wednesday/21 June 2023, time: 08:00 WIB, Place: Kapanewon Mlati Meeting Room. Area Coverage: Kapanewon Mlati Area (Sinduadi, Sendangadi, Tlogoadi, and Tirtoadi Districts)
5. Day/Date: Wednesday/21 June 2023, time: 08:00 WIB, Place: Banguncipto Village Office Meeting Room. Area Coverage: Kapanewon Sentolo Region (Banguncipto and Kaliagung Districts) and Kapanewon Nanggulan (Donomulyo District)
6. Day/Date: Wednesday/21 June 2023, time: 13:00 WIB, Place: Kapanewon Kalasan Meeting Room. Area Coverage: Kapanewon Kalasan area (Tamanmartani, Selomartani, Tirtomartani and Purwomartani subdistricts) Kapanewon Prambanan (Bokoharjo subdistrict)
7. Day/Date: Thursday/22 June 2023, Time: 08:00 WIB, Place: Room. Kapanewon Sedayu Meeting. Area Coverage: Kapanewon Sedayu Area (Argomulyo and Argosari Districts)
8. Day/Date: Thursday/22 June 2023. Time: 13:00 WIB. Venue: Kapanewon Godean Meeting Room. Area Coverage: Kapanewon Godean area (Sidoarum, Sidomulyo and Sidokarto sub-districts) and Kapanewon Moyudan (Sumberrahayu sub-district)
9. Day/Date: Friday/23 June 2023, Time: 08:00 WIB, Place: Kapanewon Temon Office Meeting Room. Area Coverage: KapanewonTemon Area (Klurahan, Kaligintung, Temon Wetan, and Temon Kulon Districts)
10. Day/Date: Friday/23 June 2023, Time: 13:00 WIB, Place: Meeting Room Kapanewon Temon Office. Area Coverage: Kapanewon Temon Area (Kebonrejo, Janten Karangwuluh, and Sindutan Districts)

Public consultation was conducted with connected stakeholders, including Panewu, Village Head, military sub-district command, Sector Police Chief, and the impacted community. Public consultations are held in person to allow for two-way communication. The following is documentation of the public consultation activities that were carried out.





Fig 5.Implementation of Public Consultation

Opinions and Responses received during the announcement and public consultation are summarized as follows:

4.2. Option to Support Toll Road construction

Based on the Table 3 below as a results of public consultation activities conducted on June 20-21, 2023, there are several inputs that are the hopes of the community around the Solo - Yogyakarta Toll Road Development Plan area (New Yogyakarta International Airport Kulon Progo), which have been summarized briefly, including the following:

Table 4. Community Suggestions and Responses

No.	Community Suggestions and Responses	Response from PT. Jasamarga Jogja Solo (Toll Road Implementation)
1	Local communities are expected to get outreach and support on land purchases and toll road development.	PT. Jasamarga Jogja Solo is committed to aiding the land acquisition process by ensuring that compensation steps and details are implemented in compliance with Government Regulation 39 of 2023, Implementation of Land Acquisition for Development in the Public Interest.
2	It is expected that there would be an economic impact on company owners affected by the toll road development.	Providing compensation can accommodate emotional losses, loss of work and loss of business including changing professions, compensation for waiting periods, loss of remaining land, and other physical damage in accordance with Government Regulation 39 of 2023 concerning Implementation of Land Acquisition for Development in the Public Interest.
3	It is hoped that solutions or traffic engineering will be developed to reduce traffic congestion.	PT. Jasamarga Jogja Solo prepared the EIA traffic document, which covers traffic management and engineering during the toll road construction and operation phases. The Andalalin report gained technical recommendations from the relevant agencies.
4	It is hoped that agricultural land will not be shifted to other purposes, and that agriculture will continue to exist.	The route's location is determined by the Governor of the Special Region of Yogyakarta's Decree Number: 206/KEP/2020 concerning the Determination of the Location for the Construction of the Solo-Yogyakarta Toll Road in Yogyakarta, so that the Governor of Yogyakarta coordinates the use of agricultural land. The impact of employing

		agricultural land as a project location is defined as the impact of changes in agricultural productivity.
5	It is desired that toll road building plans may be communicated in a transparent, unambiguous, and timely manner.	Project socialization has commenced since the end of 2022, and a Land Acquisition Planning Document was in place when the EIA report was performed.
6	It is hoped that there would be no disturbance to irrigation channels.	PT. Jasamarga Jogja Solo has collaborated with various agencies and regional partners to span the project site with irrigation canals. Bridges or box culverts will be built into all irrigation channels, with dimensions computed using the findings of this coordination.
7	It is envisaged that locals would be employed as toll road workers.	PT. Jasamarga Jogja Solo will favor workers from the local area while adhering to qualification standards and conventional recruiting processes.
8	It is intended that the community would have access to the route around the toll road.	PT. Jasamarga Jogja Solo is committed to providing road access that is cut off by toll roads by adhering to the requirement that the shortest distance between crossings be 300 meters. If two access roads are separated by less than 300 meters, they will be joined to create a connected access road.
9	Hopefully, cultural heritage places will not be affected.	PT. Jasamarga Jogja Solo has coordinated with the Cultural Heritage Expert Team regarding potential cultural heritage sites that will be disturbed due to the construction of the toll road. Design and construction methods will be consulted on to prevent disturbance of the cultural heritage site.
10	It is intended that micro, small, and medium-sized enterprises can continue to function.	PT. Jasamarga Jogja Solo berencana akan menyediakan Tempat Istirahat dan Pelayanan (TIP) atau Rest Area di wilayah Gamping dan Kaliagung. Pada rest area tersebut akan disediakan tempat bagi UMKM.
11	It is hoped that the area under the toll road would be appropriately monitored and controlled.	Basically, the place beneath the toll road is sterile. PT. Jasamarga shall conduct oversight in line with its jurisdiction. Aside from that, the public may aid by reporting any disruptive activities using the communication channels given throughout the toll road's operating stage
12	It is hoped that the contractor would follow the guidelines given within the EIA document.	PT. Jasamarga Jogja Solo will incorporate environmental management and monitoring strategies within the contractor's work contract requirements.

Source : Research Findings (2023)

4.3. Options Concerns over Toll Road Construction

Based on the results of public consultation activities held on June 20-21, 2023, there are several inputs that are of concern to the community in the area of the Solo - Yogyakarta Toll

Road Development Plan (New Yogyakarta International Airport Kulon Progo), which have been briefly summarized below:

- a. Concerns about the interruption of public amenities such as cemeteries, mosques, schools, waste processing installation pipes, drinking water pipes, power, street lighting, irrigation channels, access roads, and other public facilities due to toll road construction.
- b. Concerns about flooding during toll road building, particularly during wet seasons;
- c. Concerns about the possibility of landslides on riverbanks affected by toll road development.
- d. Concerns about environmental problems such as dust and grime.
- e. Concerns concerning noise generation along the construction area, as well as the appearance of vibrations that might cause harm to people's homes near the building site.

4.4. Election of Community Representatives.

During the public consultation session, community members were chosen to participate in the assessment of the Amdal Study. The Table 4 below is following are the findings of the selection of community members who will be participating in the assessment of the Environmental Impact Analysis Document, the Environmental Management Plan, and the Environmental Monitoring Plan{28}

Table 5 . Election of Community Representatives

No	Name	Address
1	Sayin Muryani	District Pelemsari, Bokoharjo, Prambanan
2	Mujiyana	District Cupuwatu, Purwomartani, Kalasan
3	Bima Saputra	District Tegalrejo, Tamanmartani, Kalasan
4	Pratoyo Ilyas	District Pondok, Selomartani, Kalasan
5	Saptati Andarini	District Dogongan, Tirtomartani, Kalasan
6	Danang T	District Sambego, Maguwoharjo, Depok
7	Arif Hudoyo	District Nandan, Sariharjo, Ngaglik
8	Yunarto	District Manggung, Caturtunggal, Depok
9	H. Sunarto	District Mancasan Kidul, Condongcatur, Depok
10	M. Baro'i	District Mlangi Sawahan, Nogotirto, Gamping
11	Agus Saputra	District Bawangan, Banyuraden, Gamping
12	Husin Suprianto	District Ponowaren, Nogotirto, Gamping
13	M. Rachmad P.P.	District Salakan, Trihanggo, Gamping
14	Rudy K	District Pasekan Kidul, Balecatur, Gamping
15	Nurbatin Kuncoro	District Pogung Lor, Sinduadi, Mlati
16	Joko Narwanto	District Mraen, Sendangadi, Mlati
17	Karyono	District Tegalsari, Tlogoadi, Mlati
18	Daryanto, S.Pt.	District Sidoarum, Godean
19	Raditya Agus Mahardika	District Sidomulyo, Godean
20	Sujatmiko	District Sidokarto, Godean
21	Iswanto	District Sumberrahayu, Moyudan,
22	Tri Purwoko	District Argomulyo, Sedayu
23	Fahri	District Argosari, Sedayu
24	Sumardi	District Kaliagung, Sentolo
25	Ikhsan Sugiharto	District Banguncipto, Sentolo
26	Kardono	District Banguncipto, Sentolo
27	Teguh Sumaryanto	District Donomulyo, Nanggulan
28	Jemirin	District Pengasih, Kapanewon Pengasih
29	Lilik Purnama	District Sendangsari, Kapanewon Pengasih

30	Ari Wibowo	District Karang Sari, Kapanewon Pengasih
31	Syaiful Zuhri	District Hargomulyo, Kapanewon Kokap
32	Ahmad Syafrudin	District Hargorejo, Kapanewon Kokap
33	Saliyan	District Wates, Kapanewon Wates
34	Wasiat Dwi Santoso	District Kebonrojo, Kapanewon Temon
35	Sumarno	District Janten, Kapanewon Temon
36	Widjianto Edi Purnomo	District Palihan, Kapanewon Temon
37	Rohmadi	District Karangwuluh, Kapanewon Temon
38	Sri Yohanes	District Sindutan, Kapanewon Temon
39	Djanu Indrianto	District Kulur, Kapanewon Temon
40	Muh. Dwi Putranto	District Kaligintung, Kapanewon Temon
41	Yohanes Sulistyawan	District Temon Wetan, Kapanewon Temon
42	Yoshua Alex Prabawa	District Temon Kulon, Kapanewon Temon

Source : Research Findings (2023)

5. CONCLUSION

Community engagement is essential in the compilation of environmental impact assessment documents for the Solo New Yogyakarta International Airport toll road, as well as in the implementation of environmental management and monitoring. The local communities must get socialization and assistance throughout the construction operations of the Solo New Yogyakarta International Airport toll road. The community socio-cultural conditions, social conflicts, public health components, changes in community perceptions and attitudes toward toll road construction, as well as the outcomes and evaluation of community involvement, must all be managed and monitored to ensure that the community's perception of toll road construction is positive. (The conclusion is vague and must be supported the objective and outcomes of study)

6. RECOMMENDATIONS

6.1. Recommendations to the study

This environmental impact analysis report was done to get Environmental Approval, which is required for the issuance of a Business License or Government Approval. PT. Jasamarga Jogja Solo, as the project implementer, is responsible for the impacts and must comply with all detailed provisions outlined in the management and monitoring plan documents, particularly in the socio-cultural field of community perception, which has been approved by the Ministry of the Environment.

6.2. Recommendations to the future researchers

Future academics should study public impressions of the Solo-New Yogyakarta International Airport toll road. When the toll road is completely operating, so that it may be compared to the building stage.

DATA AVAILABILITY

The paper and associated information files provide all necessary data. This research will assist researchers in determining important regions of the impact of the planned building of the Solo-New Yogyakarta International Airport toll road.

REFERENCES

- Andani, I. G. A., Geurs, K., & La Paix Puello, L. (2019). Effects of toll road construction on local road projects in Indonesia. *Journal of Transport and Land Use*, 12(1), 179–199.
- Astutik, H. P., & Dewanti, D. (2020). The Effect of Toll Gate Type on the Queue of Vehicles in Connecting Roads: A case study of Bawen–Yogyakarta Toll Road. *Journal of the Civil Engineering Forum*, 6(1), 439957.
- Bernessa, R. A., & Latief, Y. (2021). Safety cost component development of risk-based standardized work breakdown structure to determine safety cost on road construction project (Case study: At-grade road works). *IOP Conference Series: Materials Science and Engineering*, 1098(2), 22034.
- Byrd, R. (2020). Qualitative research methods. *Virtual Class, Memphis. Recuperado Em*, 17.
- Fathmawati, F., Rauf, S., & Indraswari, B. W. (2021). Factors related with the incidence of acute respiratory infections in toddlers in Sleman, Yogyakarta, Indonesia: Evidence from the Sleman Health and Demographic Surveillance System. *PloS One*, 16(9), e0257881.
- Febriana, A. T., Utamia, R., & Dwandaru, W. S. B. (2020). The effect of mutual cooperation values towards people's lifestyle in the form of maps. *Jurnal Civics: Media Kajian Kewarganegaraan*, 17(1), 60–66.
- Glaser, P. (2012). Respondents cooperation: Demographic profile of survey respondents and its implication. *Handbook of Survey Methodology for the Social Sciences*, 195–207.
- Hasan, M. A., Nahiduzzaman, K. M., & Aldosary, A. S. (2018). Public participation in EIA: A comparative study of the projects run by government and non-governmental organizations. *Environmental Impact Assessment Review*, 72, 12–24.
- Isworo, S., Oetari, P. S., & Pramaningsih, V. (2022). *Public Participation in Environmental Impact Assessment for the Borobudur Temple Merchant and Parking Relocation Project*.
- Kamil, M. (2018). Cultural tolerance, diversity and pluralism: the recognition of Yogyakarta as the city of tolerance. *Journal of Local Government Issues*, 1(1), 23.
- Khalim, A., Ghifarsyam, H. U., Rozy, N., & Ma'arif, F. (2020). Scheduling design of Jakarta-Cikampek II elevated toll road project (P. 186–P. 187). *Journal of Engineering and Applied Technology*, 1(2).
- Kurnianingsih, M., Sartanto, A., & Sukirman, A. N. (2022). Settlement of Compensation for Land Affected by the Solo-Yogyakarta Toll Road Construction Project at the Klaten District Court. *Urecol Journal. Part H: Social, Art, and Humanities*, 2(1), 1–10.
- Moggridge, B. J., & Thompson, R. M. (2021). Cultural value of water and western water management: an Australian Indigenous perspective. *Australasian Journal of Water Resources*, 25(1), 4–14.
- Ndiakha, O. V. (2017). *Improving Public Participation And Consultation In Environmental Impact Assessment (Eia)*. University of Nairobi.
- Ningsih, D. E., Frinaldi, A., & Rembrandt, R. (2024). Analysis of Environmental Approval in Government Regulation No. 22 of 2021 on the Implementation of Environmental Protection and Management. *CIVED*, 11(1), 29–37.
- Nursin, A. (2020). Last Planner System (LPS) Implementation on Jakarta-Cikampek II Elevated Toll Road Project. *Applied Research on Civil Engineering and Environment*, 2(01), 17–22.
- Putri, K. N. R., & Marzuki, P. F. (2020). Model of land acquisition productivity performance for toll road projects in Indonesia. *Civil and Environmental Science Journal (Civense)*, 3(2), 84–94.
- Quick, K. S., & Bryson, J. M. (2022). Public participation. In *Handbook on theories of governance* (pp. 158–168). Edward Elgar Publishing.
- Rahmah, A. N., Ridha, M. R., & Kamriani, N. (2021). The impact of job creation act against the participatory principle in environmental law. *International Journal of Law, Environment, and Natural Resources*, 1(1), 22–28.

- Rinaldi, B. M., & Tan, P. Y. (2019). *Urban landscapes in high-density cities: Parks, streetscapes, ecosystems*. Birkhäuser.
- Rohman, M. A., & Wiguna, I. P. A. (2021). Evaluation of road design performance in delivering community project social benefits in Indonesian PPP. *International Journal of Construction Management*, 21(11), 1130–1142.
- Selman, P. (2004). Community participation in the planning and management of cultural landscapes. *Journal of Environmental Planning and Management*, 47(3), 365–392.
- Setyawan, L. T., & Adjie, H. (2021). Reconstruction of Land Procurement Policies and its Compensation for Interests of National Strategic Projects. *International Journal of Innovative Science and Research Technology*, 6(3), 437–442.
- Shalihah, F., Alviah, S., & Shob'ron, I. A. (2023). The Wages in Employment Relations in the Tourism Sector in Yogyakarta in Justice Perspective. *Substantive Justice International Journal of Law*, 6(2), 138–162.
- Siregar, M. A., & Utomo, S. W. (2019). Environmental impact assessment as a regulation and equator principles as an initiative. *IOP Conference Series: Earth and Environmental Science*, 399(1), 12081.
- Siswoyo, M. (2020). The impact of toll roads development: Ecology of public administration perspective. *Systematic Reviews in Pharmacy*, 11(11), 152–157.
- Susanto, N. (2019). Public (Dis) Engagement in Toll Road Project: A Case Study from Indonesia. *JKAP (Jurnal Kebijakan Dan Administrasi Publik)*, 23(1), 77.
- Susilowati, F., Tyagita, F. C. N., Jannah, R. M., & Chrisnawati, Y. (n.d.). Construction Project Risk at the Toll Road Construction Implementation Phase (Case Study: Solo–Jogja Toll Road Construction Project). *MEDIA KOMUNIKASI TEKNIK SIPIL*, 29(1), 132–140.