

Rural development policy and strategy in the rural autonomy era. Case study of Pandeglang Regency - Indonesia

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In 2014, the Indonesian government passed Law No. 6/2014 with the intention of reconstructing village financial and asset management arrangements to accelerate inclusive and sustainable rural development. Pandeglang Regency in Banten Province as one of the underdeveloped district is a very interesting study because 96% of villages are still underdeveloped. Therefore, the purpose of this study is to develop a village typology model and develop a village development strategy in Pandeglang Regency. The strategy to improve the status of the Village Development Index is to reallocate village financial management based on the status of the village typology and its supporting composite index.

Key Words: *village typology, village budget, village financial management, village development index, village development strategy*

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Introduction

Rural development aims to improve the welfare of the community and create an equitable distribution of income (Smith & Todaro, 2015). This is in line with the statement explained by Seers (1969), that economic development is essentially aimed at eliminating or reducing poverty, reducing income inequality, and providing employment in the context of a growing economy. Village development must be able to reduce disparities between regions. This development will prioritise the poor population who mostly live in villages. According to Jones et al. (1965); Kuznets (1966); Adelman & Morris (1973); and Smith & Todaro (2015) there are several factors that lead to inequality between regions. This disparity is seen in the national Gini ratio, which has relatively increased in 1996 by 0.35 to 0.39 in 2018.

The priority of village development programs aims to reduce the level of national inequality and is formulated based on an assessment of the needs of village communities which includes: improving the quality and access to basic services; development and maintenance of infrastructure and the environment based on technical capabilities and available local resources; development of a productive-scale agricultural economy; development and use of appropriate technology for economic progress; and improving the quality of order and peace of the village community based on its needs.

In the past decade, there has been a shift in the previously centralistic perspective of development policy in Indonesia, to decentralisation, including village development. Top-down development has metamorphosed into development that is more bottom-up and down to earth. Oates (1999) states that decentralisation is implemented to improve regional independence and budget efficiency. Furthermore, Bjornestad (2009) stated that the granting of discretion to local governments in making policies on programs and budget management would also increase the effectiveness of providing public services to the public.

The paradigm shift in rural development in Indonesia began to look very aggressive after the enactment of Law No. 6 of 2014 concerning Villages. This can be seen from the emergence of direct transfer funds from the state budget to the village and the existence of profit-sharing funds from the original Regency revenue for the village. Another implication comes in the form of increased authority of the village government in managing village resources. Law No. 6 of 2014 concerning Villages has reconstructed the regulation of village financial and asset affairs to accelerate inclusive and sustainable rural development. Thierry (2017) suggested that inclusive rural development that emphasises community participation is the central jargon of rural development. Rural development will indirectly encourage agricultural output and have an impact on rural economic growth. It must strike a balance between legitimate top-down initiatives (usually directed by the government) and bottom-up development processes with the principle of local democratisation (Korten & Klauss, 1984). Castro-Arce & Vanclay (2020) explain that the combination of adaptive institutional governance with

socio-ecological systems and social innovation is expected to be an adaptive system in facilitating bottom-up collaborative village planning.

The context of participatory development is strengthened by Baiyegunhi (2013), who explains that government access to social capital in the form of participation is very important to improve the welfare of rural households and poverty alleviation. Social capital consists of aspects of social structure, obligations and expectations, information channels, and a set of norms and effective sanctions that constrain and/or encourage certain types of behaviour (Coleman, 2009). Putnam (2000) describes social capital as a feature of social organisations such as social networks, social norms and beliefs, which allows members of society to collaborate by increasing coordination and cooperation between them and allow local people to make their own decisions regarding economic policy (Adams, 2003).

Village fund management that has been carried out for four years needs to be managed wisely and in accordance with needs by considering the sustainability of local resources and also the development of the village economy (Yudha et al., 2018). Research in Iran shows that cash subsidies in rural areas lead to increased welfare and productivity during the period of targeted subsidy implementation in Iranian society (Hosseini et al., 2016). In managing village development funds, as emphasised by Bonfiglio et al. (2017) the pillars of agricultural and rural development depend on the right combination of top-down political decisions and the bottom-up capacity of rural communities in spending the village budget. Furthermore, the flexibility in the mechanism of managing rural development funds will provide a space for the creativity of the authorities in shaping more dynamic and participatory village development (Dwyer et al., 2007). This research tries to develop a village typology model and develop a village development strategy in Pandeglang Regency.

Theoretical review of rural development

Rural development is a multidimensional phenomenon. Important aspects of rural development include the political and power dimensions, resource management, accountability, priorities and choice of development scenarios. Local governments are often the centre of a political system that influences rural development. Therefore, reconfiguring local government intervention is basically a rural development initiative (Douglas, 2005).

The new paradigm of rural development began to leave the management guided by the state with top-down logic and transformed it into a bottom-up strategy that places local people as central players in the management of rural development (de San Eugenio-Vela & Barniol-Carcasona, 2015). Local people, as rural development actors, actually have the capacity to regenerate their own economies. In this context, the state took on a new role, which previously as a provider of local development became a facilitator of rural development. de San Eugenio-Vela & Barniol-Carcasona (2015) explained that the rural development

process could be divided into three priority parts: region and environment; circle of life; and employment and economics. Sustainable development at the village level will automatically become an integral component of rural community development.

Chambers (1989) provides five criteria for the village development process which are summarised as follows: (1) sitting, asking and listening; (2) learning from the poorest; (3) learning from original technical knowledge; (4) joint Research and Development; and (5) learning by working. Chambers (1989) also emphasises that village development cannot be entirely released to the village community. A collaborative research and development process is needed, between academics and rural communities and between villagers and government institutions. On the one hand, academics can clarify the results of research and service by working with rural people in solving problems of their daily lives (for example new ways of harvesting and sales strategies in the digital and virtual era).

Local government in the village consists of a set of institutions, and work implementation mechanisms which can then independently arrange their interests and needs, mediate their differences and exercise their rights and obligations at the local level (Douglas, 2005). In the context of village development, village government plays an important role in the provision and maintenance of various services and facilities at the village level road construction and maintenance, tax collection, water infrastructure and drainage, and land use regulations (Douglas, 2005).

The rural development process is according to (Bloom & Sachs, 1998) a flexible institutional procedure to be able to accommodate many interests with various choices. Development planning and implementation need to eliminate the fundamentally political nature of the development process. There needs to be a minimum distance between stakeholders who have a direct interest in each decision that affects the lives and interests of rural communities. The principle of productivity must calculate direct profits and indirect benefits and external costs or other obligations. In the implementation of rural development, it also requires control, independence, and alternative economic development (Ekins, 1986; Daly & Cobb Jr., 1999). According to Friedmann (2001), rural development is part of the foundations of planning theory, broadly understood, as a political process in a region-based social relations system. A developing local democracy will integrate regional interests and space in decision making. In rural development, there is also a learning process from community-based learning experiences and other social contexts as a desirable balancer for scientists (Friedmann, 2001). Finally, Korten & Klaus (1984) state that rural development is community management, where the community arranges needs based on their capacity, and finally has its own control over the availability of resources in the village and determines their choices. Korten (1987) explicitly included local government as a critical element in the management system of rural communities. He emphasises the term community management with the underlying assumption that resources which are based on community welfare are not managed for the community by people and groups outside their boundaries, and/or by small local elites.

Typology and Village Development Index (VDI)

Rural can be defined based on three important reasons consisting of function, dynamics, and variation (Cloke, 2006). Rural areas are experiencing significant spatio-temporal changes due to social, economic and technological developments that affect rural development (Li et al., 2015). In an effort to compile a diversity of opinions and concepts related to rural areas, Frouws & Mol (1999) identified three main lines of discourse, namely, rural-agriculture, welfare levels and modernisation. Lopez-i-Gelats et al. (2009) identified four rural concepts, namely, conservation, entrepreneurship, agriculture, and endogenous development.

The Organization for Economic Co-operation and Development states that an area is included in Predominantly Rural (PR), if the share of population living in rural local units is higher than 50%. Rural if their population density is below 150 inhabitants per square kilometer (500 inhabitants for Japan and Korea, to account for the fact that its national population density exceeds 300 inhabitants per square kilometer). Several rural indices have been developed specifically in various countries. The rural indexes of England and Wales (Cloke, 1977; Cloke et al., 1986; Harrington & O'Donoghue, 1998), OECD rural indicators (OECD, 1994; 1996; 2003), rural indices and the scale of United States urbanity scale (Weiner & Niles, 2015), Australia's accessibility/remoteness index (Department of Health and Aged Care, 2001), rural general practice index in Canada (Olatunde et al., 2007), and rural index for small areas in Spain (Prieto-Lara & Ocana-Riola, 2010) are some indices of the level of village development that have been published in the international scientific literature. Overall, various ways of classification and definition in the literature have been carried out in compiling village typologies. Some indicators that can be used are population density, population growth rate, size of settlements, local economic structure, accessibility and landscape (Ballas et al., 2003; Baume, 2015; Bryden, 2002; Ilbery, 1998). Madu (2010) explains that rural areas are indicated by: the level of land clearing; relatively low population density; population majority linked to agriculture and forestry; traditional lifestyle and habits; agricultural and forest land use; scarcity of built up areas and scattered settlements; and most residents consider themselves villagers.

Indonesia already has a Village Development Index (VDI) which is a Composite Index formed based on three indexes, namely the Social Resilience Index, the Economic Resilience Index and the Ecological/Environmental Resilience Index. Village status classification is set in the following threshold: (1) very underdeveloped village; (2) underdeveloped villages; (3) developing villages; (4) developed villages; and (5) independent village. Development policies and activities and the empowerment of rural communities must produce equity and justice, be based and strengthen local values and culture, and be environmentally friendly by managing natural resource potentials reasonably and sustainably (Village Ministry of Indonesia, 2015).

Study Area

Pandeglang was established on April 1st, 1874 based on Ordinance 1887 No. 224 concerning the boundaries of Banten Residency area, including the boundaries of Pandeglang Regency. At present, Pandeglang Regency is located in Banten Province, on the western tip of Java Island (Figure 1). The area of Pandeglang Regency is 274,689.91ha or 274.69 sq. km., and it is divided into 35 districts, 326 villages and 13 villages. Its population in 2019 was 1,209,011 people with the composition of the male population of 607,012 people and 591,999 women. Based on the data above, the sex ratio is 104.23. The population growth rate is quite high, at 5.17% per year. The distribution of population per district is relatively uneven. The district with the scarcest population is Sumur District with an average of 91 inhabitants/ sq. km., while the most populous area is Labuan District, with 3,585 inhabitants/ sq. km. While the average population density of Pandeglang Regency is 432 people/ sq. km.

It is an agricultural district because of the high dominance of the agricultural sector in the regional economic structure. This can be proved by the distribution of the agriculture, forestry and fisheries sectors by 35%. Other sectors that were quite high were the trade sector by 11%, the mining sector by 9%, and the manufacturing industry sector by 6%.

Pandeglang also has one of the unique and rare natural resources, the Javan Rhinoceros in the Ujung Kulon National Park as a protected area under Law No. 5 of 1990 concerning Conservation of Natural Resources and Law No. 41 of 1999 concerning Forestry.

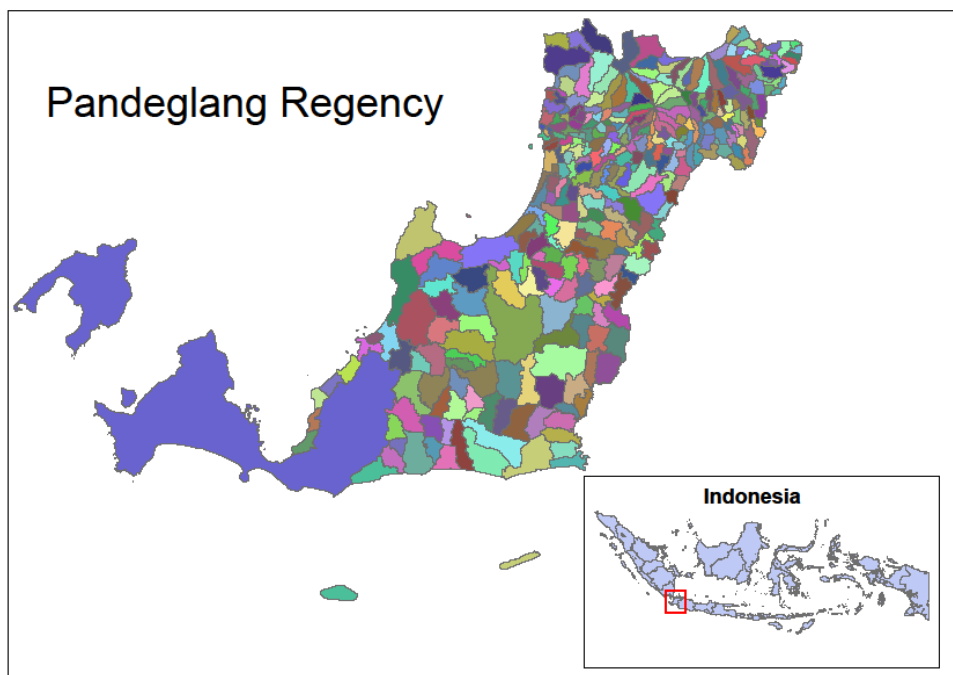


Figure 1. Location of Pandeglang Regency

The UNESCO World Heritage Commission established Ujung Kulon National Park as a Natural World Heritage Site with Decree Number: SC/Eco/5867.2.409 February 1st, 1992. Javan Rhinos are classified as critically endangered on the IUCN Red List. Currently, it is estimated that there are only 50 rhinoceros in one wild.

The study area was deliberately chosen as a place of research by considering the backwardness of its territory in Banten Province. Based on Government Regulation No. 131 of 2015 concerning Determination of Underdeveloped Regions in 2015-2019, there are still around 122 disadvantaged districts in Indonesia, one of which is Pandeglang Regency is one. This lag can be seen from the HDI value of Pandeglang Regency in 2018, which only reached 62.06, the figure is still far from the average of Banten Province, which has an HDI value of 69.89. In total 326 villages in Pandeglang Regency still have 156 (48%) villages that are very underdeveloped, 158 (48%) villages are underdeveloped, 10 (3%) developing villages, 2 (1%) developed villages, and there are no independent villages. This fact is quite ironic because the geographic location of Pandeglang Regency is only 110 km from the Capital City of DKI Jakarta.

Materials and methods

This study uses 2018 Village Potential data to develop a village typology model, while the 2018 Village Fund Allocation data and the results of the 2018 Village Development Index calculation to analyse the effect of village spending on village development. Finally, focus group discussion, and in-depth interviews data on village government officials were used to develop strategies for accelerating village development in Pandeglang Regency.

Typology of village development

The development of a village typology model is composed of several composites, namely, index of physical and infrastructure progress; index of human resources and village autonomy institutions progress; and index of economic progress. Rural development was identified descriptively by factors of potential characteristics of the village, internal factors of village institutions, and external factors (Valentin, 2001). The Village Development Index was compiled by taking into account the availability of data sourced from Village Potential, published by the Central Statistics Agency. For the 2018 Village Development Index calculation, the 2017 PODES data source is used.

The procedure to produce the Village Development Index (VDI) is as follows (Table 1): each indicator has a score between 0 to 5; the higher the score reflects the level of significance; each indicator score is grouped into variable scores. The total score of the variables is then formulated into an index:

$$\text{Variable Index} = \frac{\sum \text{Indicator X}}{\text{Maximum Value (X)}}$$

The indexes of each variable were combined into the Village Development Index (VDI) with the formula:

$$VDI = \frac{1}{3}(PEP + CIP + EC), \text{ where}$$

VDI: Village Development Index;

PEP: Physical and Environmental Progress;

CIP: Community and Institutional Progress;

EC: Economic Progress

Table 1. Variables, dimensions, and Indicators of Village Development Index (VDI)

Variable	Dimension	Indicator	
Physical and environmental resilience	Village topography	Village topography	
	The position of the village related to the forest	The position of the village related to the forest	
	Supporting agricultural cultivation activities	The existence of irrigation channels	
	Regional Openness		There are modes of public transportation
			Four-wheeled or motorised vehicles accessible roads
	Settlement		Quality of village roads
			Access to clean water and safe drinking water
			Access to sanitation
	Health		Access to electricity
			Access to Telephone and Internet
Education and Sports		Health care facilities	
		Community empowerment for health	
		Health insurance	
		Access primary and secondary education	
		Access to non-formal education	
Ecology		Access to the library	
		Access to public space and sports facilities	
		Environmental quality	
Community and Institutional Resilience	Human Resources	Potential for disaster prone and disaster response	
		Having social solidarity	
		Have tolerance	
		A sense of security of the population	
	The primary source of income for most of the population	Social welfare	
			The majority of the population's job
Village autonomy institutions		Village expenditure level	
		Level of ownership of village assets	
		Number of village officials	

Economic Resilience	Economic	Value of original village income
		The existence of a local environmental unit (RT / RW)
		The existence of village boundaries
		Diversity of village community production
		The availability of trade service centers
		Access to distribution/logistics
		Access to financial and credit institutions
		Economic institutions

Based on the results of the calculation of the Village Development Index above, the village typology model in Pandeglang Regency can then be divided into 7 (seven) typologies, namely typology A, typology B, typology C, typology D, typology E, typology F, typology G, typology H (Table 2). Diverse and unique rural areas can be classified in order to develop regional-scale village policies (Beyazli et al., 2017).

Table 2. Village typology in Pandeglang Regency

No.	Typology	VDI Assessment Criteria*			VDI value
		Physical and Infrastructure	Community and Institutional	Economy	
1	A	Good	Good	Good	> 0,815
2	B	Good	Good	Poor	0,707 - 0,815
3	C	Good	Poor	Good	0,599 - 0,707
4	D	Poor	Good	Good	0,599 - 0,707
5	E	Good	Poor	Poor	0,491 - 0,599
6	F	Poor	Good	Poor	0,491 - 0,599
7	G	Poor	Poor	Good	0,491 - 0,599
8	H	Poor	Poor	Poor	< 0,491

Source: Analysis Results 2017

Information:

Assessment	Value Range	Final score
GOOD	0,6 < Index < 1,0	Good
POOR	0,0 < Index < 0,6	Poor

Geographically Weighted Regression (GWR)

The GWR model is a global regression model that is converted into a weighted regression model (Lu et al., 2014). The GWR approach might easier overcome spatial heterogeneity than the global approach that takes into account spatial error dependence. Parameter values were calculated at each geographic location point so that each geographic location point has a different regression parameter value. This will provide variations in the value of the regression parameters in a set of geographical areas. Fisher & Getis (1997) stated that GWR also describes models with varying geographical space or so-called non-stationary parametric.

These locations are $i = 1, 2, \dots, 326$ for villages in Pandeglang Regency. Village expenditure factors that are suspected to influence rural development performance were tested for the significance of their relationship in the form of modelling. The GRW model will look specifically at the effect of village spending on development performance in each village unit (Umans & Arce, 2014). GWR modeling is constructed in the following model.

$$VDI_i = \beta_0(u_i, v_i) + \beta_1(u_i, v_i)EGA_i + \beta_2(u_i, v_i)EID_i + \beta_3(u_i, v_i)ECE_i + \beta_4(u_i, v_i)\beta_2(u_i, v_i)ECD_i + \varepsilon$$

Results and discussion

Village typology of Pandeglang Regency

Based on VDI calculation results in Figure 2, there are four villages with typology A (1%), 68 villages with typology B (20%), 129 villages with typology E (38%), 20 villages with typology F (6%), and four villages with typology H (35%). These differences in village typology vary due to differences in geographical, demographic, village institutional, and socioeconomic conditions. Rural typological characters tend to use demographic, social and economic indicators (Cloke, 1977; Openshaw, 1987; Terluin et al., 1995; Hodge et al., 2000).

The village in the north has the status of developed and developing villages. The cause of the northern region being more advanced is due to the many pulls of economic activity in the north such as the central government, trade center, district tourism center, and easy access to transportation. The same thing was conveyed by Lewczuk & Ustinovichius (2015), where socioeconomic development in rural areas is the simultaneous impact of exogenous and endogenous factors in villages. In addition, the globalisation era of the industrial revolution 4.0 also provides an increasingly dominant role for external (exogenous) forces in rural development.

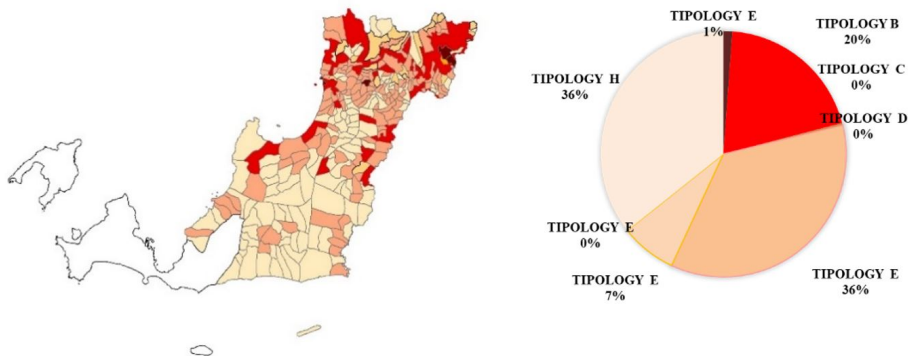


Figure 2. Distribution of village typology based on VDI

Village with typology A is the village with the best potential level of development. This village has a good level of physical progress, competent human resources, and also an excellent socioeconomic level. In Pandeglang Regency, villages with Typology A are most commonly found in the northern and central regions because they have a physical and administrative position that is relatively close to the district government and the centre of economic activity at the district level. The progress of these villages is the same as that delivered by Bjärstig & Sandström (2017) where a collaboration between public and private partnerships is an important part contributing to increased sustainable development.

Village with typology B is a village with a good level of potential development, where this village has a good level of physical progress, competent human resources, but has a low socioeconomic level. In the study area, villages with Typology B are most common in the north, central and southern regions. This low economic access can be seen from the main source of income which relies on the primary sector. The low number of micro and small industries that can drive the economy in this area is the cause of the rural economy's lack of enthusiasm. Gaddefors et al. (2020) explained that regional development needs to be done through entrepreneurship that can create jobs and innovations, thereby increasing the local economy of rural areas.

The village with typology E is one with a relatively low level of potential development. This village has a good level of physical progress but has low human resources and low socioeconomic level. In the study area, villages with Typology E are mostly found in the central and southern regions. This low level of human resources can be deduced from the percentage of the population working in the agricultural sector and also the limited number of rural educational facilities. In addition, road access is still not good and has not yet developed economic activities that drive the economic wheel in this rural area. Therefore, public policies of rural development must be oriented to developing competitiveness. This competitiveness is multidimensional in nature, consisting of the competitiveness of human resources and the village superior commodities or products (Râmniceanu & Ackrill, 2007).

Village with typology F is one with a relatively low level of potential development, with low level of physical progress, good human resources, and also low socioeconomic. In the study area, villages with Typology F are found in the central and southern regions. The low physical aspects can be seen in villages that are topographically located in valleys and slope/peak areas, and the position of villages around the forest. In addition, village transportation facilities are lacking, there are still many villages whose main surface roads have not been paved, four-wheeled vehicles cannot be brought into the village at any time, and there is also no public transportation that serves rural transportation. Increasing the capacity of community knowledge and the effects of agglomeration enables entrepreneurial activity and functions as a mechanism that produces positive regional growth for villages (Audretsch & Feldman, 2004; Audretsch & Keilbach, 2008). Villages with this typology are quite interesting because they have a high

enough social capital which, when optimised, can encourage village ecology and economic sustainability.

Village with typology H is the village with the lowest level of potential development; this village has a low level of physical progress, low human resources, and low socioeconomic level. They are found in the central and southern regions. The low physical aspects are given by their topographical location in valleys and slope/peak areas, and around the forest. This low level of human resources can be seen from the percentage of the population working in the agricultural labour sector and also the limited number of rural educational facilities. Low economic access translates into the main income sources being agriculture, access roads that are still not good, and the absence of any economic activity. This underdeveloped village is one that needs special attention in order to get out of the pitfalls of lagging behind all aspects of development. Kiryluk-Dryjska et al. (2020) states that developing rural areas programs should prioritise three main axes namely increasing the competitiveness of the agricultural sector, improving the quality of the rural environment, and improving the quality of life of the people and diversification of the rural economy.

Geographically Weighted Regression (GWR) modeling

The results of the GWR model show that with the village analysis unit in the GWR model the level of goodness of the model is quite high. The characteristics and factors of village spending that affect the level of performance of rural development can be seen in more detail in each village (Yudha et al., 2018). Based on the GWR modeling in Table 3, it is clear that the expenditure on the field of infrastructure development has the greatest influence on the performance of village development as seen from the elasticity value of 0.637, followed by expenditure on the field of community development with an elasticity value of 0.084, expenditure on the field of community empowerment with an elasticity value of 0.019, and expenditure on the government administration with an elasticity value of 0.010.

From the results of the mapping of the GWR model in Figure 3, it can be seen that the use of village funds has had a diverse impact on villages in Pandeglang Regency. In the context of rural development, it is necessary to know the influence of village financial management on the status of rural development performance. Because in the development process a target is needed, the village expenditure should have a positive impact on the level of rural development performance indicated by the VDI. In modelling Geographically Weighted Regression, it can be seen that the majority of village fund management has had quite a good impact in increasing the village development index. Although the conditions for improving the village development index are quite good, they are still concentrated in the northern and central regions. The two regional clusters include village typologies which are relatively more advanced and have a geographically good level of road accessibility, thus accelerating the village development process.

Table 3. Results of estimated GWR parameters effect of village expenditure on village development performance

Variable	Elasticity	GWR Model		
		Min.	Average	Max
Intercept	-	-743,561	0,02437	626,786
Expenditures on Government Administration (X ₁)	0,010	-0,35432	0,03159	0,47542
Expenditures on Infrastructure Development (X ₂)	0,637	-0,01623	0,09265	0,01624
Expenditures on Community Empowerment (X ₃)	0,019	-0,02464	0,00152	0,08975
Expenditures for Community Development (X ₄)	0,084	-0,04125	0,00368	0,07774
Dummy	-			
N				326
R ²				99,1
AIC				82,347
SSE				237,5
Assumptions fulfilled				
P Value Leung-test				0,00042

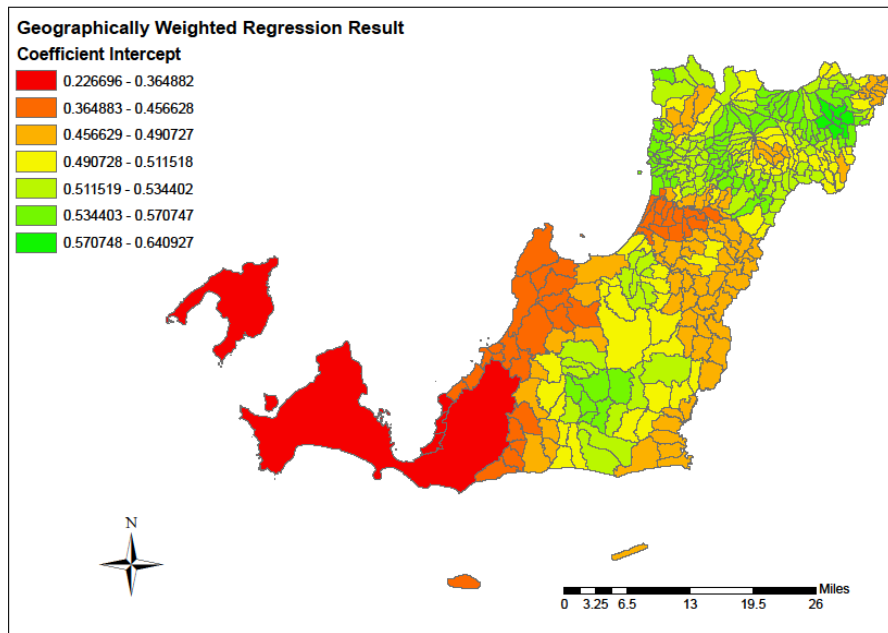


Figure 3. Significance of the relationship between the influence of expenditure

Good road access will encourage a smooth flow of supply of agricultural production, village creativity, and stimulate investments. There is a link between entrepreneurial activity and regional growth through an emphasis on resolving regional constraints (Müller, 2016). Good regional connectivity will encourage behaviour change and paradigm to develop creative entrepreneurship activities in rural areas.

Expenditures on village government administration are allocated for population and regional administration services. These services include the establishment of village boundaries, population administration services, village data and information management, planning and evaluation of village development activities, village cooperation, and construction of village office infrastructure. Second, expenditures on village infrastructure development are allocated to the development of basic infrastructure such as health, education, supporting infrastructure for accessibility of residents, settlements, agricultural infrastructure development, economic infrastructure, and environmental sustainability. Third, expenditures to increase community empowerment are allocated to fund activities aimed at increasing the capacity of citizens or village communities in developing entrepreneurship, increasing income, and expanding the economies of scale of individual citizens or community groups and villages. Fourth, expenditures on community development focus in activities for fostering youth and sports, training and counselling, and activities to foster women's organisations. Infrastructure expenditure has a direct bearing on increasing the VDI. The results of the study clearly show that infrastructure development is an important determinant of total factor productivity and efficiency of agricultural production (Ashok & Balasubramanian, 2006). Ahmed & Hossein (1990) stated that infrastructure development affects transportation costs and margins obtained by producers (traders). Indirectly, infrastructure development affects employment through the diffusion of modern, labour-intensive technology. The effect of new road construction is quite strong as shown in studies by the World Bank in India, Pakistan and Brazil (Creightney, 1993 Lall et al., 1999).

Village development strategies in Pandeglang

Basically, the village typology simplifies the process of formulating rural development priorities that are appropriate to the potential and needs of the village. It could be considered for village planning and management guidelines. The output is, of course, to improve the effectiveness and efficiency of the use of village finance on rural development. Rural development practices must pay attention to three main principles: local diversity, local resources, and local accountability (Korten, 1987). In the process, a framework of development guidance is needed in rural development based on the conditions of each typology. The pattern of priority development in the aspects of village development using VDI is shown in Figure 4.

Village with Typology A is a steady state village, so the focus of development is more on economic development and maintenance of infrastructure, village institutional and human resources. Village with typology B focuses on developing village finance on the development of the village economy. Village with Typology C needs to develop the institutional and HR aspects of the village. Village with Typology D needs to be encouraged in developing infrastructure. Village with Typology E needs to prioritise economic development, then village institutional and human resource development.

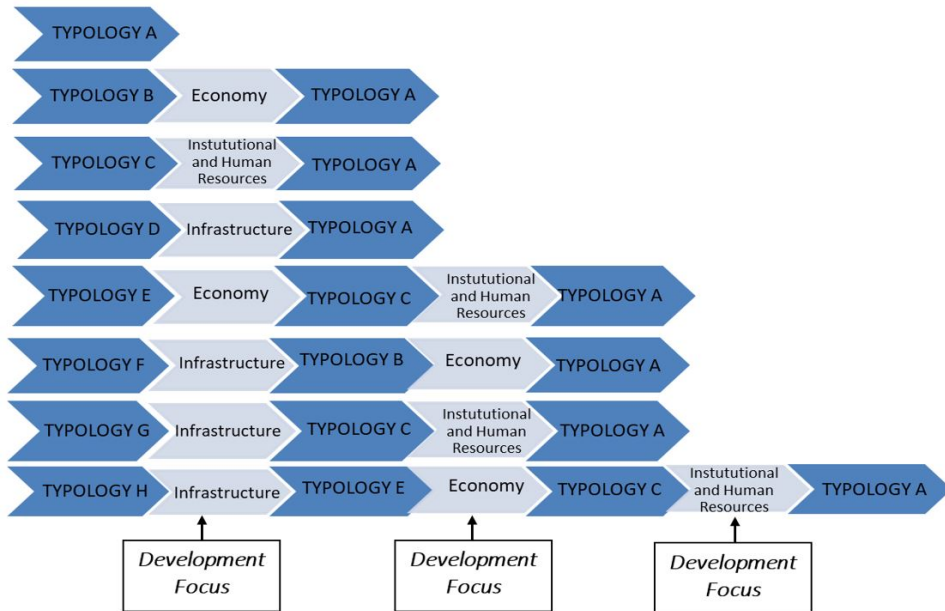


Figure 4. The flow pattern of priority development

Village Typology F needs to prioritise infrastructure development, then economic development. Village with Typology G needs to prioritise infrastructure development, then village institutional and human resources. Village with Typology H needs infrastructure improvement, economic improvement, then village institutional and human resources. Efficiency must be implemented in all aspects of physical infrastructure, human resources and institutional, and village economy development. Therefore, this development priority is expected to accelerate the process of rural development based on village potential. In detail, development priorities based on typologies obtained from the results of open discussions with the village government apparatus can be seen in table 4.

Table 4. Village financial management priorities based on village typology

Village Typology	Composite Index Criteria (Priority and Percentage of Village Budget Use)			
	Physical and Infrastructure (priority)	Community and Institutional		Economy (priority)
		Community (priority)	Autonomous Institutions (priority)	
A	Medium (30%)	Medium (30%)	Low (10%)	Medium (30%)
B	Medium (20%)	Medium (20%)	Low (10%)	High (50%)
C	Medium (30%)	High (50%)	Low (10%)	Low (10%)
D	High (80%)	Low (5%)	Low (10%)	Low (5%)
E	Medium (20%)	High (35%)	Low (10%)	High (35%)
F	High (60%)	Low (5%)	Low (10%)	Medium (25%)
G	High (60%)	Medium (25%)	Low (10%)	Low (5%)
H	High (60%)	Medium (15%)	Low (10%)	Low (15%)

According to Lang (1988), development planning strategies need to emphasise an interactive approach, thus promoting the values of togetherness and consensus. In addition, alternative village development must be economically and culturally appropriate so that the community accepts it. In the previous GWR modelling, it can be seen that the distribution of village spending has an effect on increasing higher VDI mostly in villages in the northern and central regions which tend towards the south. Development planning activities and village services that are effective and efficient following community needs can improve the indicators supporting VDI. Village expenditures for village development activities that significantly increase VDI are mostly found in villages that have sloping topography. When viewed geographically, villages that have the lowest influence of village spending on VDI are clustered in villages with a more challenging level of geographical difficulty compared to other villages. The distribution of village spending in the field of community empowerment that has an effect on increasing VDI is mostly found in villages located in areas that have a sloping topography, coastal areas and most are in villages that have been designated as strategic districts, especially in the agricultural sector.

Many early analysts such as Rosenstein-Rodan (1943); Lewis (1986); Scitovsky (1954), Hirschman (1958); Jorgenson (1961); Jones et al., (1965) highlighted agriculture because of its abundant resources and ability to transfer surpluses to the sector industry. The determinants that influence rural empowerment are the quality of program implementation, the role of development agents, access and environmental support, the characteristics of farmers, and the appropriateness of the learning process (Aminah et al., 2015).

The mechanism of village development uses guidance on village typologies and dynamics simulations of the changing status of the development of village typologies. The focus of village development patterns will follow the flow of village infrastructure improvement, then economic improvement, and then village institutional and human resource management. Cumulatively, this jump can be seen in Figure 5, which shows a simulation of village development in 2017-2022-2027 with a pattern of village financial development combined with Geographically Weighted Regression modelling.

In the first five years, there will be a shift in the typology of village development in Typology B (82 villages), Typology C (99 villages), and Typology E (135 villages). Then in the second five years of village development, there will be a shift in the typology of village development which is quite significant where villages with Typology A are 183 villages, villages with Typology B are 20 villages, villages with Typology C are 111 villages, typology E villages are 21 villages, and villages with Typology F of 1 village. The acceleration of village development in Pandeglang Regency above is one proof that an appropriate strategy is needed in village financial management. Development priorities are based on the village's internal conditions combined with supporting external conditions.

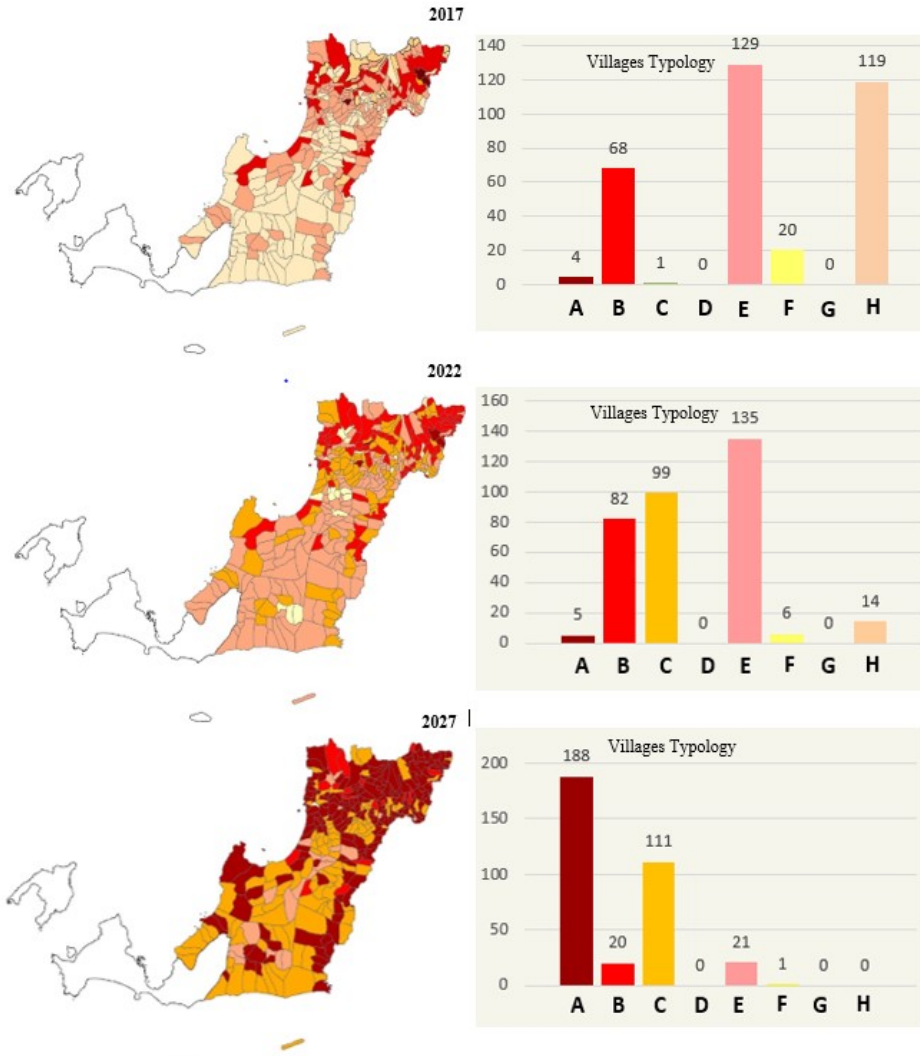


Figure 5. Simulation of village development in 2017-2022-2027

Conclusion

In an effort to increase the successful implementation of village financial management, a pattern of fostering village development that is right on target is needed, so that the available village budget can be used effectively and efficiently. One pattern of village development that is quite effective is to use the status of village typology and its supporting composite index as consideration for village financial allocations. This allocation must be seen how the interaction of village spending with factors of production in rural areas and their influence on rural development indicators (Thomaj, 2015).

Rural development emphasises innovation as an important instrument to improve the economy and is able to encourage growth and prosperity at the

village level (Bonfiglio et al., 2017). The same thing was conveyed by Fuglie (2010) and Esposti (2017), who explained that innovation is one of the top priorities of agricultural and rural development policies because it is the main driver for agricultural growth in developing and developed countries.

One innovation strategy for village development is to develop opportunities for developing village tourism based on local wisdom and culture based on village cooperation. The pattern of cooperation undertaken by the Village-owned business entity is carried out in the form of a joint scheme in which each village will spend a certain amount of capital and therein is a mechanism for providing incentives or disincentives. In addition there are also arrangements related to profit-sharing from the benefits of cooperative efforts that have been carried out. The rural development priority strategy focuses on village development that is multi-purpose or holistic in nature and able to contribute to the provision of public goods in the village (Ying et al., 2020).

Village cooperation will directly improve the efficiency of the productivity of superior village products that will be developed, because the production input resources in rural areas are mostly cross-village administration. Secondly, this village cooperation will encourage the creation of synergies, so that operational costs will be lower, which causes increased competitive ability. Thirdly, cooperation encourages participation in situations and circumstances that occur in their environment, so that they will automatically participate in maintaining and preserving situations and conditions that have been good. Local development projects will give hope to young people and women to support one sector that is more inclined to innovate and maintain social capital and human capital in the surrounding area.

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