

Community Transformation through Community Infrastructure Planning: A Case Study of Song District, Sarawak

(Transformasi Komuniti melalui Perancangan Infrastruktur Komuniti: Kajian Kes di Daerah Song, Sarawak)

Mark Anak Edward Tuah, Peter Aning Tedong* & Melasutra Md. Dali

Department of Urban and Regional Planning, Faculty of Built Environment, Universiti Malaya

**Corresponding author: peteraning@um.edu.my*

Received 17 January 2023, Received in revised form 27 April 2023

Accepted 6 July 2023, Available online 31 October 2023

ABSTRACT

The development of community infrastructure is fundamental to the socio-economic growth of a region and its community. Nevertheless, the development of rural community infrastructure still remains a challenge in some rural areas which affects the standard of living in the communities. In Malaysia, community infrastructure planning remains a key component of Malaysia's rural development policies and strategies that needs to be amplified in ensuring the sustainable development of rural areas. This paper examines the role of community infrastructure planning in transforming rural communities' quality of life which includes the impacts of community infrastructure planning to community's livelihood transformation and challenges that comes with it. This study adopts the qualitative approach involving semi-structured in-depth interviews with relevant government agencies involved in the rural community infrastructure planning process. Based on a study carried out in Song District, Sarawak, the findings finds that while the respondents agreed that development of community infrastructure in the district have created transformational effects to the communities' livelihoods, there were various challenges to the delivery of community infrastructure projects to certain areas within the district in addition to satisfying the needs to the community. The discussion suggests that in terms of governance, integration of institutional roles of stakeholders, involving government agencies and community needs to be emphasize in the rural community infrastructure planning process to deal with the many challenges in order to fulfill the rural communities' needs.

Keywords: Community infrastructure planning; rural community; community transformation

ABSTRAK

Pembangunan infrastruktur komuniti adalah penting untuk pembangunan sosio-ekonomi sesebuah wilayah dan komunitinya. Walau bagaimanapun, pembangunan infrastruktur komuniti di luar bandar masih menjadi cabaran di beberapa kawasan luar bandar yang memberi kesan kepada taraf hidup masyarakat luar bandar. Di Malaysia, perancangan infrastruktur komuniti kekal sebagai komponen penting yang perlu dipertingkatkan dalam dasar dan strategi pembangunan luar bandar Malaysia bagi memastikan pembangunan mampan di kawasan luar bandar. Kajian ini mengkaji peranan perancangan infrastruktur komuniti dalam mentransformasikan kualiti hidup komuniti luar bandar; iaitu melihat kepada impak perancangan infrastruktur komuniti kepada transformasi kehidupan masyarakat dan cabaran-cabaran yang dihadapi. Kajian ini menggunakan pendekatan kualitatif melibatkan temu bual mendalam separa berstruktur dengan agensi kerajaan berkaitan yang terlibat dalam proses perancangan infrastruktur komuniti luar bandar, dan wakil masyarakat kampung. Berdasarkan kajian yang dijalankan di Daerah Song, Sarawak, hasil kajian mendapati walaupun responden bersetuju bahawa pembangunan infrastruktur masyarakat di daerah ini telah mewujudkan kesan transformasi kepada kualiti hidup komuniti, terdapat pelbagai cabaran yang perlu dihadapi dalam penyediaan projek infrastruktur komuniti kepada pihak tertentu dalam kawasan daerah di samping cabaran untuk memenuhi kehendak masyarakat. Perbincangan kajian ini mencadangkan bahawa dari segi tadbir urus, integrasi peranan institusi pelbagai pihak berkepentingan, iaitu melibatkan agensi kerajaan dan masyarakat perlu dititikberatkan dalam proses perancangan infrastruktur komuniti luar bandar bagi menangani pelbagai cabaran demi memenuhi keperluan komuniti luar bandar.

Kata kunci: Perancangan infrastruktur komuniti; komuniti luar bandar; transformasi komuniti

INTRODUCTION

Community infrastructure development is an essential aspect to a region's development and its community's socio-economic growth (Calderón and Servén 2004; Srinivasu and Rao 2013; World Bank 2019). In fact, the development of community infrastructure has been recognised as one of the drivers of sustainable development as targeted in the various global commitments such as the Sustainable Development Goals (SDGs), New Urban Agenda (NUA) and the Paris Agreement on climate change (Thacker et al. 2019; UN Habitat 2018). Previous studies show that the development of community infrastructure has transformational effects to communities in particular vulnerable communities, such as the existence of basic community infrastructure in poor rural areas can increase human development and reduce poverty in those areas (Adu-Boahen et al., 2014; Ravallion & Datt, 2002).

Despite the importance, there are some areas, mostly rural areas, which still face challenges and problems of inadequate basic community infrastructure such as improper road network connectivity and lack of access to reliable electricity supply, clean water, sanitation (World Bank 2019; Alonge, Lawal, and Akindiyo 2021). This problem affects the rural communities' quality of life (Calderón and Servén 2004; Yusoff, Talib, and Pon 2011; Kaur and Kaur 2018) particularly in terms of income disparity and inequalities (World Bank 2019; United Nations 2016) as they are unable to access and enjoy the benefits of the services that the infrastructure provides. Therefore, to ensure rural communities do not miss out their rights to access basic community infrastructure and are not left behind, the issues of community infrastructure development disparity and level of community infrastructure remains a prevalent issue that needs to be addressed (Srinivasu and Rao 2013; Nedozi, Obasanmi, and Ighata 2014; World Bank 2019).

Malaysia as a developing country is not far off from this challenge. The development of community infrastructures under rural transformation programmes such as National Key Economic Areas (NKEAs), Economic Transformation Programme (ETP) and Rural Transformation Centres (RTC) are seen as efforts by the Malaysian government to support socio-economic growth in rural areas. The impacts of community infrastructure on rural livelihood have been acknowledged in various studies, such as the improvement of rural residents' accessibility to basic services, for example, health and education, increase opportunity for income and economic growth, and increased social capital (Manggat, Zain, and Jamaluddin 2018; Yusoff, Talib, and Pon 2011; Ali et al. 2009). However, while some of the rural strategies have succeeded

in achieving their objectives while some fall short of their intent (Rashid, Ngah, and Misnan 2019; Ngah 2009; Arshad and Shamsudin 1997). Previous researchers have found that even though Malaysia have undergone a rapid development throughout the years, development gaps between urban and rural areas still persists despite the intervention of government initiated rural development policies and initiatives (Hoe et al. 2017; Mohd et al. 2018). Hence, the development of community infrastructure remains an integral part for Malaysia's rural development policies and strategies for the development of rural areas and the transformation of rural communities.

The state of Sarawak in East Malaysia continues to face challenges in its development of rural areas, especially when it comes to the provision of basic community infrastructure. Past and ongoing rural development strategies such as Sarawak Corridor of Renewable Energy's (SCORE) is seen to have transform the rural physical and economic development in Sarawak (Echoh and Lyndon 2018). While statistics shows that the coverage of water and electric supply in the state have increased (DOSM, 2020), on the ground, there are pockets of areas in Sarawak mostly rural areas that lack the basic infrastructure and utilities and this issue still needs further attention. Hence, wellbeing issues continues to exist such as high incidences of poverty in certain localities and among specific ethnic groups that reside in the rural areas due to the gaps in community infrastructure development (Tedong et al. 2021; Kelabu and Fadzil 2019). According to Tedong et al. (2022), due to inaccessibility, communities are prone to spend on higher cost for transportation and unable to access social assistance. Hence, issues of urban and rural disparities issues and inaccessibility to basic infrastructure in various pockets of rural settlements in Sarawak continues to be addressed by the government through their policies and development plans such as the Twelfth Malaysia Plan. Review on literatures revealed that the remote location of some of the settlements in areas with undulating topography which imposes high cost for the provision of infrastructure is a major factor for Sarawak's low coverage of rural community infrastructure (Gevelt 2017; Khengwee et al. 2017).

This situation poses a challenge for different stakeholders in the rural planning process to provide and deliver the community infrastructure to rural areas, which is crucial to transform rural communities' livelihoods (Tuah, Tedong, and Dali 2022; Latiff, Jaapar, and Isa 2021). Therefore, this article aims to examine the role of community infrastructure planning in transforming rural communities' quality of life which includes the impacts of community infrastructure planning to community's livelihood transformation and challenges that comes with it, particularly in terms of the governance process. This

article hopes that the findings can provide a basis for further studies by practitioners and academics to recommend and promote improvements in the community infrastructure planning processes for rural areas to enable the transformation of rural communities' livelihood.

LITERATURE REVIEW

The United Nations (2016) defines "infrastructure" as basic assets and objects that are considered essential for the functioning of the society and economy. While, there is no specific definition of infrastructure, common categorizations almost typically include networked systems that deliver services which includes power, water, waste management, transport and telecommunications (Thacker et al. 2019; Frischmann 2005; Prud'homme 2004). Some definitions have a broader scope which includes broader definitions also include basic public services and facilities such healthcare, financial and education facilities (Frischmann 2005). This infrastructure that constitutes rural services is referred to as soft infrastructure (Wanmali and Islam 1997) or social infrastructure (Kaur and Kaur 2018; Prud'homme 2004).

"Community infrastructure" is a subset of the umbrella term of "infrastructure", which vaguely refers to any of the physical infrastructure under that term (World Bank 1994). The Global Facility for Disaster Reduction and Recovery (2017) defines "community infrastructure" as small-scale basic structures, technical facilities, and systems developed at the community level that are vital for the livelihoods of the population residing in a community (GFDRR, 2017). These small-scale infrastructures that are built over time in response to the community's needs and ambitions (GFDRR, 2017; ILO, 2020). Scholars such as Wadley, Elliott, and Han (2017) included large scale infrastructure as community infrastructure citing this infrastructure can offer positive externalities to communities and society. Nevertheless, in reviewing past literature, the general notion shows that community infrastructure is infrastructure with the underlying context of socially benefit communities in which it can enhance communities' human capital opportunities (Cramer 2000; GFDRR, 2017; ILO, 2020).

Hence, for this study, it is decided that the term "community infrastructure" refers to infrastructure that are small-scale or large scale which are built in response to the community needs that are important for the communities' livelihoods. Hence, by this definition, examples of community infrastructures in rural context are such as village roads and other access roads, footbridges, water supply facilities, irrigation canals and drainage systems,

and communal facilities (GFDRR, 2017; ILO, 2020). Additionally, large scale infrastructure projects which are to benefit rural communities such as highways and bridge which are built to connect settlements or power stations to tap down electric supply to villages can be considered community infrastructure. Large scale infrastructural projects which are for the primary purpose of economic investment are not seen as community infrastructure.

Various studies have shown that there is a relationship between the level of development and provision of community infrastructure where adequate supply of infrastructure services is essential in spurring productivity and growth of a region. (Srinivasu and Rao 2013; Calderón and Servén 2004). For example, in rural areas, irrigation systems have impacts on production of agriculture products (Zhao and Kanamori 2007). The provision of quality and adequate community infrastructures not only impacts the productivity and efficiency for economic development but also ensures the high standard of living and wellbeing of the community (Kaur and Kaur 2018; Yusoff, Talib, and Pon 2011). The planning of community infrastructure in rural areas intend to not only focus for rural economic growth but also for the rural household's quality of life such as to reduce social issues in rural areas such as poverty (Cord and Verissimo 2002; Adu-Boahen et al. 2014; Ravallion and Datt 2002). Other studies too have shown that community infrastructure is able to address social issues such as quality of life, equality and poverty (World Bank 2019; United Nations 2016; Thacker et al. 2019; EIU, 2019). In rural areas, these types community infrastructures are socially, economically, and operationally related to the rural community lifestyles and livelihood opportunities and provide fundamental services to the rural communities.

Therefore, the development of community infrastructure is generally considered a holistic approach in addressing the issues of inequality and social inequalities for rural areas. Furthermore, the integration of community infrastructure development in rural development strategies results in the improvement of social services apart from economic growth, particularly in the areas of education, health, and overall quality of life in rural communities (Manggat, Zain, and Jamaluddin 2018). Through this approach, the quality of life between rural and urban areas could be balanced and maintained. However, the rural setting poses additional and specific challenges for community infrastructure provision. For example, challenges such as remoteness of rural areas results in a higher unit costs of community infrastructure service delivery (Brushett & John-Abraham, 2006).

Thus, community infrastructure planning as with all infrastructure requires a shared long-term strategic vision to successfully address infrastructure service needs for the community (Marshall and Cowell 2016; ICE, 2019; OECD

2017; RTPI, 2019). Community infrastructure planning addresses the ‘what’ and the ‘how’ of developing an community infrastructure by establishing an efficient and adaptable strategic planning framework in order to ensure clarity in the outcome-focused objectives that represent the community priorities (RTPI, 2019). Such as the considerations of the financing, application of latest technology, empowerment of technical professionals and even active community participation can ensure the sustainable provision of quality infrastructure development (Dorava 2019; Saleh 2019; Gbadegesin et al. 2020). The involvement of private sectors through approaches such as public private partnership (PPP) are also part of the considerations in the planning process to improve infrastructure delivery and lower government financial risks (Ezugwu et al. 2021; Khalifa et al. 2021). Studies show that using a bottom-up planning model by involving the community to address the community needs directly gives provides a positive direct impact to the development of a community infrastructure in their village area

(Gbadegesin et al. 2020; Siregar et al. 2019; Nainggolan et al. 2019). Other literature proposed that community infrastructure development through local resource-based approaches can help overcome these challenges (GFDRR 2017; ILO 2020).

METHODOLOGY

The study area for this research is Song District. Song District is located in Kapit Division in the State of Sarawak, Malaysia encompassing an area of 3,935.2 square kilometers (Figure 1). The estimated district population in 2019 is 24, 200 people. Song is situated by the banks of the Rajang River and its tributary, the Katibas River. These two rivers were a major waterway linking villages and to nearby towns. Song is also connected by the Sibu-Kapit Road which connects Song to Sibu on the west and Kapit on the east.



FIGURE 1. Location of Song District, Sarawak

The justification for choosing Song District as a case study area is it is located in Kapit Division, the largest administrative division in Sarawak which have a low population density and predominantly rural areas. Furthermore, the Song District has a median income of RM 2,662 and a mean income of RM 3,443 (DOSM, 2020). In addition, the incidence of absolute poverty is 6.0% and has a Gini Coefficient of 0.353 (DOSM, 2020). These

statistics shows that the Song District has a one of the lowest median and mean income among the districts in Sarawak and also has a high rate of absolute poverty.

This study uses the qualitative approach by using semi-structured interviews to obtain insights on the various aspects of infrastructure planning according to the views of stakeholder related to rural infrastructure planning in Sarawak. In this case, relevant agencies at different policy

levels involved with community infrastructure planning in Sarawak were selected as respondents. A total of 8 respondents from different government agencies were interviewed. Table 1 shows the details of the respondents who participated in the interview. From this group of

respondents, it intends to find out on the community infrastructure planning processes and governance relating to community infrastructure planning policies, strategies & programmes and issues and challenges of community infrastructure planning.

TABLE 1. Details of respondents

| Interview Session No. | Respondents | Code |
|-----------------------|--|------|
| 1. | Sarawak Economic Planning Unit (EPU) | GA 1 |
| 2. | Ministry of Infrastructure and Port Development (MIPD) | GA 2 |
| 3. | Sarawak Public Works Department (JKR) | GA 3 |
| 4. | Ministry of Rural Development (KPLB) Sarawak | GA 4 |
| 5. | Ministry of Utilities Sarawak | GA 5 |
| 6. | Sarawak Land & Survey Department | GA 6 |
| 7. | Sarawak Multimedia Authority (SMA) | GA 7 |
| 8. | Ministry of Women, Early Childhood and Community (KWPKP) | GA 8 |

The data collected from the interviews were analysed using ATLAS.ti qualitative data analysis software. Based on the data collected, the response from all the respondents is analysed, to understand to what extent the community infrastructure planning have transformed the community and the challenges being faced. The analysis was conducted by organising the respondents' answers and cross referenced to enable analytical comparison of the opinions of the agency's representatives in the topic of the research. Additional data from policy documents and past literature are also cross referenced to support the analysis of findings. Based on the results from this analysis, the results are presented in two sections firstly, on how have community infrastructure planning transformed the community in Song District and secondly, what are the challenges in planning for community infrastructure in Song District. The next section of this paper presents the discussion of the results and findings.

RESULT AND FINDINGS

HOW HAVE COMMUNITY INFRASTRUCTURE PLANNING TRANSFORMED THE COMMUNITY IN SONG DISTRICT?

In this study, one of the objectives is to find out how the community infrastructure provided to the community have transform their livelihood. The findings show that all the community agreed that for the past 10 years, the Song District have undergone major development growth. As

gathered from the findings, many communities' infrastructure projects have been implemented government agencies and with many more ongoing in the planning and development stage in the Kapit Division where Song is located.

One of the most important community infrastructures that was seen to have a huge impact on the community is the development of road network. One major development is the Sibul-Kapit Road, which has already been completed and is currently ongoing upgrading works at several sections of the road. The Sibul-Kapit Road that was built have made Song more accessible by land as oppose to before, Song is accessible by express boats via the Rajang River. *Jalan kampung* or village roads are important connector roads that connects the villages or longhouses to the main roads in the Song District. However, at present, most of the road development are at the *hilir* (downstream) area while the *hulu* (upstream) area still lacks access roads due to its remoteness and topography and requires a boat ride to the longhouses to the upstream of Katibas River.

For community infrastructure such as water supply, most of the areas concentrated in the town area are equipped with piped water. For longhouses and villages, most received their water supply through a gravity fed water systems. In the case for electric supply, most longhouses or villages that are connected are mostly electrified through the grid system. While other longhouse is equipped with solar system under the Sarawak Alternative Electrification Scheme (SARES) or a hybrid system. Hence, mostly the longhouses located at the upstream of Katibas River are equipped with the solar system.

Whereas, for telecommunication, telecommunication towers have been built completed in Song equipped with MYSarawak Rural Broadband Network services. At the same time, longhouses are provided with Wi-Fi services under the JENDELA and SALURAN initiatives. Whilst not limited to the roads and these utility infrastructures, other community infrastructure such as bridges, jetties and footways at longhouse areas are among the community infrastructure that are planned and developed in the Song District for the community.

Looking at how these community infrastructures have transformed the community in Song, it has to a certain extent have improved the livelihood of the community. With roads connecting to the longhouses, it has made it easier for the villagers to go to the Song town area by land instead of using boats. As quoted from one officer,

Like in Kapit (Division) area, last time we are connected through the river transport. Now we are connected through land. As you can see, a lot of the longhouses people buying Hilux instead of boat. (Code: GA 2)

As such, it is gathered that the improved roads accessibility has given impact to the economic activities of the community in Song. Villagers are able to transport their goods to the market much easier. Furthermore, they save time in travel and also save money on transportation cost. The findings shows that more economic activities are able to take place in the Song District. As proof, villagers are able to come to the town more frequently and able to conduct business any time. At the same time, more people from outside the district, are able to come to Song for tourism purposes in particular for its agriculture products. This is found to have help in increasing the income for the community. This trend is acknowledged by many officers interviewed. To quote one officer:

One, in terms of our entrepreneurship in the rural areas at least our rural people now are much into entrepreneurship and they are being guided and being trained to an extend on the new digital economy because the government will be to digital community centres in the hope that the community will use it and will be taught how to be omnipresent in digital as well as physical businesses. That's one. The other thing is it's not just not for those people in the rural areas. It's also for people in urban areas to enjoy what the rural areas have got to offer in terms of tourism, in terms of our craft, in terms of bringing out our traditional products to be enjoyed by people. (GA 8)

Similarly, the electrification of longhouses via the grid or solar system have transform how the community live as the longhouses have 24 hours reliable electricity. Although solar system has limit, the community respondents say that with proper management, the electricity supply is still reliable. Previously, some longhouses had to rely on

generators for power and had limited time. Now that the longhouses have 24 hours reliable electricity, the communities can use their electrical appliances any time. At the same time, changes in the community life can be seen as the community are able to save on money considering they spend much less on electricity after being connected to the grid as oppose to the high cost of fuel to run the generators.-

Here, it is seen a recurring theme that the development of community infrastructure allows the community to save money on certain cost such as transportation cost and fuel cost for electric generator as mentioned earlier.

Several respondents commented that the provision of community infrastructure have improved the social aspects of families in the longhouse. Family visits from family members who live out from the Song District are able to visit their village more often. Another aspect of transformation socially is community access to services in particular education and health services. As one ministry officer acknowledge on this aspect, she commented:

Our community in the rural areas is very very old or very very young. There's very little in between. So how do this people have access to this services that rightfully be for them especially in terms of medical for example, in terms of productive life in their sunset years. That is the way forward for our ministry. (Code: GA 8)

Based on our findings, it shows that there are limitations on the provision of telecommunication services such as telecommunication line, internet and Wi-Fi services. This comes at a cost to certain groups of the community for example students. To quote one officer:

Of course, there are still many areas lacking in term of internet connectivity. That's why you a lot of issues reported in the paper whereby now most of the students, especially most the students are forced to study online. (Code: GA 1)

According to information provided by SMA, Song District has a 25.6% coverage. It targets to have a coverage of 88.4% by the end of year 2022. SMA officers acknowledge of the challenge to reach the target goals. To quote:

We are trying as quick as we can to provide to the people. Because we understand now that people are relying on (internet) connectivity. People need the connectivity. We understand that, we know that. And then right now, we are trying to expedite. However, how fast that we can, but then at the end of the day, we are government agency, we still need to comply to the government process. So, it's not, you know, like commercial. They can do whatever, however, how fast they want (Code: GA 7).

This shows that in the aspect of telecommunication as community infrastructure is less developed in the Song District and requires more attention to improve its services. Hence, our data shows that while the community have felt that their livelihood have transform as a result from the development of the community infrastructure, there are some areas where there are still lacking to satisfy the needs for community transformation. This brings us to the challenges of community infrastructure planning in the Song District.

WHAT ARE THE CHALLENGES IN PLANNING FOR COMMUNITY INFRASTRUCTURE IN SONG DISTRICT?

The goal to transform the community by planning and developing community infrastructure is not without its challenges. In general, from the perspective of the government agencies as the implementing agency, they face several challenges in particular relating to governance and the planning process.

According to the respondents, they mostly agreed that the significant challenge that needs to be addressed in rural community infrastructure planning in Sarawak is the factor of location. The officers expressed that Sarawak's vast and uneven terrain in the rural areas influence the technicalities and viability of many communities' infrastructure projects. Such as in Song District, the downstream area is relatively flat, whereas the upstream areas have rougher terrains. These unfavourable terrain conditions and its remote location influence the expensive cost of delivery rural community infrastructure projects to such areas. As expressed by some officers, due to this factor, subsequent challenges often arise in planning and developing the community infrastructure in these rural areas in terms of budget and delivery of resources and materials. One officer explains the challenge of rural community infrastructure delivery to remote rural areas as follows:

Due to the physical aspect, there a lot of issues on the cost of construction material and the accessibility. Say for example if you want to build the road for the settlement within the hinterland area but you don't have the main road going there or the access to that particular area, and we want to connect one settlement to another settlement in the hinterland, you don't have the major access to bring the materials in. Therefore, we use the alternative like logging road and plantation road.
(Code: GA 2)

The geographical factor is further complicated by the fact that the population density in some rural settlements is relatively low. Several officers remark that they face problems in obtaining funding from higher level government agencies since they are unable to justify the

project's high cost given the low population. This comes at the cost of the community living in those settlements. In the Song District, the *hulu* (upstream) area is one such areas that face this challenge.

Another challenge identified that is brought up by the officers interviewed is the lack of budgets for rural community infrastructure projects. Most of the government agencies involved in the community infrastructure process highlighted about how funds are significantly lacking to deal with technical and feasibility issues due to remoteness of rural areas. As they rely on financing from higher government levels, conflicts may arise in justifying the procurement of budget for rural infrastructure projects in the budget approval process. Therefore, some agencies frequently have insufficient funds to carry out initiatives that have been established under planned policies and plans. Additionally, some of the government agency officers interviewed criticised the delays in projects brought on by developers and contractors. These delays force agencies to review their budgets, which frequently go up as a result of rising resource and material costs.

The ministries and agencies have developed a number of solutions to the problems with budget allocation. For instance, due to the limited budget available under the development plans, the Ministry of Infrastructure and Port Development (MIPD) may decide to construct rural road projects in phases.

Another strategy is the establishment of a trust fund for engineering feasibility studies by the EPU. As quoted from an officer, With the limited fund of the Malaysia Plan, we try do it in phases instead of the whole project. Just like the Sibul-Kapit Road last time is not done all in one go. It was actually done in phases because the whole project will take a lot of money.

With the budget constraint that you have, you implement in phases. (Code: GA 2)

Our findings shows that some of the community in Song District rely on their own initiative instead on relying on government to build some infrastructure project. It is gathered that some longhouses organised gotong-royongs to build certain community infrastructure like small village roads, footways and footbridges. While the community's direct involvement in planning and developing for their own community infrastructure, in particularly small-scale projects is seen as a positive initiative, undoubtedly, the ministries and agencies expressed that if more funding was allocated, the delivery of community infrastructure to rural areas can be more effective for the general public. One officer opined that it may be necessary to look into new mechanisms at how rural infrastructure projects can be prioritised through returns of investment so that it can fund subsequent future rural infrastructure projects. Other officers interviewed also advised for better and stronger political will to seek funding and investments for planning and developing rural community infrastructure in Sarawak.

Our data revealed that the community infrastructure planning process has been, for the most part, coordinated and collaborative at the state level among ministries and agencies. This is due to the planning process, where there would be engagement among ministries and agencies under the umbrella of EPU as the central coordinating agency. Similarly, the findings from the interview shows that the Ministry of Rural Development through its Sarawak State office have coordination meeting that are conducted between agencies that receive allocation from them such as the District Office, Resident Office, JKR and others as part as part of the monitoring process to gauge project progress. However, cases of duplication of task do arise between KPLB and some state agencies when it comes to the implementation of certain rural community infrastructure development projects.

This issue, as noted by an officer is attributed to the practice of local level agencies such District Office and Resident Office who applies to both the Federal and State agencies for a rural project in hope to be conducted or developed in their administrative area, at which when the proposal is approved by one of the agencies, the local level agencies fail to inform the opposite agency of the results and hence, duplication of approval and in some cases implementation of projects occurs. As quoted from a KPLB officer interviewed,

The district office will try KPLB's luck to get RTP (Rural Transformation Project). That is their job. But the problem at the district level is they did not inform us (that the road project has been implemented by another state agency). So, this is wasting our time. (Code: GA 4)

Other conflicts in the community infrastructure planning process could be identified as a struggle of lack of understanding and cooperation between the state ministries and the federal government. According to the officers who were interviewed, they claimed that federal-level officers lack a clear understanding of the challenges and situation on the ground in Sarawak which poses a challenge to secure funding for community infrastructure development projects. Due to this, officers at the state level were unable to convince federal government to approve the budget for various community infrastructure development projects. The state level officers argued that a comprehensive understanding of the local circumstances on the ground as well as support from the higher level of government would help them in order to effectively plan and deliver community infrastructure in rural areas in Sarawak. Nonetheless, several officers acknowledge that the issue is not due to a lack of understanding of the federal officers but rather the rigid requirements in the budget approval process at the federal level. Our findings revealed that officers at the state level

will have to provide justifiable data and compete with other states to secure project funds as they rely on funding from higher levels of government. The officers acknowledge that for lesser developed states like Sarawak, this proof to be disadvantageous as the rigidity of some requirements are sometimes unjustifiable for rural areas, and hence funding could not be secured for certain rural community infrastructure projects.

Moreover, it is suggested that the cooperation and collaboration between the government and private sector could be enhanced. The officers express that, the private sectors could take a more social approach in developing their lands so that roads can be used collectively by the rural communities as part of a Corporate Social Responsibility (CSR) effort as some of the rural settlements are within the vicinity of the private sector operations.

It is emphasized that while the planning process in Sarawak is generally a top-down approach through plans and policies, bottom-up efforts through engagements at local government and community level are incorporated as well in the planning process, such as engagements with district and divisional levels agencies, as well as public engagements. In Song District, the local communities are represented by their elected representatives, penghulus and also the Tuai Rumah as representative for their own longhouse community. Based on our findings, for most of the part, the Tuai Rumahs are responsible for executing application for community infrastructure that is requested by his people in his longhouse area. By due process, the Tuai Rumahs would apply through their local representative or the District Office and subsequently follow up on the approval and then implementation by the relevant agencies.

The officers interviewed acknowledge the importance of the community representatives' role as they are more capable of recognising the local needs and proposing possible community infrastructure projects to the relevant agencies or ministries to be considered to be developed according to the available allocated budget. As a result, before the project implementation, localised data and opinions are effectively captures in the planning stage through public engagements to ensure impactful delivery of the community infrastructure project to the community needs for a better quality of life.

Based on the response of the officers interviewed, the findings shows that the local elected representative and District Office are two important entities in facilitating between the community and the relevant implementing agencies for engagements regarding planning and developing a community infrastructure project. To quote one officer:

Because we are not exactly going to the Tuai Rumah. Normally, we will knock the door of the District Office first,

then the District Office will get the data, inform the Tuai Rumah. This is the things; the policy or procedure is already in place. Easier for everybody when it comes to this engagement. (Code; GA 5)

A similar comment is provided by another officer, and adding to the role of elected local representative:

Like for example if you go to someone's kampung, of course you need to knock on doors right. If you build something without their consent, they'll get very angry right. That's where the District Office, the Resident Office assist us with. We cannot just come in and then just build without their consent, so that's where they come in. They assist us in terms of that. Even the YBs as well. They've been accommodating (Code GA 7).

It is acknowledged by several officers interviewed that having the involvement of public in the community infrastructure planning process does not guarantee a smooth process for the implementing agencies. According to the implementing agency interviewed, they still experience issues involving with the community in terms of public resistance. As a result, it can be difficult for implementing agencies to persuade rural communities to develop their areas, especially when the community infrastructure project involves acquisition of communities' land. Nonetheless, a social approach is adopted by the implementing agencies to convince local communities in accepting a community infrastructure development project according to their needs. Our findings in Song District reveal that while land issues are a reason for the local communities' opposition to some community infrastructure projects, implementing agencies have generally planned to avoid this issue. According to one officer, over time, local communities became more open in accepting rural infrastructure projects. It is reasoned by the officer that the local communities' perception to rural transformations brought by rural infrastructure projects takes time to understand and be accepted. This is proven as longhouse communities in Song District are more acceptable in accepting any development in their area as they see it helps with their quality of life.

While there have been improvements in the community rural infrastructure in Song District, the respondents agree that it remains challenging to develop the community infrastructure that fully satisfies the expectations of the community and their needs for transformation in their livelihood. Hence, public participation continues to be an important tool to effectively engage the locals as implementing agencies require community input in order

to understand their wants and concerns when developing infrastructure for them. Although differences in opinions arise during public participation could be challenging, officers believe that a win-win situation needs to achieve in the planning approach especially when the project affects the livelihood of the local community.

CONCLUSION

In summary, this paper aims to understand how have community infrastructure planning have transform the community in Song District. However, it is noted that the investigation of the views of the respondents have some limitations and cannot describe or represent the opinions of all related government agencies in the community rural infrastructure planning process and also the communities in Song District. The study shows that the community in Song District have experience transformational change in their quality of life and livelihood. Mainly, they for the past few years, they have been provided with most of the community infrastructure for basic needs and therefore, their lifestyle has shown improvement in particularly in socio-economic terms. Economic activities were shown to have increase in addition, the social life of the community have also improved. However, although it is acknowledged that the community infrastructure provided have a positive impact on the community, there are some aspects in the district where community infrastructure planning and development is still a challenge. This highlights among the challenges of implementing agencies in community infrastructure planning in Song District. It is identified that the geographical factor, lack of funding and investments, lack of coordination and cooperation amongst stakeholders, and the community are recurring challenges faced by agencies and ministries. This paper highlights that governance issues need to be resolved to improve the delivery of rural community infrastructure. The collaboration and integration between all relevant stakeholders, particularly top-level governance, and the community are essential to ensure efficient and targeted delivery for the development of community infrastructure in rural areas. Therefore, this paper points towards the need for a more integrated approach where the roles of various stakeholders in the development of rural community infrastructure is able to generate cooperation and coordination at the policy, planning, and implementation levels, particularly involving government agencies and the community to deal with the many challenges in order to fulfill the needs of community.

REFERENCES

- Adu-Boahen, K., Antwi, K.B., Mensah, E.A., Atampugre, G., Osman, A., Osei, K.N. & Adu-Boahen, A.O. 2014. Role of rural infrastructural development in alleviating poverty in Ghana: A case of Jukwa, Central Region. *International Journal of Development and Sustainability* 3 (4): 737-748.
- Ali, H., Zainal, A., Desa, A., Omar, M., Omar, F., & Jali, M. F. 2009. Kualiti Hidup dan Ketersampaian kepada Kemudahan Asas di Kawasan Wilayah Ekonomi Pantai Timur (ECER). *Prosiding Persidangan Kebangsaan Ekonomi Melayu Malaysia (PERKEM)* 5 (1): 370-381.
- Alonge, O., Lawal, T., & Akindiyo, O. 2021. Addressing the Challenges of Sustainable Rural Infrastructure Delivery in Nigeria: Focus on Ondo North Senatorial District. *International Journal of Academic Research in Business and Social Sciences* 11 (2): 619-631.
- Arshad, F. M., & Shamsudin, M. N. 1997. Rural Development Model in Malaysia. meeting with the Hon. President of Peru, Mr. Alberto Fujimori, Lima, Peru.
- Calderón, C., & Servén, L. 2004. The Effects Of Infrastructure Development On Growth And Income Distribution. *Annals of Economics and Finance* 15 (2): 1-43.
- Cord, L., & Verissimo, P. 2002. The Coverage of Rural Issues in PRSPs: A Review of Preliminary Experience.
- Cramer, Lori A. 2000. Community Infrastructure and the Development of Human Capital: A Pacific View. In *Change and Resilience in Fishing*, 57-68. Corvallis, Oregon: Oregon Sea Grant Publishers.
- Department of Statistics Malaysia. 2020. *Household Income and Basic Amenities Survey Report By State And Administrative District, Sarawak, 2019*. Putrajaya: Department of Statistics Malaysia.
- Dorava, J. M. 2019. Agency Helps Rural Utilities Navigate Path to Infrastructure Funding. *American Water Works Association*.
- Echoh, D. U., & Lyndon, N. 2018. Strengthening Rural Economy through Regional Development Planning Approach in Sarawak. *International Journal of Academic Research in Business and Social Sciences* 8 (13): 122-129.
- Economist Intelligence Unit. 2019. *The critical role of infrastructure for the Sustainable Development Goals*. The Economist Intelligence Unit Ltd.
- Ezugwu, C., Onyelowe, K., Ezugwu, C., Onyekweredike, K., Odumade, A., Hussaini, O. O., Amodu Oloyedef, A., et al. 2021. Community Water Demand and Sustainable Water Supply Planning in Nigeria: A Review. *Jurnal Kejuruteraan* 33 (3): 517-530.
- Frischmann, B. M. 2005. An Economic Theory of Infrastructure and Commons Management. *Minnesota Law Review* 89 (4): 917-1031.
- Gbadegesin, J. T., Ojekalu, S., Gbadegesin, T. F., & Komolafe, M. O. 2020. Sustaining community infrastructure through communitybased governance (the social practice of collective design policy). *Smart and Sustainable Built Environment* 10 (4): 711-739.
- Gevelt, T. v. 2017. *Indigenous communities, ICT and Rural Development Case Studies in Tanzania and Sarawak, Malaysia*. Cambridge: Smart Villages.
- Global Facility for Disaster Reduction and Recovery. 2017. *Post-Disaster Needs Assessments Guidelines: Community Infrastructure*. Washington DC: Global Facility for Disaster Reduction and Recovery.
- Hoe, K. C., Wahab, H. A., Bakar, S. H. A., & Islam, M. R. 2017. Community Participation for Rural Poverty Alleviation: A Case of the Iban community in Malaysia. *International Social Work* 61 (4): 518-536.
- Institution of Civil Engineers. 2019. *Enabling Better Infrastructure: 12 guiding principles for prioritising and planning infrastructure*. London, United Kingdom: Institution of Civil Engineers. <https://www.ice.org.uk/ICEDevelopmentWebPortal/media/Documents/Media/ice-enabling-better-infrastructure-report.pdf>.
- International Labour Organization. 2020. *Local resource-based approaches and community infrastructure: Addressing local needs through local resource-based approaches*. Switzerland: International Labour Organization.
- Kaur, A., & Kaur, R. 2018. Role of Social and Economic Infrastructure in Economic Development of Punjab. *International Journal of Innovative Knowledge Concepts* 6 (5): 181-188.
- Kelabu, M. A., & Fadzil, K. S. B. 2019. Reality and Development Aspiration among the Iban in the Interior of Song, Kapit, Sarawak: A Case Study in Three Longhouses. *MANU* 30: 131-149.
- Khalifa, N. A., Hmeda, A. A. A., Abidin, R. Z., & Miladd, A. 2021. Measuring the Characteristics among Critical Success Factors of PPP Infrastructure Projects. *Jurnal Kejuruteraan* 33 (3): 559-577.
- Khengwee, T., Hoole, P. R. P., Pirapaharan, K., Julai, N., Othman, A. H., Anyi, M., Haidar, A. M. A. et al. 2017. A Review of Sarawak Off-Grid Renewable Energy Potential and Challenges. *Journal of Telecommunication, Electronic and Computer Engineering* 9 (3): 29-33.
- Latiff, A. M. A., Jaapar, A., & Isa, C. M. M. 2021. Factors Influencing Governance Practices in Rural Public Infrastructure Projects: A Case Study of Rural Road Project in Malaysia. *International Journal of Sustainable Construction Engineering and Technology* 12 (4): 35-45.
- Manggat, I., Zain, R., & Jamaluddin, Z. 2018. The Impact of Infrastructure Development on Rural Communities: A Literature Review. *International*

- Journal of Academic Research in Business and Social Sciences* 8 (1): 637-648.
- Marshall, T., & Cowell, R. 2016. Infrastructure, planning and the command of time. *Environment and Planning C: Government and Policy* 34 (8): 1843-1866.
- Mohd, S., Azhar, N. A., Shakil, N. S., Senadjki, A., & Iran, M. 2018. Pockets of Poverty in the Northern States of Malaysia. *Malaysian Journal of Society and Space* 14 (4): 238-249.
- Nainggolan, S. P., Gunanto, E. Y. A., Woyanti, N., & Hayati, B. 2019. Analysis Of Participation And Willingness To Pay Community In Rural Infrastructure Development (Case Study In Pidodo Wetan Village, Kendal). *Media Ekonomi dan Manajemen* 34 (1): 21-35.
- Nedozi, F. O., Obasanmi, J. O., & Ighata, J. A. 2014. Infrastructural Development and Economic Growth in Nigeria: Using Simultaneous Equation. *Journal of Economics* 5 (3): 325-332.
- Ngah, I. 2009. Rural Development in Malaysia. In *Economy, Past, Present & Future*, edited by Ishak Yusof. Kuala Lumpur: Malaysian Strategic Research Centre.
- OECD. 2017. *Getting Infrastructure Right: A framework for better governance*. Paris: OECD Publishing.
- Prud'homme, R. 2004. Infrastructure and Development. Annual Bank Conference on Development Economics, Washington.
- Rashid, M. F., Ngah, I., & Misnan, S. H. 2019. Revitalizing Rural Areas in Malaysia: A Framework for Economic Revitalization. *IOP Conference Series: Earth and Environmental Science* 385 (012004): 1-7.
- Ravallion, M., & Datt, G. 2002. Why has economic growth been more pro-poor in some states of India than others? *Journal of Development Economics* 68 (2): 381-400.
- Royal Town Planning Institute. 2019. *A Smarter Approach To Infrastructure Planning*. London Royal Town Planning Institute,.
- Saleh, G. S. 2019. Implementation of Rural Infrastructure Development in Pohnuato Regency. *Jurnal Ilmiah Ilmu Administrasi Publik: Jurnal Pemikiran dan Penelitian Administrasi Publik* 9 (1): 101-110.
- Siregar, H. D., Subhilhar, Nasution, M. A., & Kusmanto, H. 2019. The Effect of Village Funds for Community Facilities and Infrastructure On Village Community Participation. *Eurasian Journal of Analytical Chemistry* 14 (3): 30-34.
- Srinivasu, B., & Rao, P. S. 2013. Infrastructure Development and Economic Growth: Prospects and Perspective. *Journal of Business Management & Social Sciences Research* 2 (1): 81-91.
- Tedong, P. A., Abdullah, M. F., Jani, R., & Dali, M. M. 2021. Multidimensional poverty and wellbeing of Iban community in East Malaysia. *Asia Pacific Journal of Social Work and Development* 32 (2): 113-130.
- Tedong, P. A., Zyed, Z. A. S., Jani, R., & Fazlie, F. A. 2022. Rural Residents' Perceptions On The Poverty Alleviation And Governance In Sarawak, Malaysia. *International Journal of Business and Society* 23 (2): 649-664..
- Thacker, S., Adshead, D., Fay, M., Hallegatte, S., Harvey, M., Meller, H., O'Regan, N. et al. 2019. Infrastructure for sustainable development. *Nature Sustainability* 2: 324-331.
- Tuah, M. A. E., Tedong, P. A., & Dali, M. M. 2022. The Challenges In Rural Infrastructure Planning Governance In Sarawak. *PLANNING MALAYSIA: Journal of the Malaysian Institute of Planners* 20 (5): 391 – 403.
- UN Habitat. 2018. *Leading Change: Delivering the New Urban Agenda through Urban and Territorial Planning*. UN-Habitat.
- United Nations. 2016. The Infrastructure-Inequality-Resilience Nexus. In *Global Sustainable Development Report 2016*, 21-40. New York: Department of Economic and Social Affairs
- Wadley, D., Elliott, P., & Han, H. 2017. Installing large-scale community infrastructure: Homeowners' preferences toward notification and recourse. *Community Development* 48 (3): 403-419.
- Wanmali, S., & Islam, Y. 1997. Rural Infrastructure and Agricultural Development in Southern Africa: A Centre Periphery Perspective. *The Geographical Journal* 163 (3): 259-269.
- World Bank. 1994. *World Development Report 1994: Infrastructure for Development*. New York: Oxford University Press.
- World Bank. 2019. *Mind the Rural Investment Gap: Disparities in Access to Basic Infrastructure and Directions for Mozambique's Public Investment Program*. Washington, DC.: World Bank.
- Yusoff, N. B., Talib, A., & Pon, Y. 2011. Impak Pembangunan Infrastruktur ke atas Pembangunan Komuniti Penduduk di Daerah Pendang dan Kubang Pasu, Kedah Darul Aman, Malaysia. *Journal of Governance and Development* 7: 16-36.
- Zhao, Z., & Kanamori, T. 2007. *Infrastructure and Regional Development in the People's Republic of China*. Tokyo: Asian Development Bank Institute.