**Public (Dis)Engagement in Toll Road Project: A Case Study from Indonesia**

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**Abstract**

Although numerous studies have revealed the significance of public participation in development, in practice, the government or companies in charge of infrastructure development often obscure the public’s perception of the potential impacts that it may cause. This research aims to provide a more detailed description on the impact of toll road construction projects with low level of public participation. This research employed the case study method with a qualitative approach in its research design. This is meant to provide deeper understanding on the impacts imposed by a toll road construction project that ignored public engagement. This study found that public disengagement in the construction of toll roads has several impacts on the public’s perception during the preconstruction and construction stages, as well as social impacts, and impact on change in land use. The disadvantage of the single case study utilized in this research is the issue of subjectivity and external validity, which was accordingly anticipated by increasing the number of respondents for the purpose of triangulation and by distributing questionnaires to respondents to improve validity. The results of this study may be beneficial for executors of infrastructure development so they can minimize the impacts induced by development. Development should be planned with prudence and by assessing worst case scenarios during the development planning and execution stages. As for the government, the results of this research may be taken as a consideration by the relevant government authorities in performing their duties of ensuring the public’s rights to receive quality public services, and as a consideration pertaining to the impacts that development may cause. The flourishing studies and practices of infrastructure development do not persuade researchers to conduct studies on the impact of infrastructure development without involving public participation.

Keywords: public engagement; public disengagement; toll road construction; Indonesia

**Background**

The construction of toll roads is one of the infrastructure projects that has been proven to improve the public’s quality of life and economic development. A number of benefits gained by constructing toll roads, among them, are efficient flow of traffic in developing areas (Berawi, Miraj, Berawi, Gunawan, & Mikaelse, 2018; Nahry & Fadillah, 2018; Yan, Chong, Sheng, & Wang, 2017), improved efficiency and effectiveness of goods and services distribution to support economic development (Brandao & Saraiva, 2008; Low & Odgers, 2012; Newell, Wing Chau, & Kei Wong, 2009), and less burden on the government budget through the participation of toll road users (Brandão, Bastian-Pinto, Gomes, & Labes, 2012; Carbonara, Costantino, & Pellegrino, 2014; Cheah & Liu, 2006; Liu, Bennon, Garvin, & Wang, 2017).

On the other hand, transportation investments almost constantly impose unequal impact and benefit on all communities (Chen & Subprasom, 2007). Environmental justice becomes an issue when minority groups or low-income communities receive less benefit and are perhaps disproportionally burdened by transportation investments. The burden may be a result of negative environmental, economic, or social impacts experienced by people living in and around toll road project areas.

The public is, hence, one of the key stakeholders in the construction of toll roads (Rohman, Doloi, & Heywood, 2017; Villalba-Romero, Liyanage, & Roumboutsos, 2015). Failure in meeting the public’s expectation of an infrastructure development project will result in the failure of the construction project (Almahmoud & Doloi, 2015; Doloi, 2012). To minimize the negative impacts caused by toll road construction, considerations relating to benefits in the distribution of people and goods, environmental benefits, and public participation should be set as vital principles in toll road constructions.

Although several studies on infrastructure development have emphasized the significance of public participation throughout every stage of development (Almahmoud & Doloi, 2015; Doloi, 2012; Rohman et al., 2017; Villalba-Romero et al., 2015), there has been no research conducted that tries to identify in more detail the impact of public disengagement in toll road construction. The literature on infrastructure development projects has largely focused on the economic aspect, while the social and environmental aspects have not gained much attention. To be precise, the focus of researchers in infrastructure development projects nowadays is more on their funding models (Carmichael, Nguyen, & Shen, 2019; Chan, Yeung, Yu, Wang, & Ke, 2011; Chu, Wang, & Feng, 2017; Heravi & Hajihosseini, 2012; Jain & Cullinane, 2002; Kaminsky, 2018; Ke, Wang, & Chan, 2010; Nguyen, Mollik, & Chih, 2018; Palcic, Reeves, & Stafford, 2018; Pradono, Muromachi, Harata, & Ohta, 2000; Yu, Chan, Chen, & Darko, 2018; Zhang, 2005) and the economic impacts of infrastructure development projects (Anas, Tamin, Tamin, & Wibowo, 2017; Chi & Waugaman, 2010; Chung, 2002; Gordon et al., 2015; Standish & van Zyl, 2007; Vadali, 2008).

In practice, public participation is often ignored in project development (Rohman et al., 2017). While in fact, public participation in the construction of toll roads has substantial significance in the success of infrastructure projects (Almahmoud & Doloi, 2015; Doloi, 2012; Rohman et al., 2017; Villalba-Romero et al., 2015). Public participation in development will increase public acceptance of the project because the company in charge of the infrastructure development can utilize the perspective of the community to prevent failures. Public engagement in the long term will also encourage public utilization of the finished project since the project is indeed made for the public.

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| **Table 1. The Length of Operational and To-Be-Constructed Toll Roads**  |
| No | National Toll Roads | Length of Roads (KM) |
| Operational | To-Be-Constructed |
| 1 | Island of Sumatera  | 42.700  | 2,805.200  |
| 2 | Island of Java | 697.120 | 1,675.710  |
| 3 | Island of Bali  | - |  9.700  |
| 4 | Island of Kalimantan  | - |  84.000  |
| 5 | Island of Sulawesi | 17.650 | 46.000 |
| Total  | 757.470  | 4,620.510  |
| Source: Attachment B of Public Works Ministerial Decree No. 92/KPTS/M/2011 on the First Amendment of Public Works Ministerial Decree No. 567/KPTS/M/2010 as ultimately amended by the Public Works Ministerial Decree No. 250/KPTS/M/2015 |

The Indonesian government plans to construct toll roads extending up to 4,620.510 km (Table 1), unfortunately, only 757.470 km (16%) were actually achieved. Several studies found that the low level of construction achieved was due to the fact that the projects disregarding public participation indicated public resistance (Sandhyavitri, Talha, Fauzi, & Sutikno, 2017; Sihombing, 2017; Wirahadikusumah, Sapitri, Susanti, & Soemardi, 2018). Subsequently, this research attempts to practically provide a more detailed description on the impacts brought about by the construction of toll roads without public engagement. Based on the results of this study, the government and companies in charge of infrastructure development can anticipate these negative impacts, undoubtedly, by involving the public in various stages of the toll road construction.

This research examined the case of the Trans-Java toll road construction, specifically the Solo-Kertosono toll road section in terms of its toll road management aspect. This particular section was selected based on the consideration that in the Trans-Java toll road construction, this specific section has already reached the land acquisition and construction stages. The land area that the toll road runs through is a productive agricultural land, particularly for planting food crops. The toll road runs through several regencies, including the Regencies of Boyolali, Karanganyar, and Sragen in the Central Java Province and the Regencies of Ngawi, Magetan, Madiun, and Nganjuk in the East Java Province, which are the top five agriculture-based regions in the area with high productivity, especially within the scope of East Java as one of Indonesia’s national food barn. A number of research locations relating to the regional governments were conducted at the institutions located in the Solo-Kertosono toll road, which goes through the administrative regions of Central and East Java Provinces.

**Research Method**

This study is conducted based on the background and issue of environmental protection in the construction of toll roads described in the above passages. The research design employed in this research is the qualitative method of case study, and it is carried out to gain a deeper understanding of the impacts imposed by toll road construction without public participation. The case study approach is expected to provide answers on the how and the why in cases where the phenomenon under study and its explanatory factor are mutually interconnected (Yin, 2014). To deepen the analysis, this research also employed the survey method to understand the public’s perception of the toll road construction.

The study is focused on the Trans-Java toll road construction, particularly the Solo-Kertosono toll road section in terms of its toll road management aspect. This particular section was selected based on the consideration that in the Trans-Java toll road construction, this specific section has already reached the land acquisition and construction stages. The land area that the toll road runs through is a productive agricultural land, particularly for planting food crops. The toll road runs through several regencies, including the Regencies of Boyolali, Karanganyar, and Sragen in the Central Java Province and the Regencies of Ngawi, Magetan, Madiun, and Nganjuk in the East Java Province, which are the top five agriculture-based regions in the area with high productivity, especially within the scope of East Java as one of Indonesia’s national food barn. A number of research locations relating to the regional governments were conducted at the institutions located in the Solo-Kertosono toll road.

Data in this study were acquired from interviews and literature study. The respondents interviewed in this research were as follows:

**Table 2. List of interviewed respondent**

| Institution | Location | Subject/Respondent | Position of Research Subject  |
| --- | --- | --- | --- |
| Center for Data and Information Technology (Pusdatin) and the Directorate General of Highways, Ministry of Public Works and Housing (Kemen PUPR) | Jakarta | The legal bureau and the official in charge of toll road construction | Source  |
| Directorate General for Law Enforcement of the Ministry of Environment and Forestry  | Jakarta  | Official in charge at the Directorate for Forest and Environmental Law Protection | Source |
| Toll Road Regulatory Agency of the Ministry of Public Works and Housing | Jakarta Solo | The head of the Solo-Kertosono Work Unit | Source |
| Regional Development Planning Agency, Administrative Section of the Regional Secretariat, Regional Environmental Office | Surakarta Municipality, Regencies of Boyolali, Karanganyar , Sragen, Ngawi, Magetan, Madiun, and Nganjuk | Heads of relevant Agency/ Office/ Team | Sources and Respondents |
| Districts and Villages that the development goes through | Sampling in areas of Boyolali, Karanganyar, Sragen, Ngawi, Magetan, Madiun, and Nganjuk | District and Village Heads, community figures, land owners, communities around the development areas, CSOs and NGOs | Respondents |

The literature study in this research was done by analyzing the following documents:

**Table 3. List of Secondary Documents**

| **No** | **Data** | **Document** | **Indicator** |
| --- | --- | --- | --- |
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| 1 | Planning Policies | National Long Term Development Plan (RPJPN),National Medium Term Development Plan (RPJMN),Government Work Plan (RKP),Strategic Plan (Renstra) of the Ministry of Public Works and Housing,National Road Network | Include/ do not include environmental protection contents |
| 2 | Technical/General Planning | FS (Feasibility Study), DED (Detailed Engineering Design), EIA (Environmental Impact Assessment), SEA (Strategic Environmental Assessment), and other instruments | Include/ do not include environmental protection contents |
| 3 | Laws and regulations | Law 32/2009 (Environmental Protection and Management Law),Law 38/2004 (Road Law),Governmental Regulation 15/2005 on Toll Road and its Amendments, Presidential Regulation/ Presidential Decree, Public Works Ministerial Regulation, and other relevant regulations  | Include/ do not include environmental protection contents |

Data analysis in this research was carried out by description and arrangement of the collected transcripts. This was done to find existing patterns and to seek topics or themes that are significant to present. The data analysis process was then followed by efforts in constructing an organized and complete data so that deeper discussions and interpretations could be conducted. Essentially, data processing, analysis, and construction were conducted in an evaluative and prescriptive manner by using the qualitative approach. The presentation of both primary and secondary data processing results were combined with data analysis, in which no particular method was emphasized but rather both were carried out in tandem accordingly.

**Findings and Discussion**

**The Construction of the Solo-Kertosono Toll Road**

The construction of the Trans-Java Toll Road Solo-Kertosono section has been specified in the 2005-2025 National Long Term Development Plan (RPJPN) as mandated in Law 17/2007, and the 2004-2009 National Medium Term Development Plan (RPJMN) as mandated in Presidential Regulation 7/2005. These planning policies are supported by general planning arrangement which was established through a legislation drafting process that produced the National Road Network Master Plan, then stipulated in the 2005 Public Works Ministerial Decree No. 369/KPTS/M/2005. The construction of the Trans-Java Toll Road Solo-Kertosono section is specified in Attachment I.1B, which breaks up the construction plan into the 58 km long Solo-Mantingan section, the 27 km long Mantingan-Ngawi section, and the 84 km Ngawi-Kertosono section.

The construction of the Solo-Kertosono toll road was divided into two work sections. The Toll Road Regulatory Agency (BPJT) as the government institution (initiator) authorized to operate the toll road entered into a Toll Road Concession Agreement (PPJT) on the 28th of June, 2011 for the 62.90 km long Solo-Ngawi section with PT. Solo Ngawi Jaya. The PPJT eventually became a Toll Road Business Entity (BUJT), and with that PT Solo Ngawi Jaya had gotten an additional construction target of 90.10 km, which was distributed into 4 sections with a total cost of 5.14 trillion rupiahs for investment and 1.778 trillion rupiahs for land acquisition. The PPJT for the Ngawi-Kertosono section was carried out between BPJT and PT. Ngawi Kertosono Jaya on the 28th of June, 2011. The Ngawi-Kertosono section, according to the PPJT, referred to the construction of a 49.50 km long toll road with a cost of 3.88 trillion rupiahs, but given the development of BUJT in 2015, the length was extended to 87.02 km long, which was divided into 4 sections of work area. The cost of investment needed to construct the Ngawi-Kertosono section was 3.83 trillion rupiahs and 1.084 trillion rupiahs for land acquisition cost.

**Public Engagement in the Construction of the Solo-Kertosono Toll Road Section**

A space for the public to engage in the construction of the Solo-Kertosono Toll Road Section was provided through information dissemination forums held during the pre-construction stage by BPJT, and during the construction stage by PT Solo Ngawi Jaya and PT Ngawi Kertosono Jaya about the execution of the toll road construction. The information dissemination process was conducted directly with as many as 1-5 meetings, which included substances relating to the construction of toll roads at the determined locations and a follow-up measure that involved land acquisition process.

Unfortunately, the information dissemination efforts had not entirely influenced the perception of communities affected by the toll road construction. In fact, results of the information dissemination showed that the information provided on future environmental impacts was extremely “minimal”. The process of information dissemination carried out was unable to enhance the public’s understanding of the risks the toll road construction may impose on the environment in terms of pollution and degradation that the surrounding community would face in the long run. Additionally, information pertaining to general planning and planning policies of the toll road construction had not been disseminated optimally by the initiators. Respondents who attended these meetings stated they were simply informed that a toll road going through the respondent’s village would be built.

The information dissemination forums about the toll road construction plan were considered to have yet touched on the environmental issues involved. In further detail, the process of information dissemination and publication of the toll road construction had not discussed matters pertaining to future impacts and their visualizations, hence the public were only considering about the change of land use and land acquisition. Primary data results show that the long time interval which had transpired between the meetings and the actual construction work also contributed in obscuring the public’s perception of the potential ensuing impacts. The information conveyed during the dissemination meetings was considered incomplete, and the long interval between the planning and the construction process had resulted in an information disconnect about the Solo-Kertosono toll road construction. Within the regional government organization itself, there were many government employees initially involved in the promotion and planning of the toll road construction who had retired or were transferred to another organization that is unrelated or uninvolved with the toll road construction process.

The development program promotion and publication activities carried out during the pre-construction stage of the Solo-Kertosono section, empirically speaking, have not caused any significant conflict or disputes. The issues that emerged were merely at the level of public “perception”, which ultimately led to a stance that “agrees” or “disagrees” with the toll road construction. In the end, the decision taken by the government based on the existing perception was to continue the toll road construction program. The process of harmonizing the perceptions and enhancing the understanding of the public was not properly conducted.

During the pre-construction and construction stages, the public did not obtain adequate information about the potential damaging impact the construction has on the environment in the long run that would be confronted by land owners or people living in and around the construction sites. The information provided was rather directed at regional government officials and organizations such as the Regional Secretariat, Regional Public Works Office, Regional Research and Development Planning Agency (BAPPELITBANG, which was previously called BAPPEDA), District and Village Heads and their staff. The personnel responsible for disseminating information also kept changing according to the “transfer” of government officials or officers in charge. As a result, thorough and complete information concerning the construction of the Solo-Kertosono toll road was extremely difficult to find. The public was more interested in the process of land acquisition that would be applied. The land acquisition issue became a hot topic for owners of land that would become included in the toll road construction plan. The people were subsequently ushered into the land acquisition process and the technical calculations of “compensation” along with the requisites that it ensued.

Public engagement in the construction of the toll road at the pre-construction and construction stages of the Solo-Kertosono section by conducting information dissemination meetings was only considered as a means to legitimize every stage in the government’s implementation of toll road management. Public engagement or participation as a development prerequisite with the purpose of obtaining legitimacy is at the level of participation manipulation, or it may explicitly be considered as nonparticipation, implying that there was no public participation. The desired change was to raise the public’s level of engagement in environmental management from the earliest stage of toll road management, which is when the construction plan was introduced then followed up by a feasibility study, the items included in the planning policy should have at the very least reached the level of citizen partnership to show the reality that citizen power have been involved.

**The Impacts of the Solo-Kertosono Toll Road Construction on the Social Environment**

The road construction impact analyzed in this study is focused on the social environmental dimension, specifically on the impacts imposed during the pre-construction and construction stages, because the Solo-Kertosono section had not been operational even after the completion of this research. Discussions relating to the impacts of the Solo-Kertosono toll road construction include hypothetical impacts about public perception, change in social cohesion, and change in land use. It is of utmost importance to discuss these impacts before getting into discussions on environmental disputes, bearing in mind that environmental disputes do not spontaneously occur and they have specific incidents or occurrences that set their underlying background.

1. **Public Perception at the Pre-Construction Stage**

The pre-construction stage of the Trans-Java toll road Solo-Kertosono section was based on a feasibility study that involved the regional/municipal governments of Boyolali, Surakarta, Sragen, Ngawi, Magetan, Madiun, and Nganjuk. The pre-construction stage included land acquisition, survey, and publication activities. The impact assumed to emerge from the publication activities conducted during the pre-construction stage would result in difference of public perceptions regarding the toll road construction. The land acquisition, survey, and publication activities were mutually interrelated in imposing potential impact with the main issue being the land acquisition process. The land acquisition process had induced changes in land use and social dynamics, particularly, of communities in and around the toll road construction area.

The pre-construction stage activities carried out by BPJT for the Solo-Kertosono toll road section involved the regional governments and the villages’ officials. Publication activities that had been done at the onset of the construction in the pre-construction stage, predicted the impact of public perception. The public perception that was assumed would emerge during the construction and should have been anticipated was the public’s negative perception of the toll road construction process. Such condition has always been apparent in road construction projects, particularly those brought about by land acquisition activities for the purpose of developing or constructing new roads.

High demand for land, huge expenditure, and potential conflicts are among the issues that must be confronted. To date, several cases of conflict that occurred during the pre-construction and post-construction stages were largely due to change in land use along with its ensuing impacts, such as the loss of livelihood for a part of the community (farmers) whose agricultural land had been turned into a toll road. People who were unprepared with the changing land use have not found a proper solution to this problem even up to implementation of the construction stage.

The negative perception that emerged may be attributed to an incomplete understanding on the long term plan of the toll road construction. The perceptions that emerged between 2006 and 2007, by and large, referred to the problem of change in land use, with the assumption that significant impact was secondary. Study results indicate that concerning the Solo-Mantingan section, based on interview results of 64 respondents from the communities in Karanganyar and Sragen, 68% of them showed a supportive perception of the toll road construction plan, while 31.2% of respondents were not supportive. Meanwhile, for the Mantingan-Ngawi section, out of the 60 respondents from Ngawi, 80% were supportive and 20% were not. As for the Ngawi-Kertosono toll road section, the perceptions of 120 respondents were obtained from Ngawi, Madiun, and Nganjuk with 95.8% of them indicating support and 4.2% of them not indicating support, hence the dissemination of information may be identified as having a significantly “positive” impact. Ultimately, the total percentage of respondents in support of the Solo-Kertosono toll road construction was at around 80%, while those not in support of it was at around 20%.

1. **Public Perception at the Construction Stage**

The study results, pertaining to the public’s perception after the construction process had run for several years (about 10 years), indicated as many as 9% of respondents “disagreed” with the toll road construction, while 91% of respondents “agreed”. A number of respondents disagreed because they considered the toll road construction would cause environmental damage in and around the construction sites as well as deprive the livelihood of farmers as the use of agricultural land would be altered as a consequence of the toll road construction. It is interesting to note that some of the respondents who agreed with the toll road construction actually stated that they consider the construction as damaging to the surrounding environment.

Interview results show that the toll road construction is a government project that the public cannot refuse, despite its damaging impact on the environment. Some land owners agreed with the project as they considered that the toll road would quicken transportation, although they had no idea what it would be like in the future, and they still considered the toll road as detrimental to the environment. Some others agreed because it is a government program, if they were given a choice, they would have chosen to keep their land for agricultural use than toll road because it would damage the environment, roads around the area, and irrigation. The responses given by the communities who either agreed or disagreed would not stop the ongoing toll road construction process. It was imperative that the government’s initiative to construct the toll road continued, despite disagreement from some of the residents.

In response to the ongoing construction process, the study results obtained from 93 respondents indicate that concerning the impact of toll road construction, 31 respondents or 33% of the total respondents confirmed that the construction would “damage” the environment. The reasons they mentioned were that the damage caused by the toll road construction would disrupt the irrigation cycle of productive agricultural lands around the toll road area, it would also lead to the reduction of agricultural lands, and also the advent of noise and air pollution as well as environmental damage in and around the toll road construction sites. A different point of view is shown by the 67% of respondents who said that the construction would “not damage” the environment because they consider that the toll road would be beneficial in facilitating transportation flow among the regions that the toll road goes through, and if there were damages they can be anticipated technically during the construction process. The research results show that some residents, even regional government officials, had varying understandings of “what the future environmental impact will be” at the time when the toll road construction process was occurring and when it would be operational later in the future, with a greater percentage of respondents stating that it would “not damage” the environment.

The respondents who stated that the toll road construction would have damaging impact on the environment (as many as 33%) provided information that there would be a number of future impacts such as “noise and air pollution”, disruption to the irrigation system in the long run, reduction of open green areas, and damaged roads around the construction sites. People who thought that the construction would “not damage” the environment considered that the constructed roads were built on agricultural land, thus it would only have an impact on diminishing agricultural production in the long run. Additionally, respondents who stated that the toll road construction would not damage the environment also said that the toll road would be beneficial in making transportation smoother and faster.

1. **Social Impact**

Field study results show that the toll road construction had changed the relationship among residents because their access to see each other became disconnected by the toll road, people who were close then have become distant. The closeness among residents was inhibited on account of the toll road construction. The residents’ work location, which was formerly near, became much farther since they would not be able to use their usual route and they would have to walk around the toll road to reach their destination instead. The residents in the area have, to this day, been waiting for the construction of pathways connecting the villages, keeping in mind that the distance between villages that was formerly 100-200 meters had become over 2 kilometers now. Some of the residents would walk through the toll road construction sites to shorten their walking distance, but this would not last long because once the toll road becomes operational, their access would be closed down and they would only be able to go through the underpass or overpass that are made.

The change in social cohesion took place throughout the entire section of the Solo-Kertosono toll road. The communities living in and around the construction site of the Ngawi-Kertosono section also shared similar concern. During the construction stage, the disconnection of the community’s social cohesion around the construction sites was also felt by the local residents. The economic consideration of the community as well as the agricultural production routes around the toll road area should have been given serious attention by the toll road construction executors, if this were not the case, the community’s economic burden would increase on account of having to spend more money for transport and having less opportunity to generate income. The toll road compels the residents to take a farther route to reach their place of work, neighbors, or families living around their area due to the toll road obstructing their former pathway. Meanwhile, a number of connecting walkways, in the form of overpass or underpass, have not been constructed. The growing demand among the residents is the construction of connecting pathways for village or district roads that had previously been utilized to link sub-districts and villages but were disconnected due to the toll road passing through those areas.

The changing social cohesion brought about by the construction of the toll road is currently being overshadowed by the main objective of the toll road, which is to quicken the flow of transportation among the cities it goes through. The social issue faced by the community in and around the construction sites is “assumed” to be resolved by constructing connecting pathways in the form of overpass or underpass. However, constructing these pathways does not necessarily reconnect the separated communities, bearing in mind that there is a limited number of underpass and overpass that will be made, while there was actually copious amount of former connecting roads and pathways linking sub-districts, villages, and agricultural land areas. The disconnection of these roads and pathways results in a farther distance for the surrounding residents to get to work or conduct their daily activities.

1. **The Impact of Change in Land Use**

According to data from the Commitment Making Officer (PPK) of the Solo-Mantingan Work Unit, BPJT, as of December 2017, the necessary land for constructing the Solo-Kertosono toll road section consists of the 114.6 km long Solo-Mantingan section covering an area of 510.99 hectares, and the 124.61 km long Ngawi-Kertosono section covering an area of 882.33 hectares. The majority of lands that changed use were agricultural land areas along with some residential areas, forest areas, and government-owned properties in the form of office buildings or village-owned lands.

The land owners whose land(s) were affected by the Solo-Kertosono toll road construction stated their agreement with the construction as they were given compensation for their land(s). Their agreement was actually based on the grounds that the compensated lands were non-technical agricultural land areas, so the change in land use would not affect their daily livelihoods. Some stated that they have accepted their fate and would have to switch profession as they had to let their agricultural land be turned into a toll road. According to a respondent, there were many residents who were compensated but unable to buy new plot of land for agricultural purposes as the compensation they received was not much more than the amount of land sold. Additionally, the price of agricultural land had then soared as the process of the toll road compensation continued.

The rise of disputes in the land acquisition process, indeed, cannot be directly categorized as an environmental dispute. The land acquisition examined in this research is a part and parcel of the toll road construction, which utilized natural resources as its means of development, wherein land is one of them. The land acquisition issues that occurred may be specified into 2 categories, namely: refusal of change in land use; and disagreement between the resident and the government over the price of land. The majority of disputes concerning the change in land use within the Solo-Kertosono toll road construction is related to the disagreement in the price desired by the land owners and the price determined by the government, and legal actions have been taken to address this issue. Based on the primary and secondary data results, some of the issues that appeared and were taken to court involved the land owners demanding a fair amount of compensation for the purchase of their land(s), as observed to take place in Ngawi Regency, Boyolali Regency, and Madiun Regency.

Refusal of change in land use, from agricultural land into a toll road, was pursued by Djoko Wijono, a land owner in Watualang Village, Ngawi District, Ngawi Regency, who filed a lawsuit about the matter to the State Administrative Court (*Pengadilan Tata Usaha Negara* – PTUN). Djoko Wiyono’s claim was filed to PTUN in 2007, and Djoko Wiyono as the claimant remained unwilling to let the government build the toll road on his land. Djoko Wiyono’s objection is based on the fact that the measuring and mapping of the toll road construction plan between kilometer 84,000 and 85,000 (Watualang – Ngawi) were done furtively without any dissemination of information to the surrounding community, particularly the claimant and agricultural land owners impacted by the toll road project. The measuring and determining processes that are considered to be “done furtively” without the claimant’s knowledge, are believed to have caused a change in the claimant’s size of land area, while in fact, the claimant remains unwilling to let his land be used as a toll road.

Toll road constructions will always come in contact with the issue of land acquisition. Land acquisition problems were bound to occur in this case since the construction was directly associated with the land acquisition process from the planning to the handover stage, or indirectly associated through the land value that was compensated with money or others. In comparison to other forms of ownership, land ownership is, in principle, associated with culture, belief, and the broader economic aspects. The problem that emerged, broadly speaking, was that the amount of compensation determined by the government was deemed insufficient by the community, meaning that compensation should be in line with the land owners’ demand, or else it would not be feasible to maintain their level of social economic welfare.

**Discussion**

This study aims to provide a deeper description on the impacts brought about by toll road construction that ignores public engagement. In infrastructure development, public engagement can enhance the public’s trust, acceptance, and use of the infrastructure constructed (Osei – Kyei & Chan, 2016; Xu, Long, & Zhang, 2016). Generally speaking, by employing the ladder of citizen participation Arnstein (1969), this study admits that the public participation in the construction of the Solo-Kertosono toll road is at the level of manipulation. In further detail, at the pre-construction and construction stages, the community were not provided with sufficient explanation regarding the potential damage the construction may impose on the environment in the long term, which will undoubtedly be faced by the land owners or residents living around the construction sites.

Once the level of public participation has been identified, this research revealed the impacts induced by the construction activities which did not involve public participation. This study is focused on the impacts that the Solo-Kertosono toll road construction has on the social environment. Among the impacts that were identified are: the public’s perception at the pre-construction and construction stages; social impact, and impact on change in land use.

Observed from the public’s perception in the pre-construction stage, the public’s disengagement had caused a difference in the public’s perception regarding the toll road construction. The negative perception that emerged during the pre-construction stage was a result of the lack of complete understanding of the toll road construction’s long term plan. The perception that existed between 2006 and 2007 was, generally, associated with issues of change in land use. Another impact was the apparent polarization among residents based on people either agreeing or disagreeing with the construction of the toll road.

The other impact was the public’s negative perception during the construction stage. At this stage, the dynamics of public perception of the Solo-Kertosono toll road construction had become more profound. The perception that emerged at this stage was that the toll road construction would damage the environment in and around the construction sites as well as eliminate the livelihood of farmers due to the change in agricultural land where the toll road was being constructed. Additionally, the residents believed that the construction would cause air pollution and disrupt the existing irrigation system. Both positive and negative responses to development should be considered as a valuable input in project development. Ignoring negative perceptions is a grave misconduct because along the way, the group that bears negative perception can influence people that have a positive one (Kerahroodi, 2016). Thus, as stated by Yong (2010), the government should safeguard the process in its entirety, especially to assist in raising public awareness and understanding of the project that will be developed.

Subsequently, a social impact was also observed, wherein the construction of the toll road has created more distance between residents who were formerly close due to their access roads being cut off by the toll road. The close relationship fostered among the community has been disrupted by the construction of the toll road. The work locations of residents that were initially close have become farther to reach as people are now required to go around because they can no longer go through their usual route. With the toll road in place, surrounding residents must take a farther route to reach their place of work and to visit their family or friends in their vicinity on account of being cut off by the toll road. Meanwhile, some of the connecting pathways, in the form of overpass or underpass, have not been provided. To address this issue, the community should be given room to participate in determining the project design so the social impact could be minimized (Ng, Wong, & Wong, 2010). It is, consequently, the government’s duty to ensure that the citizens rights have been met and they receive quality public services and are compensated the costs induced by the impacts of development (OECD, 2010).

The following impact refers to the change in land use. Land acquisition as a part of the pre-construction stage showed interesting dynamics, as was the case during the stages of information dissemination and publication. The change in land use for the sake of constructing the toll road had definitely reduced the area of lands utilized for agricultural purposes. Another impact is the emergence of disputes in the land acquisition process, which cannot indeed be directly categorized as environmental disputes. In general, this study found that the change in land use would cause problems in the toll road construction, which materialized into refusal of the change in land use and disagreement on the price of land that should be paid by the government. The support of residents living around the project sites during the early stages of the construction would minimize various obstacles that emerged, such as land acquisition. Additionally, it was also stated that the community’s acceptance of the project would reduce potential conflicts and consequently reduce the costs necessary for addressing these conflicts (Osei-Kyei & Chan, 2015).

Public engagement in the construction of the toll road may be directed at determining the development policy, strategy, and orientation. Public support will determine success or failure. Therefore, active public participation should be facilitated. Infrastructure development involving public participation will make development become more rooted in the community, thus ensuring development sustainability. Community residing in and around development project areas should be actively involved in every development project as they will be one of the groups enjoying the positive impact of said development. Their satisfaction on the process and result of development must be included as one of the vital indicators in project development. In greater detail, Müller & Turner (2007) proposed public satisfaction components that include time, cost, and quality of the project.

**Conclusion, Limitation, and Implication of Research Results**

Public engagement is a consideration that must be included in toll road management. The construction of toll roads is a highly complex infrastructure development project that comes in direct contact with the community. Public participation will determine the success and failure of infrastructure development projects. This study found that the lack of public engagement in every stage of development will induce various negative impacts such as the public’s perception of development, change in social cohesion, and resistance. The lack of information during the public dissemination process had led to the residents agreeing or disagreeing on the toll road construction without proper consideration of the potential future impacts it would impose. The idea that the toll road construction would bring damage to the environment had not been perceived by the majority of residents, such condition had surely influenced the public’s response and stance concerning the environmental damages caused by the toll road construction.

From an academic perspective, this study has filled in the research gap relating to more detailed description of the impacts imposed by a development project that does not involve public participation. Whereas from a practical perspective, the results of this research may be beneficial for companies in charge of infrastructure development to minimize the impacts of development projects by prudently assessing worst case scenarios that may happen during the planning or constructing stages. For the government, the results of this study may be taken as a consideration in performing its duty of ensuring the fulfillment of citizens’ rights to obtain quality public services and compensating the costs incurred from the impacts of development.

This research was conducted using the single case study approach. The drawback in using this approach relates to the issue of subjectivity and external validity. To address these issues, several informants were used to improve research validity. Moreover, this study not only used in-depth interview to obtain its data, but it also distributed questionnaires to numerous respondents to increase its validity.

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