

■ 査読付論文

The Impact of Village Decentralization on the Provision of Rural Infrastructure and Public Service Facilities in “Small-town” and “Rural” Sub-District Villages:  
Case Study of Indragiri Hulu Regency, Riau Province, Indonesia

Yustinus Ari Wijaya\*

**Abstract:** The objectives of village decentralization, a continuation of local decentralization policy in Indonesia, include reducing social inequity and rural poverty and improving the performance of public services on a village level. In village decentralization, village governments receive significant funding from the central government for rural development following the needs and preferences of rural communities. The financial transfer, to a large extent, is based on allocating resources equally among villages. However, the transfer raises concerns regarding revenue inequality between villages due to heterogeneous poverty levels, access to other sources of funding, and the natural resources potential of the villages. Villages with an abundance of natural resources generally receive more funding than required. This article examines the impact of village decentralization on the development of village-scale infrastructure and public facilities in one of the regions that are considered to have received more funding than other regions in Indonesia. The case study illustrates that there are developmental disparities between “small-town” sub-district villages and “rural” sub-district villages. The disparities between these two types of village will remain if village decentralization is not supported by governmental policies designed to strengthen urban functions in “rural” sub-district capitals. Strengthening urban functions in “rural” sub-districts can be achieved by supporting and funding the improvement of infrastructure and public services, thereby facilitating rural communities access to these urban amenities.

**Keywords:** village decentralization, development disparities, Indonesia.

## I . Introduction

Decentralization and autonomy have become significant concerns in Indonesia since the fall of Suharto's New Order regime in 1998. During the regime, economic development and factors such as geographical location, politics, administration, and societal influences led to significant disparities in the country (Rustiadi et al., 2009). In 1999, amid the threat of disintegration due to development disparities between regions, the Indonesian government introduced the local decentralization policy. Since the implementation of the policy, district governments have received greater authority than provinces to guide the development of public services, including education, health, and infrastructure (Hofman and Kaiser, 2006).

Local decentralization has not had a significant impact on rural development, and disparities between urban and rural areas in Indonesia persist. Though the government anticipated that local decentralization would improve the delivery of services, the resulted instead has been a massive proliferation of local governments. Meanwhile, newly established districts have not improved upon the delivery of public services compared to original districts (Firman, 2009; Lewis, 2017). The outcome of local decentralization has been reflected in a low Indonesia-wide village index of self-sufficiency (Agusta, 2014). Low rates of self-sufficiency among Indonesian villages suggest that development efforts are still unlikely to increase an area's development potential, levels of community participation, and desired benefits within villages.

In 2014, the Indonesian government issued an affirmative policy for rural regions through Village Law 6/2014. Indonesia has now decided to decentralize on a village level and has entered its fourth year of implementation. Many studies have examined the implications of the policy from the perspective of state administration and public policy (Vel and Bedner, 2015; Antlov et al., 2016; Phahlevy, 2016; Irawan, 2017). Lewis (2015) highlights issues in how funds are allocated under the village decentralization policy. Under

---

\* Doctoral student of Graduate School of Policy Science, Ritsumeikan University

village decentralization, villages are given greater autonomy in planning and implementing rural development plans. For the first time in Indonesian history, villages have received significant development funds to be managed based on their preferences and needs. Village decentralization mandates the central government to allocate village funds “*dana desa*”. According to Lewis, village funds, to a large extent, emphasize an equitable allocation to each village, despite significant heterogeneity among villages. This approach neglects revenue from other sources that have traditionally been accessed by villages, meaning that village revenues remain unequally distributed. Villages with comparatively high levels of poverty generally receive less money than needed. Meanwhile, villages with enhanced access to other sources of funding, particularly sources from oil and gas transfers (such as villages in East Kalimantan and Riau), generally receive more money than needed.

Based on economic geography typology, an area can be defined as very rural, rural, small-town, peri-urban, and very urban (Von Broun, 2007). In regional development, the role of small-towns is very significant in supporting the livelihoods of the surrounding rural communities. Reciprocal linkages in the flow of the population, money/goods, commodities, and information between more urbanized villages and rural villages will improve the welfare of the people in both regions (Tacoli, 2003). According to Douglass (1998), small-towns play the following roles in regional development: service centers and consumer shopping, support and marketing centres for agriculture, and the antipodes of population migration from rural to metropolitan and megapolitan cities. Thus, the rurality of a region will be significantly influenced by the availability of small-towns.

Despite rurality is a term that has long been used by researchers in the world to express different rural areas as not being homogeneous defined, the definition of rurality varies widely (Rousseau, 1995). In this article, the hierarchy of rurality is defined as the classification of rurality at the sub-district level based on the availability and service level of public facilities (administrative, education, health, and marketplace). These sub-districts are then grouped into two categories, namely “small-town” sub-districts and “rural” sub-districts. Given that rural areas are not a homogeneous area in terms of rurality, the impact of village decentralization on rural development equity at the sub-district level in Riau Province, which according to Lewis is grouped into “village fund winners”, should be examined further. Moreover, existing studies examine the impact of Indonesia’s village decentralization either at the national, provincial or district level (Antlov et al., 2016; Husna and Abdullah, 2016; Husin, 2016; Anshari, 2017; Agustanta et al., 2017; Irawan, 2017; Hartoyo et al., 2018). The impact of village decentralization policy at the sub-district level has not received attention in previous studies. Therefore, to get a comprehensive picture of the impact of village decentralization in Indonesia, spatial analysis of the policy implementation at the sub-district level is needed. Because development disparity does not occur only between “village fund winners” districts and other districts; disparity is also likely to occur within the districts across sub-districts and villages that have different levels of rurality. How do villages in the “village funds winner” sub-district utilize village funds for rural development? Are there any differences in the provision of infrastructure and public service facilities among villages in different rurality groups? These two questions are the main topics of this article.

The objective of this case study is to examine the impact of village decentralization on the provision of village-scale infrastructure and public facilities in “small-town” and “rural” sub-district villages in Indragiri Hulu Regency, Riau. Chapter 2 presents a brief overview of village decentralization policy in Indonesia. Chapter 3 presents the study area and methodologies applied. Chapter 4 examines the accessibility, population, and distribution of public service facilities in Indragiri Hulu. Chapter 5 investigates the impact of village decentralization on village-scale infrastructure and public service facility provisions in “small-town” and “rural” sub-districts. Chapter 6 concludes the article.

## II. Village Decentralization as an Affirmative Policy for Rural Development

Indonesia is divided into five hierarchies of government administration: central government, provinces, districts, sub-districts, and villages. According to Ministry of Home Affairs (MoHA) Regulation 137/2017, the country has 34 provinces and 514 districts. Districts are classified as either *kota* (city) or *kabupaten* (regency), of which there are 98 and 416, respectively. *Kota* or *kabupaten*, consist of *kecamatan* (sub-districts), which number approximately 7,201. The lowest public administration is represented by villages, which are classified into two types: *kelurahan* and *desa*. There are approximately 8,490 *kelurahan* and 74,957 *desa*. Administratively, *kota* and *kelurahan* are defined as urban, while *kabupaten* and *desa* are defined as rural. *Kota* and *kabupaten* each comprise a mixed composition of urban and rural populations. The urban population dominates *kota*, with approximately 90% of the population being urban. In contrast, only approximately 25% of the population in *kabupaten* is classified as urban. Most parts of *kelurahan* are located in the *kota* and urbanized areas of *kabupaten*, while *desa* are commonly found in *kabupaten*, although a small number are located in more rural areas of *kota* (Lewis, 2015).

Development disparity between urban-rural areas, Java island-outer Java, and eastern Indonesia-western Indonesia has raised the issue of decentralization and regional autonomy as a primary concern of the Indonesian people after the fall of Suharto's New Order regime in 1998. In 1999, the Government of Indonesia passed Law 22 on local governance as a new local decentralisation policy in Indonesia. This law was subsequently replaced by Laws 32/2004 and 23/2014. The implementation of local decentralization is one of the ways in which the government intends to overcome problems of development disparity and the imbalance of authority between the central and local governments. Local decentralization refers to decentralization at provincial and district levels. Since the implementation of local decentralization, district governments have received greater authority to guide the development of public services, including education, health, and infrastructure, compared to that of provinces (Hofman and Kaiser, 2006). According to Smoke (2015), decentralization in infrastructure and public service provision is expected to increase service coverage, quality, and efficiency. The closeness of the local government and the community will increase the transparency and accountability of the government compared to a centralized system.

**Table 1. Proportions of local government finances before and after local decentralization**

Description	Before local decentralization	After local decentralization	Growth (%)
	(1990-1999)	(2001-2010)	
The average proportion of central government financial transfers to local governments (%)	24.11	33.07	37.16
The average amount of local government revenue from the central government (million IDR*)	9,676,520.72	57,330,193.41	492.47
The average of local government own-source revenue (million IDR)	3,880,172.86	25,080,080.30	546.37

Note: \*IDR: Indonesian Rupiah, Indonesian currency.

Source: Rustan (2013)

Local decentralization has had a positive impact on local government finances from central government financial transfers and own-source revenues. Table 1 shows a significant increase in local government finances after local decentralization. Significant improvements in finance and broader autonomy for local governments in the implementation of development have led to the significant proliferation, especially on a district level. In 1999, before the implementation of local decentralization, the number of districts in Indonesia was 303. In the run-up to the policy, 44 new districts were created, bringing the total to 347 at the beginning of 2001. By the end of 2014, the number of districts totalled 514, an increase of over 69% from original levels (MoHa, 2017). According to Firman (2009), the district proliferation practice has brought

about fragmentation in regional development, in which many new district governments feel as if their own “kingdom of authority”. Provincial authorities, and even central government have little right to intervene with their authority. Lewis (2017) argues that the massive proliferation that has occurred since the implementation of local decentralization has been driven largely by the political motives of local elites and rent-seekers to generate profits. The relatively poor service performance of the newly formed districts, particularly in infrastructure development, has been driven by a relatively more fragile government environment and the relatively corruptible nature of the infrastructure sector. Therefore, the goal of local decentralization, which is expected to encourage equitable regional development, has not yet had a significant impact, particularly in rural areas.

The outcome of local decentralization has been reflected in a low village index of self-sufficiency Indonesia-wide (Agusta, 2014). The village self-sufficiency index measured based on three dimensions, namely self-capability (basic needs, village government facilities, and economic facilities), collective responsibility (community activities, village government activities, and economic activities), and sustainability (basic need benefits, village governance benefits, and economic benefits). The village self-sufficiency index measures between 0.00 and 1.00 with the following categorization: high (>0.80 - 1.00), moderate (>0.60 - 0.80), low (>0.40 - 60), very low (>0.20 - 40), and too low (0.00 - 0.20). Low rates of self-sufficiency among Indonesian villages indicate that development efforts are still less likely to increase an area’s development potential, levels of community participation, and desired benefits within villages.

**Table 2. Roadmap of Village Funds in State Budgets (2015–2019)**

Description	2015	2016	2017	2018	2019
Transfer of Funds to District (billion IDR)	650,975.1	680,775.04	738,545.17	805,662.65	853,694.87
Proportion of village funds (%)	4.5	7	10	10	10
Village Fund (billion IDR)	29,293.88	47,654.25	73,854.52	80,566.27	85,369.49
On Average per Village (million IDR)	401.59	653.30	1,012.48	1,104.49	1,170.34

Source: Ministry of Finance, 2017

In 2014, the Indonesian government issued an affirmative policy for rural development with Village Law 6/2014. Indonesia has now decided to decentralize to a village level and entered its fourth year of implementation. Under village decentralization, villages are given greater autonomy in planning and implementing rural development plans. For the first time in Indonesian history, villages have received significant development funds to be managed based on their preferences and needs. Village decentralization mandates the central government to allocate village funds “*dana desa*”, which amount to 10% of total central government transfers to district governments (Table 2). The village fund considers the principle of equity and justice for regional development. Each village receives funds consisting of “basic allocation” and “formula allocation”. Basic allocation funds are disbursements of the same amount of funds for all villages in Indonesia, whereas formula allocation funds are additional finances that vary depending on population, poverty level, region, and the geographic characteristics of each village.

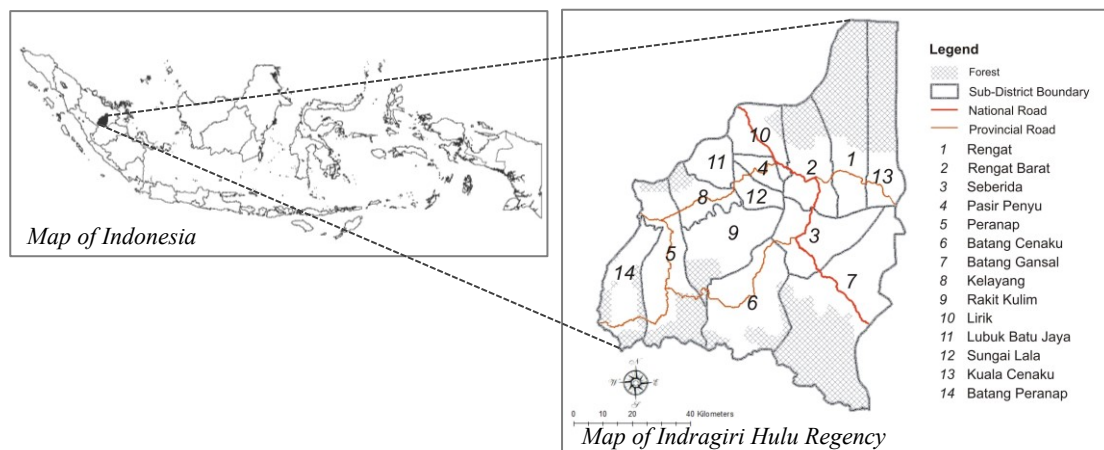
**Table 3. Village Funds Utilisation 2015–2016**

	2015 Budget		2016 Budget	
	trillion IDR	(%)	trillion IDR	(%)
Village-scale infrastructure and public facilities	14.21	82.21	40.54	87.7
Community empowerment	1.37	7.7	3.17	6.8
Government operations	1.13	6.55	1.68	3.6
Community development	0.61	3.51	0.84	1.8

Source: Ministry of Finance, 2017

Data from the Ministry of Finance (MoF) in 2017 illustrates that over 80% of total village funding has been used for village-scale infrastructure and public service development throughout the country (Table 3). Under village decentralization, villages in Indonesia are experiencing rapid development that they have never previously experienced. Village-scale infrastructure and public service facilities such as roads, bridges, clean water facilities, non-formal educational facilities, village market amenities, and supporting health facilities are the outputs of the implementation of village decentralization. Irawan (2017) finds that village community satisfaction with the implementation of deliberative democracy, provision of public services, and infrastructure development has increased since the implementation of village decentralization. However, development disparities across sub-districts might influence the discrepancies in the impact of village decentralization policy on rural development at the sub-district level. Therefore, this article aims to investigate the impact of Indonesia's village decentralization policy on development equity at the sub-district level, with a focus on the provision of rural infrastructure and public service facilities.

### III. Study Area and Methodology



**Figure 1. Study area**

Source: Statistics Indonesia (2014). [Peta shp Potensi Desa Seluruh Indonesia]. Retrieved June 2, 2017

This case study is based in Indragiri Hulu Regency, which is situated in the southern part of Riau Province, Sumatra Island, Indonesia (Figure 1). Indragiri Hulu is one of the twelve districts in Riau that has gained significant financial benefits from oil and gas extraction. Indragiri Hulu villages, aside from obtaining village funds from the central government transfer, has also received significant additional funds from oil and gas profit sharing for the village development budget. Thus, villages in Indragiri Hulu belong to the village group, which according to Lewis (2015), receives more development funds than required. Indragiri Hulu is comprised of 14 sub-districts, divided into 194 villages, with a total area of approximately 8,198.26 km<sup>2</sup>. The population of the area increased from 365,421 in 2010 to 417,733 in 2016, with an average annual growth of 2.4% (Indragiri Hulu Statistics, 2017). Agriculture is the dominant economic sector in Indragiri Hulu. The main crops grown in the district are cash crops, particularly rubber and palm oil. Per the Agricultural Census of 2013, 57,253 families, or 54.8% of the families in Indragiri Hulu, rely on these two crops.

from <http://www.info-geospasial.com/2015/10/data-shp-seluruh-indonesia.html>.

Spatial data were collected in two stages. The first stage of data collection was carried out from 1 August to 21 September 2017. All public service facilities and road networks in the case study area were identified and mapped using GIS. Mapping was carried out simultaneously to direct observations and interviews with locals on the quality and coverage of services provided to each sub-district. The collected data were then

used to classify sub-districts' rurality. For the analysis of public facilities' data pool, the approach chosen is the Scalogram analysis<sup>1</sup>) to weight each available public service facility on a sub-district level (Huisman and Stoffers, 1998). The public service facility variables considered in this study are administrative, health, education, and marketplace facilities. Each facility obtains a score of "1" if present and a score of "0" if absent. If various levels can be distinguished in certain service groups, a simple weighting system is applied, where some scores are added to each subsequent level of service by considering the hierarchy and range of functions. The Scalogram method is used to measure the centrality of an area based on the availability of a public facility in an area, regardless of the amount or quantity of the facility. For example, the score of administrative facilities in Rengat is 40. The score is derived from the sum of scores for the existence of sub-district and district-level administrative office facilities in Rengat. Based on the Scalogram method, the score for sub-district administration facilities in Rengat is 7, and 33 for district-level administrative facilities (for detail please see Appendix). To distinguish rurality between sub-districts in Indragiri Hulu, the classification of sub-districts in this article is divided into "small-town" sub-districts (total score more than 60) and "rural" sub-districts (total score less than 60). The classification must be understood in the context of the rurality hierarchy in the district area based on public service facilities availability, not only in population size (Table 4).

The second stage of spatial data collection was carried out from 4 to 28 June 2018. Two villages of 28 villages surveyed in 2017 were selected as representatives of groups of "small-town" and "rural" sub-districts. Both villages are within a 20-minute radius of travel time<sup>2</sup>) from the sub-district capital, which is the average travel time of the villages to the sub-district capitals in Indragiri Hulu. Spatial data collection on existing conditions and construction of village road infrastructure in the two villages was carried out because of the limited data on sub-district and district levels.

**Table 4. sub-District Classification in Indragiri Hulu**

Sub-District	Population (in 10,000)	Weighed Score				Total Score	Classification
		Administrative Facility <sup>1</sup>	Education Facility <sup>2</sup>	Health Facility <sup>3</sup>	Marketplace Facility <sup>4</sup>		
Rengat	5.214	40	71	68	28	207	Small-town
Rengat Barat	4.553	74	46	68	14	202	Small-town
Pasir Penyu	3.546	7	46	18	21	92	Small-town
Seberida	5.407	7	21	18	24	70	Small-town
Peranap	3.211	7	21	18	17	63	Small-town
Lirik	2.662	7	21	18	11	57	Rural
Rakit Kulim	2.301	7	21	18	11	57	Rural
Lubuk Batu Jaya	2.084	7	21	18	11	57	Rural
Batang Cenaku	3.241	7	21	18	11	57	Rural
Batang Peranap	1.025	7	21	7	11	46	Rural
Batang Gansal	3.351	7	21	7	11	46	Rural
Kelayang	2.387	7	21	7	11	46	Rural
Kuala Cenaku	1.326	7	21	7	11	46	Rural
Sungai Lala	1.466	7	21	7	11	46	Rural

Note: <sup>1</sup> Administrative Facility: Sub-district level administrative office, and District level administrative office

<sup>2</sup> Health Facility: Community Health Centre, Clinic, and Hospital

<sup>3</sup> Education Facility: Primary School, Junior High School, Senior High School, and College/University

<sup>4</sup> Marketplace: Village Market, and Sub-district Market

Source: Author

Secondary data collection on rural development in Indragiri Hulu was carried out simultaneously to primary data collection. Primary data was used to validate, and supplement secondary data obtained from local government agencies. Primary data collection using questionnaires was conducted in two stages simultaneously to spatial data collection. The first stage of the survey took place from 1 August to 21 September 2017. Given the limitations of time and resources, 28 villages of 194 villages were selected randomly. Six respondents, consisting of three village officials<sup>3</sup>) and three common villagers,<sup>4</sup>) were selected from each sample village using purposive sampling<sup>5</sup>). Regarding the number of respondents, this amount can

be considered small when compared to the entire village population. However, village officials are community leaders directly elected by rural communities through a democratic process. Therefore, the village officials can serve as the village population’s representation. To compare the opinions of village officials with those of common villagers, the author chose three common villager respondents in each sample village. Of the total 168 questionnaires distributed, 28 respondents did not participate. The total respondents who participated in the first phase of the survey were 140, consisting of 80 common villager respondents and 60 village official respondents. The survey included questions on preferences towards rural infrastructure and public service facility development.

The second survey was conducted simultaneously to spatial data collection on 4 to 28 June 2018. Two villages of 28 villages surveyed in 2017 were selected as representatives of groups of “small-town” and “rural” sub-districts. The second survey was conducted to obtain data on community preference on the types of rural roads, which, from the findings of the first survey, were the main infrastructure preference in rural development. The number of respondents planned in the second survey was 100 household heads per village, randomly selected. The number of respondents was considered to represent almost 20% of the village population, where the average number of households per village in Indragiri Hulu was 511 households. Of the total 200 household heads planned to participate in data collection in the two villages, 23 household heads were unable to participate. The total number of respondents involved in the second survey was 177, consisting of 82 respondents from “small town” sub-district village (Village A) and 95 respondents from “rural” sub-district village (Village B). Table 5 is a summary of the data collected and its use in this article.

**Table 5. Data Collection Summary**

Data collection	Application
Spatial and administrative data of all sub-districts in Indragiri Hulu	Figure 2, 3, 4, and 5 Table 4 and 6
Village-level spatial data (one “small-town” sub-district village and one “rural” sub-district village)	Table 8
140 respondents from 28 selected villages in Indragiri Hulu	Table 7
177 respondents from 2 villages (representatives of “small-town” sub-district villages and “rural” sub-district villages)	Table 9 and 10
Data on rural development budget (all sub-districts in Indragiri Hulu)	Figure 6 and 7

Source: Author

**IV. Accessibility, Population, and Distribution Pattern of Public Service Facilities in Indragiri Hulu**

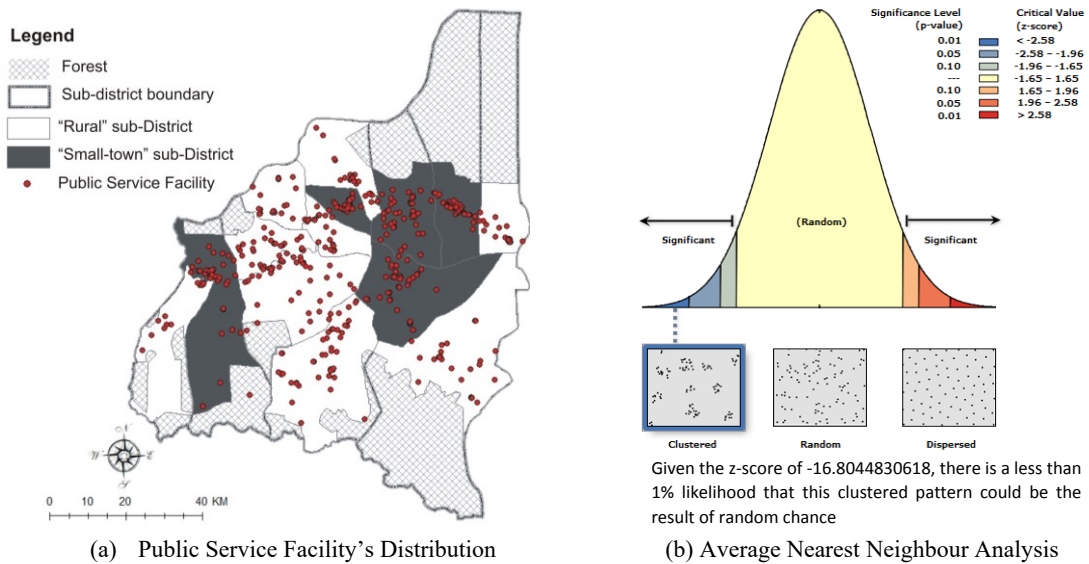
Roadways are the dominant means of transportation in Indragiri Hulu. Of the 1,737,05km of roadways in Indragiri Hulu, less than 20% have been paved. There are approximately only 37% of all roads, paved and unpaved, are in good conditions<sup>6</sup>. Before village decentralization, the construction of road infrastructure, except for provincial and national roads, was the responsibility of district governments. After village decentralization, the district government delegated authority in the construction and maintenance of village roads to village governments. Table 6 shows the density and condition of district roads across sub-districts in Indragiri Hulu. Road density and surface conditions in each sub-district vary widely. However, there is no significant difference in district road density and conditions between “small-town” sub-districts and “rural” sub-districts.

**Table 6. District Road Infrastructure across sub-Districts in Indragiri Hulu**

Sub District	Area (km <sup>2</sup> )	Road Density	Road Length (km)	Road Condition (%)		
				Good	Moderate	Damaged
<b>“small-town” sub-district</b>						
Rengat	268.85	0.40	106.42	40.42	15.08	44.49
Rengat Barat	360.07	0.80	287.4	32.14	31.70	36.16
Seberida	578.8	0.23	132.8	39.58	20.18	40.24
Pasir Penyau	119.84	0.55	65.59	47.58	27.52	24.90
Peranap	559.37	0.17	97.27	38.93	39.12	21.95
<b>“rural” sub-district</b>						
Batang Cenaku	636.29	0.37	236.2	30.69	34.04	35.27
Batang Gansal	746.38	0.14	103.9	27.43	31.62	40.95
Kelayang	217.35	0.71	154.53	35.38	24.04	40.57
Rakit Kulim	507.6	0.34	173.95	37.22	41.60	21.18
Lirik	306.52	0.18	55.62	42.48	41.26	16.25
Lubuk Batu Jaya	219.35	0.45	99.5	29.84	36.04	34.12
Sungai Lala	154.27	0.24	37.74	47.14	12.08	40.78
Kuala Cenaku	213.1	0.24	52.04	46.93	26.81	26.27
Batang Peranap	342.09	0.39	134.09	57.00	19.02	23.98

Source: Author’s calculation using data from BPS-Statistic of Indragiri Hulu (2017)

Figure 2 (a) illustrates the distribution of public service facilities built by the government of Indragiri Hulu Regency until 2017, which consist of administrative, health, education, and market facilities. The distribution pattern of public service facilities in Indragiri Hulu forms a cluster pattern, as can be seen in Figure 2 (b), which is the result of distribution pattern analysis using the ArcGIS spatial statistical tool, namely Average Nearest Neighbour Analysis<sup>7)</sup>. The cluster pattern indicates that there has been an agglomeration of public service facilities in a number of regions across Indragiri Hulu.



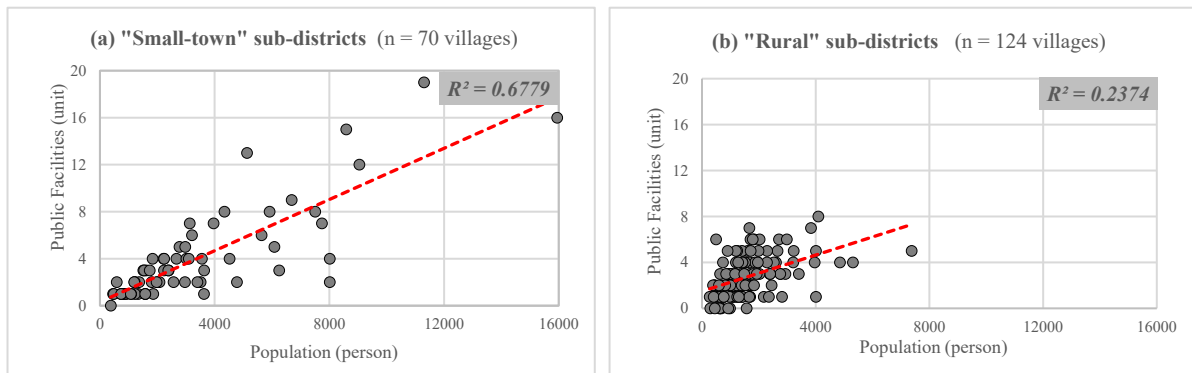
**Figure 2. Public service facility’s distribution (a) and distribution pattern by ArcGIS Average Nearest Neighbour Analysis (b)**

Source: Author

On a village level, both in “small-town” and “rural” sub-districts, the distribution pattern of public service facilities correlates to village population. Village population and the number of public service facilities in both groups of sub-districts have a positive correlation. The larger the population of a village, more likely the more public facilities are available, and vice versa (Figure 3). In general, villages in “small-town” sub-



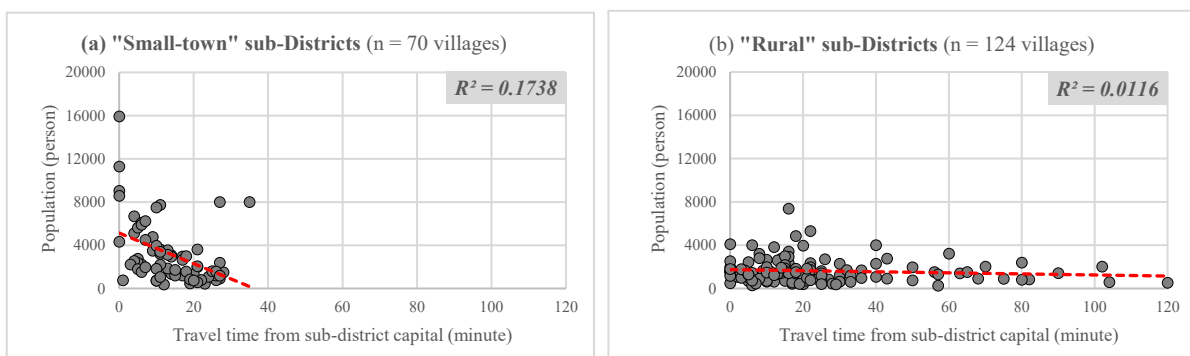
districts have larger populations than “rural” sub-district villages. Villages with a population of over than 3,000 people are more commonly found in “small-town” sub-districts than “rural” sub-districts.



**Figure 3. Relationship between village population and number of public facilities in “small-town” sub-District (a), and “rural” sub-District (b)**

Source: Author

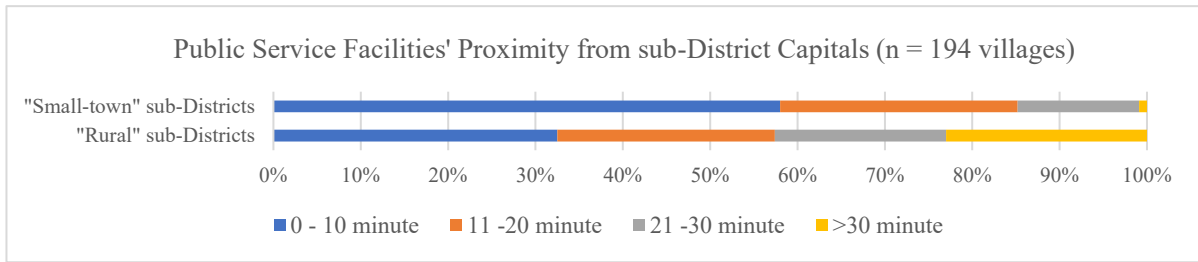
Figure 4 is a scatter plot diagram between village populations and proximity to sub-district capitals among “small-town” and “rural” sub-districts. Correlation between population and village proximity to sub-district capitals in the two sub-district groups are weakly negatively correlated. The longer the travel time of a village from the sub-district capital, more likely the population is smaller, and vice versa. However, the correlation in “rural” sub-districts is very weak. In terms of proximity to the sub-district capital, villages in “small-town” sub-districts are relatively closer to the sub-district capital than “rural” sub-district villages. The most remote villages in “small-town” sub-districts can be reached within 35 minutes, whereas the most remote villages in “rural” sub-districts tend to be reached within 2 hours by motorcycle.



**Figure 4. Relationship between village population and proximity to sub-district capital in “small-town” sub-district (a), and “rural” sub-district (b)**

Source: Author

In terms of the proximity of public service facilities from the sub-district capital, most public service facilities in “small-town” sub-districts are within a 10-minute radius of travel time from the sub-district government capital. In contrast, most public service facilities in “rural” sub-districts are over 10 minutes (Figure 5). This finding implies that the “small-town” sub-district capitals have stronger urban structure and function than “rural” sub-district capitals.



**Figure 5. The proximity of public service facilities from sub-district capitals**  
Source: Author

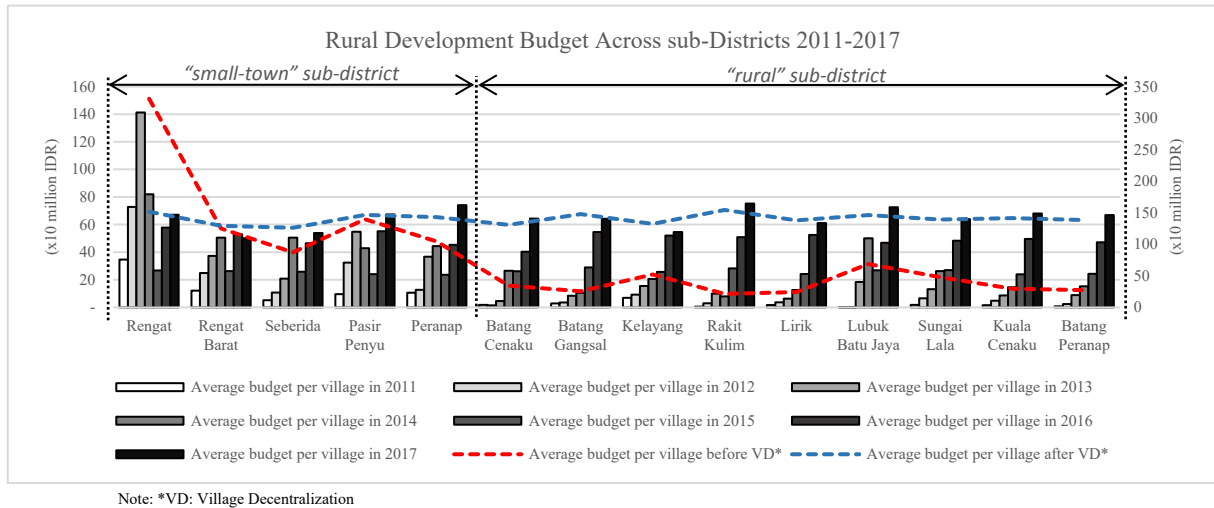
Villages in “small-town” sub-districts are relatively closer to the sub-district capital compared to “rural” sub-districts villages. Agglomeration of population and public service facilities in sub-district capitals and neighbouring villages is more pronounced in “small-town” sub-districts than in “rural” sub-districts. Figure 5 illustrates that the role of sub-district capitals in “small-town” sub-districts as an activity centre is stronger than the capitals of “rural” sub-districts. In this context, the capitals of “small-town” sub-districts serve as small towns in rural areas. Small-towns are connectors and intermediaries between rural and urban areas and play an essential role in equitable regional development with sound planning and management practices (Hinderink and Titus, 2002; Tacoli, 2003; Firman, 2016). The distribution of small-towns among sub districts can influence urban-rural linkages and the development of surrounding rural areas. Owusu (2005) suggests that rural and urban areas do not exist as “islands” and are instead interconnected by spatial linkages and sectoral interactions. The linkages between small-towns and rural areas are a significant factor in regional development, since most cities in developing countries depend heavily on rural areas compared to cities in developed countries (Lynch, 2004).

The provision of public facilities and the development of small-towns are determined mainly by district governmental policies. In Indragiri Hulu, public facilities of better quality, such as larger and more modern hospitals, higher educational facilities, and marketplaces are located in “small-town” sub-district capitals. Therefore, the people of the “small-town” sub-district villages of Indragiri Hulu are able to easily access public facilities. On the other hand, people in “rural” sub-district villages, particularly remote villages, find it difficult to obtain public services given the relatively long distance and travel time(s) required to access these services.

## **V. Impact of Village Decentralization on the Provision of Village-scale Infrastructure and Public Service Facilities in Indragiri Hulu**

### **V. 1 Transfer of authority and financial budgets for rural development**

Before village decentralization, village development was the responsibility of the district and supported by provincial and central governments. Most rural infrastructure and public service facilities development projects were funded by the budget of district governments and supported by sectoral and CDD projects. The village government only played a small role in rural development. After village decentralization, the district government delegated authority in the construction of village-scale infrastructure and public service facilities, which were previously the responsibility of the district government, to the village government. The provision of infrastructure and public service facilities, apart from “village-scale authority”<sup>8)</sup>, is still the responsibility of district governments. In village decentralization, village governments play a significant role in rural development because they have been given broader authority and significant financial support to do so. The village government manages all development funds originating from the central, provincial, and district governments for physical development and improvement of the rural communities’ welfare.



**Figure 6. The budget for village-scale infrastructure and public service facilities development across sub-districts in Indragiri Hulu (2011-2017)**

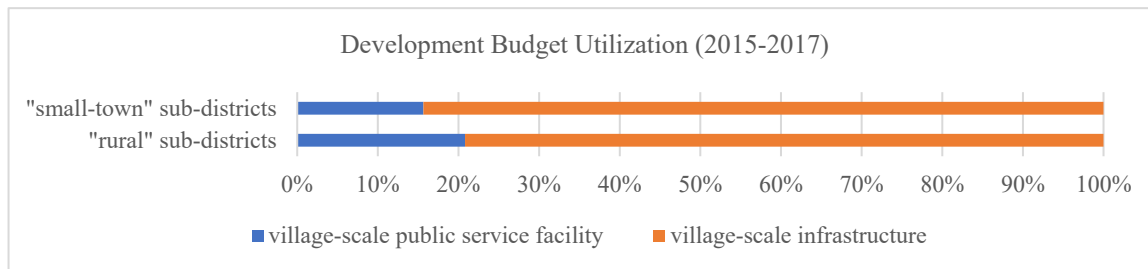
Source: Author’s calculation using data from Indragiri Hulu Agencies (2017)

Following the implementation of village decentralization, there have been significant improvements in the amount of funding available to rural development. From 2011 to 2014, the distribution of district government budget for village-scale infrastructure and public service facilities development was uneven across sub-districts. A considerable portion of development funding during this period was concentrated in “small-town” sub-districts. Meanwhile, “rural” sub-districts received a small portion of the overall development funds. The average budget for rural development per village in Indragiri Hulu during the three-year village decentralization was relatively more equal than before (Figure 6). Following decentralization, both “rural” and “small-town” sub-district villages have been given broader autonomy and relatively equal amounts of financial support to encourage development.

## V. 2 Village-scale infrastructure and public service facilities development

Village decentralization provides village-scale authority to village governments in the provision of infrastructure and public service facilities, such as boat moorings, village markets, irrigation channels, clean water and neighbourhood sanitation, village health service posts, non-formal education facilities, libraries, ponds, and village roads. In the three years of village decentralization, villages in Indragiri Hulu have built village-scale infrastructure and public service facilities, such as 628.57 km of village roads, 221 non-formal education facilities, 143 village health services posts, and 11 village markets.

Most of the proportion of village development funds in Indragiri Hulu, from 2015 to 2017, has been utilized for village-scale infrastructure development. The proportion of village development funds that have been utilized to provide public service facilities was relatively small when compared to infrastructure (15.6% in “small-town” sub-districts and 20.8% in “rural” sub-districts). Figure 7 illustrates the differences in development budget utilization for the provision of village-scale infrastructure and public service facilities between villages in the “small-town” sub-district and “rural” sub-districts. The budget for infrastructure development in “small-town” sub-district villages is greater than that of “rural” sub-district villages. The number and quality of public service facilities in “small-town” sub-districts being relatively more advanced and accessible than in “rural” sub-districts is the cause of differences in fund utilization between the two. As a result, villages in “rural” sub-districts allocate a more development funds to provide and enhance the quality of public service facilities.



**Figure 7. Rural development budget utilization after village decentralization**  
Source: Author's calculation using data from Indragiri Hulu Agencies (2017)

The need for the provision of village-scale public service facilities in “rural” sub-district villages being higher than those in the “small-town” sub-district is evident from the results of the rural community preference survey of the prioritised infrastructure and public service facilities to be built (Table 7). The preference of villagers in “rural sub-districts” on the type of infrastructure and public service facilities is more diverse than that of villagers in “small-town” sub-districts. The diversity in preferences indicates that “rural” sub-district villages still lack basic infrastructure and public service facilities compared to villages in “small-town” sub-districts.

The implementation of village decentralization has had a positive impact on the equalization of opportunities in rural development, particularly for “rural” sub-district villages, which previously received less attention from district governments. The development of rural infrastructure and public service facilities was previously concentrated in “small-town” sub-districts villages. However, village decentralization, development opportunities have now become more evenly distributed throughout the sub-districts of Indragiri Hulu. The furthering of the development of infrastructure and public service facilities should encourage the modernization of villages. However, the pace of modernization is likely to differ between sub-district groups because of past policies that prioritized the development of “small-town” sub-districts. Villages in “small-town” sub-districts stand to benefit more from improved infrastructure and public facilities than “rural” sub-district villages. The role of district governments determines the equitable development across sub-districts by encouraging rural sub-district capitals to serve as small-towns and strengthening structure and functions.

**Table 7. Community members' preferences for rural infrastructure and public facilities**

Respondent	Type of infrastructure and public facilities*									
	1	2	3	4	5	6	7	8	9	10
"small-town" sub-district	villager (n = 28)	14.3%	67.9%	7.1%			10.7%			
	village official (n = 22)	18.2%	40.9%	4.5%			27.3%			9.1%
"rural" sub-district	villager (n = 52)	17.3%	52.1%		5.7%	7.7%		7.7%	3.8%	5.7%
	village official (n = 38)	28.9%	39.5%	2.6%			5.2%	23.8%		

\*Note: 1: bridge, 2: road, 3: drainage, 4: market, 5: education facility, 6: village office, 7: clean water and sanitary, 8: health facility, 9: canal/irrigation, 10: others

Source: Author

### V. 3 Village roads as the main priority in rural infrastructure development

Rubber and palm oil plantations represent the primary source of livelihood for rural communities, both in the “small-town” and “rural” sub-districts of Indragiri Hulu. In Indragiri Hulu, most roadways that provide access to agricultural land are dirt and gravel roads that can only be traversed by foot or motorcycle. Narrow and unpaved roads are burdensome to rural communities in transporting crops to sell, particularly during

rainy seasons. Roadways in poor conditions result in higher transportation costs for agricultural products, which reduces farmers' incomes. The crucial role of village roads for rural livelihoods has been reflected in the high demand across both groups of villages towards the provision of village road infrastructure. As illustrated in Table 7, despite the availability of other infrastructure and public service facilities being still relatively limited, the development of village roads is a priority for communities.

Although the provision of village roads is the priority for communities in "small-town" and "rural" sub-districts, there are differences in the implementation of village road construction in both groups due to existing road conditions. To investigate the differences between the two village groups, this article uses village-level case studies of Village A, which are representatives of villages in the "small-town" sub-district that have better infrastructure and public service facilities, and Village B, which is representative of villages in "rural" sub-districts relatively lacking in infrastructure and public service facilities. Table 8 is a comparison of the existing road conditions in 2014 and the construction of village roads under village decentralization between Village A, which has a road density of 4.3 km/km<sup>2</sup>, and Village B, which has a road density of 0.8 km/km<sup>2</sup>. Village B has developed more new roads and improved the quality of existing roads more than village A, which conducted more roadway maintenance. Periodic road maintenance is needed since most of the village roads in Indragiri Hulu are dirt and gravel roads that are quickly eroded, particularly during the rainy season.

**Table 8. Comparison of village roadway conditions in 2014 and development under village decentralization (2015-2017)**

	Village Road Infrastructure in 2014			Village Road Development 2015-2017		
	Construction	Length (km)	Condition	Construction	Length (km)	Project Type
Village A ("small-town" sub-district village)	Paved	0.4	40% damage	Paved	1	Quality improvement
	Unpaved	12.5	15% damage	Unpaved	1.3	New road
				Unpaved	6	Maintenance
Village B ("rural" sub-district village)	Paved	0.8	40% damage	Paved	1.6	Quality improvement
	Unpaved	7.81	20% damage	Unpaved	3.8	New road
				Unpaved	5.5	Maintenance

Source: Author

A community preference survey of the type of road and village road construction materials in the two villages illustrated a number of differences. Most of the respondents in Village A chose a neighbourhood road as their top preference, whereas respondents in Village B mostly chose agricultural roads. "Small-town" sub-district villages have relatively higher road density than "rural" sub-districts. Before village decentralization, the construction of agricultural roads in "small-town" villages received greater attention from district governments than in "rural" sub-district villages. Therefore, the current need for agricultural road development in "small-town" sub-district villages is not as high as that of rural sub-district villages. The community's preference in "small-town" sub-district villages included improvement and rehabilitation of neighbourhood roads. Meanwhile, although neighbourhood roads were also mentioned, the provision of agricultural road infrastructure is the priority of communities in "rural" sub-district villages. Preferential differences were also found in the roadway construction material preferences. Most respondents in Village A chose asphalt as a material for village roadways due to its better quality, durability, and driving comfort. Meanwhile, concrete was chosen by most respondents in Village B because of its lower costs, ease of construction, and longer roads that could be built further than asphalt (Table 9).

**Table 9. Rural community preferences for village road type and construction material (%)**

	Road Type			Road Material			
	Main road (%)	Neighbourhood road (%)	Agricultural road (%)	Asphalt (%)	Concrete (%)	Gravel (%)	Dirt road (%)
Village A ("small-town" sub-district village) n = 82	6.1	57.3	36.6	74.4	20.7	3.7	1.2
Village B ("rural" sub-district village) n = 95	15.8	31.6	52.6	35.8	54.7	5.3	4.2

Source: Author

Communities more widely recognize the impact of village road development on transportation spending in "rural" sub-district villages than "small town" sub-districts. Most of the respondents (85.3%) in Village B stated that the construction of village roads had a positive impact on reducing transportation costs. In contrast, less than half of all respondents in Village A believed that road construction had an impact on transportation costs. According to most of the respondents in both Village A and Village B, the development of enhanced rural roadways would reduce the costs of transporting agricultural goods, which represents approximately 10 to 20% of the value of agricultural products (Table 10).

**Table 10. Impact of village road development on transportation expenditure (%)**

	Impact on transportation expenditure (%)	Expenditure reduction (%)		
		<10 %	10 - 20%	>20%
Village A ("small-town" sub-district village) n = 82	Reduce	48.8	42.5	57.5
	No Impact	24.4		
	Not Sure	26.8		
Village B ("rural" sub-district village) n = 95	Reduce	85.3	19.8	76.5
	No Impact	2.1		3.7
	Not Sure	12.6		

Source: Author

Community preferences are influenced by past policies, in which the development of "small-town" sub-district villages was prioritized more than that of "rural" sub-district villages. These policies resulted in differences in the availability of roadway infrastructure between the two sub-district groups. Communities generally prioritize the development of village roads based on the direct benefits that roadways deliver in everyday life with little attention, if any, given to the linkage of the road networks to other regions. Synchronization of rural infrastructure development with district development plans is a challenge in the future implementation of village decentralization.

## VI. Conclusion

This case study demonstrated that development disparities also occur at sub-district level in "village fund winner" district due to the rural development policy in the past. Village decentralization policy has had a positive impact on the equitable distribution of the development budget for each village. Under village decentralization, villages in "rural" sub-districts, which previously received less attention than "small-town" sub-district villages, now obtain a relatively equitable budget for village-scale infrastructure and public service facility development. A large proportion of the budget in the two village groups is used to provide village-scale infrastructure, particularly for the construction of village roads.

However, there a discrepancy in budget utilization for the provision of village-scale infrastructure and public service facilities between villages in the "small-town" sub-district and "rural" sub-districts. The budget for infrastructure development in "small-town" sub-district villages is greater than that of "rural" sub-district villages. The number and quality of public service facilities in "small-town" sub-districts being relatively

more advanced and accessible than in “rural” sub-districts is the cause of differences in fund utilization between the two. As a result, villages in “rural” sub-districts allocate a more development funds to provide and enhance the quality of public service facilities. The difference stem from past rural development policies. In the past, the district government has allocated greater funds to development to villages in “small-town” sub-districts than “rural” sub-districts villages.

Village decentralization is thought to provide equal opportunities to “rural” and “small-town” sub-district villages to develop village-scale infrastructure and facilities. The fulfilment of basic services will accelerate the modernization of villages across the two groups. However, the rate of modernization in the two groups will likely differ as an impact of past policies that prioritize development in “small-town” sub-districts. Disparities between the two village groups will remain if village decentralization is not supported by district government policies that strengthen urban functions in rural sub-district capitals. This article recommends government policy that strengthens the urban functions in rural sub-districts to further the goals of village decentralization in promoting regional development equity. Strengthening urban functions in the capital of rural sub-districts can be achieved by providing more efficient infrastructure and public service facilities with broader service coverage, thereby facilitating access for rural communities in obtaining these urban functions.

This article is part of ongoing research on the impact of village decentralization on regional development equity. Further research should be conducted to investigate the effect of policy on the decision-making process in “small-town” and “rural” sub-district communities.

### **Acknowledgements**

This work was supported by the Kokusaiteki Research Fund at Ritsumeikan University in 2017 and 2018.

### [Notes]

- 1) Scalogram analysis, also known as Guttman scaling, is a technique to examine whether a set of items is consistent in what is being measured. In this article, the item measured is the availability of public service facilities (administrative, education, health, and marketplace) across sub-districts in Indragiri Hulu.
- 2) Travel time is the calculation of the distance from the sub-district capital to the village or location of public service facilities divided by the average speed of a motorcycle. Motorcycles are commonly used by rural communities because of the limitations of reliable public transportation. The distance between places was calculated from the road network using the ArcGIS tool.
- 3) Village officials are anyone involved in village government affairs (not official bureaucratic apparatus). The village officials are comprise of Sekretaris Desa (village secretary), Kepala Dusun (hamlet head), Kepala RT (neighbourhood association), and Kepala RW (community units).
- 4) Common villagers are residents other than village officials.
- 5) Purposive sampling means selecting specific units (e.g. events, people, groups, settings, artefacts) or types of units based on a specific purpose rather than randomly (Kemper et al., 2003). This article divides the group of respondents into two, namely the village official and common villager, with the purpose to compare rural development preferences between the two.
- 6) Data on road conditions - good, moderate, and damaged - are taken from the BPS-Statistic of Indragiri Hulu (2016) originating from road quality surveys conducted by the Public Works Agency of Indragiri Hulu. The same explanation for road condition data in Table 6.
- 7) The Average Nearest Neighbor tool measures the distance between each feature centroid and its nearest neighbor's centroid location. It then averages all these nearest neighbor distances. If the average distance is less than the average for a hypothetical random distribution, the distribution of the features being analyzed is considered clustered. If the average distance is greater than a hypothetical random distribution, the features are considered dispersed (Mitchell, 2005).
- 8) According to Village Law 6/2014, "village-level authority" is the authority to regulate and manage village community interests run by the village or are able and capable of being carried out by the village, such as boat moorings, village markets, public baths, irrigation channels, neighbourhood sanitation, health service posts, art and learning studios, libraries, ponds, and roads.

[References]

- Agusta, I., *Indeks Kemandirian Desa: Metode, Hasil, dan Alokasi Program Pembangunan*, Yayasan Pustaka Obor Indonesia, 2014.
- Agustanta, N., Ningtyas, D.N. & Payamta, "Perception of village management office-holders on village fund management aspects: A research in Sleman regency," *International Conference on Ethics of Business, Economics and Social Science*, 2017, 65-76.
- Anshari, K., "Indonesia's Village Fiscal Transfers: A Fiscal Decentralisation Review. *Jurnal Studi Pemerintahan*," 8(3), 2017, 296-326.
- Antlöv, H., Anna W., and Leni D., "Village governance, community life, and the 2014 village law in Indonesia," *Bulletin of Indonesian Economic Studies* 52.2, 2016, pp. 161-183.
- BPS, *Indragiri Hulu Regency in Figures 2016*, Indragiri Hulu: Statistical Bureau of Indragiri Hulu Regency, 2016.
- Douglass, M., "A regional network strategy for reciprocal rural-urban linkages: An agenda for policy research with reference to Indonesia," *Third World Planning Review*, 20(1), 1998, pp. 1-33.
- Firman, T., "Decentralization reform and local-government proliferation in Indonesia: Towards a fragmentation of regional development," *Review of Urban & Regional Development Studies: Journal of the Applied Regional Science Conference*, Melbourne, Australia: Blackwell Publishing Asia, 2009, pp. 143-157.
- Firman, T., "Demographic patterns of Indonesia's urbanization, 2000–2010: continuity and change at the macro level," *Contemporary demographic transformations in China, India and Indonesia*. Springer, Cham, 2016, pp. 255-269.
- Hartoyo, H., Sindung Haryanto, S., & Fahmi, T., "Towards a New Village Development Paradigm in Lampung Province, Indonesia," *journal of legal, ethical and regulatory issues*, 21(Specia), 2018, 1-18.
- Hinderink, J., and Milan T., "Small towns and regional development: Major findings and policy implications from comparative research," *Urban studies* 39.3, 2002, pp. 379-391.
- Hofman, B., & Kaiser, K., "Decentralization, democratic transition, and local governance in Indonesia," *Decentralization and Local Governance in Developing Countries: A Comparative Perspective*, 2006, pp. 81-124.
- Huisman, H., & Stoffers, W., "In the shadow of Yogyakarta? Rural service centres and rural development in Bantul district," Titus, M., C., eds., *Town and Hinterland in Developing Countries: Perspectives on Rural–Urban Interaction and Regional Development*, Purdue University Press, 1998, pp. 179-203.
- Husin, D., "Flexibility of budget accountability using flow modification in the design of village financial accounting," *Asia Pacific Fraud Journal*, 1(1), 2016, 19-35.
- Husna, S. & Abdullah, S., "Kesiapan aparatur desa dalam pelaksanaan pengelolaan keuangan desa secara akuntabilitas sesuai undang-undang nomor 6 tahun 2014 tentang desa (studi pada beberapa desa di Kabupaten Pidie)," [Village apparatus readiness in implementing village financial management accountability in accordance with law number 6 years 2014 on villages (Study on some villages in pidie district)], *Jurnal Ilmiah Mahasiswa Ekonomi Akuntansi (JIMEKA)*, 1(1), 2016, 282-293.
- Irawan, N., *Tata Kelola Pemerintahan Desa Era UU Desa*, Yayasan Pustaka Obor Indonesia, 2017.
- Kemper, E. A., Stringfield, S., & Teddlie, C., "Mixed methods sampling strategies in social science research," Tashakkori, A., and Teddlie, C., eds., *Handbook of mixed methods in social and behavioral research*, Sage Publications, 2003, 273-296.
- Lewis, Blane D., "Decentralising to villages in Indonesia: Money (and other) mistakes," *Public Administration and Development* 35.5, 2015, pp. 347-359.
- Lewis, Blane D., "Does local government proliferation improve public service delivery? Evidence from Indonesia," *Journal of Urban Affairs* 39.8, 2017, pp. 1047-1065.
- Lynch, K., *Rural-urban interaction in the developing world*, Routledge, 2004.
- Ministry of Finance, *Buku Pintar Dana Desa, Dana Desa untuk Kesejahteraan Rakyat*, Retrieved from <https://www.kemenkeu.go.id/media/6749/buku-pintar-dana-desa.pdf>, December 27, 2017.
- Mitchell, A., *The ESRI Guide to GIS Analysis, Volume 2*, ESRI Press, 2005.
- Owusu, G., "The role of district capitals in regional development: Linking small towns, rural–urban linkages and decentralisation in Ghana," *International Development Planning Review* 27.1, 2005, pp. 59-89.
- Phahlevy, R., "The Concept of Village Autonomy in Indonesia (Indonesian Constitution Perspective)," *Rechtsidee* 3.1, 2016, pp. 27-40.



- Rousseau, N., "What is rurality?" Occasional paper (Royal College of General Practitioners), (71), 1995, pp 1-4.
- Rustan, A., "Desentralisasi Fiskal dan Pertumbuhan Ekonomi, serta Kaitannya dengan Otonomi Daerah," *Jurnal Borneo Administrator*, 9(3), 2013.
- Rustiadi, E., Saefulhakim, S., & Panuju, D. R., *Perencanaan dan pengembangan wilayah*, Yayasan Pustaka Obor Indonesia, 2009.
- Smoke, P., "Rethinking decentralization: Assessing challenges to a popular public sector reform," *Public Administration and Development*, 35(2), 2015, 97-112.
- Tacoli, C., "The links between urban and rural development," *Environment and Urbanization*, 15(3), 2003, pp. 3-12.
- Vel, J. A. C., & Bedner, A. W., "Decentralisation and village governance in Indonesia: The return to the nagari and the 2014 Village Law," *The Journal of Legal Pluralism and Unofficial Law*, 47(3), 2015, pp. 493-507.
- Von Braun, Joachim, "Rural-urban linkages for growth, employment, and poverty reduction," In: *International Food Policy Research Institute*, Washington, DC, USA. Ethiopian Economic Association Fifth International Conference on the Ethiopian Economy, June 2007, p. 7-9.

## Appendix Scalogram Analysis for Public Service Facilities Across Sub-Districts in Indragiri Hulu

### Appendix 1. The availability of public service facilities

Sub-District	Administrative Facility			Education Facility				Health Facility				Marketplace Facility	
	Sub-district level administrative office	District level administrative office	Primary school	Junior high school	Senior high school	College /University	Community health centre	Clinic	Hospital	Village market	Sub-district Market		
Rengat	1	1	1	1	1	2	1	1	1	1	6		
Rengat Barat	1	2	1	1	1	1	1	1	1	1	2		
Pasir Penyu	1	0	1	1	1	1	1	1	0	1	4		
Seberda	1	0	1	1	1	0	1	1	0	1	5		
Peranap	1	0	1	1	1	0	1	1	0	1	3		
Lirik	1	0	1	1	1	0	1	1	0	1	1		
Rakit Kulim	1	0	1	1	1	0	1	1	0	1	1		
Lubuk Batu Jaya	1	0	1	1	1	0	1	1	0	1	1		
Batang Cenaku	1	0	1	1	1	0	1	1	0	1	1		
Batang Peranap	1	0	1	1	1	0	1	0	0	1	1		
Batang Gansal	1	0	1	1	1	0	1	0	0	1	1		
Kelayang	1	0	1	1	1	0	1	1	0	1	1		
Kuala Cenaku	1	0	1	1	1	0	1	0	0	1	1		
Sungai Lala	1	0	1	1	1	0	1	0	0	1	1		
<i>Number of the availability</i>	<i>14</i>	<i>3</i>	<i>14</i>	<i>14</i>	<i>14</i>	<i>4</i>	<i>14</i>	<i>9</i>	<i>2</i>	<i>14</i>	<i>29</i>		
<i>Total score of the availability</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>		
<i>Availability score</i>	<i>7.14</i>	<i>33.33</i>	<i>7.14</i>	<i>7.14</i>	<i>7.14</i>	<i>25</i>	<i>7.14</i>	<i>11.11</i>	<i>50</i>	<i>7.14</i>	<i>3.44</i>		

Note: Each facility obtains a score of “1” if present and a score of “0” if absent, regardless the number of facilities. The higher the score (2,3,4,5, and 6) implies the higher the hierarchy and functions of the facility.

## Appendix 2. Weighted score of public service facilities

Sub-District	Administrative Facility Score			Education Facility			Health Facility			Marketplace Facility			Total Score			
	a	b	Subtotal (a+b)	c	d	e	f	Subtotal (c+d+e+f)	g	h	i	Subtotal (g+h+i)		j	k	Subtotal (j+k)
Rengat	7.14	33.3	40	7.14	7.14	7.14	50	71	7.14	11.11	50	68	7.14	20.66	28	207
Rengat Barat	7.14	66.6	74	7.14	7.14	7.14	25	46	7.14	11.11	50	68	7.14	6.88	14	202
Pasir Penyu	7.14	0	7	7.14	7.14	7.14	25	46	7.14	11.11	0	18	7.14	13.76	21	92
Seberda	7.14	0	7	7.14	7.14	7.14	0	21	7.14	11.11	0	18	7.14	17.2	24	70
Peranap	7.14	0	7	7.14	7.14	7.14	0	21	7.14	11.11	0	18	7.14	10.32	17	63
Lirik	7.14	0	7	7.14	7.14	7.14	0	21	7.14	11.11	0	18	7.14	3.44	11	57
Rakit Kulim	7.14	0	7	7.14	7.14	7.14	0	21	7.14	11.11	0	18	7.14	3.44	11	57
Lubuk Batu Jaya	7.14	0	7	7.14	7.14	7.14	0	21	7.14	11.11	0	18	7.14	3.44	11	57
Batang Cenaku	7.14	0	7	7.14	7.14	7.14	0	21	7.14	11.11	0	18	7.14	3.44	11	57
Batang Peranap	7.14	0	7	7.14	7.14	7.14	0	21	7.14	0	0	7	7.14	3.44	11	46
Batang Gansal	7.14	0	7	7.14	7.14	7.14	0	21	7.14	0	0	7	7.14	3.44	11	46
Kelayang	7.14	0	7	7.14	7.14	7.14	0	21	7.14	0	0	7	7.14	3.44	11	46
Kuala Cenaku	7.14	0	7	7.14	7.14	7.14	0	21	7.14	0	0	7	7.14	3.44	11	46
Sungai Lala	7.14	0	7	7.14	7.14	7.14	0	21	7.14	0	0	7	1	3.44	11	46

Note: Administrative Facility: (a) Sub-district level administrative office, and (b) District level administrative office  
 Education Facility: (c) Primary school, (d) Junior high school, (e) Senior high school, and (f) College/University  
 Health Facility: (g) Community health centre, (h) Clinic, and (i) Hospital  
 Marketplace: (j) Village market, and (k) Sub-district market