

## Rural Information Systems: Encourage Participatory Development Towards

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### ABSTRACT

Measured and precise planning can not be separated from good quality data information. UU No. 6 of 2014 concerning Villages grants the right to villages to create village information systems as a reference in implementing rural development. Village information system is a data storage and processing device consisting of hardware and software. The development of technology that has entered the 4.0 era is a challenge in the innovation of data and information management. The village information system was created by integrating technology 4.0 which facilitates the management and ease of access to data and information. Village information system preparation is carried out in a participatory manner involving all components of the community. So as to produce data and information with good quality. Village information systems are expected to drive progress in rural development by optimizing village potential.

**Keywords:** Village Information System, Village Law, Participatory

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## INTRODUCTION

Rural Development has begun a new round with the enactment of Law No. 6 of 2014 concerning Villages (hereinafter referred to as Village Law). There are five main reforms in the Village Law (Zakaria 2014): diverse types of villages; authority based on recognition and subsidiarity; village democracy; integrated planning; Financial accounting and village assets. The Village Law approves the village as a community government and the implementation of autonomy can be implemented up to the village.

The Village Law must guarantee the right of each village to implement and implement a village information system (hereinafter referred to as SID) in accordance with the characteristics of each village without quality standard requirements. While at the SID district government level, it is the one requesting what is stated in Article 86 of the Village Law. SID is an information system developed by villages that accommodates information needed in the implementation of village development.

The Village Law gives the village authority in managing village and rural development, so development planning must be supported by quality information as a reference. The data produced by SID is managed by villages and can be accessed by villagers and stakeholders in the implementation of rural development.

SID results are thematic data that can be processed and facilitated with computerized technology and internet networks that can be accessed offline and online. Offline network access can be done in the village office using a computer or data that has been installed. While online data can be accessed through the official website of the village government using the internet network. The big expectation is that each village has a SID that can be accessed offline or online, then the SID data from each village can be compiled into big data on rural areas in Indonesia.

Why does SID have to be integrated with technology 4.0 and not SID administration requirements? And why should the public participate? This question often arises among officials and villagers.

The era of information disclosure has implications for information services that are fast, precise, and easily accessible. Managing conventional information (manual) requires large costs and energy (collection and maintenance), availability of space, and long administrative channels. So this has become a factor that inhibits ease of access. Technology 4.0 simplifies the previous information system, with cloud data storage technology that does not require much space, internet network technology makes it easy for anyone to access information and data. One of the survey institutions, eMarketer places Indonesia as the sixth largest internet user in the world. The Indonesian Internet Service Providers Association (APJII) states that in 2018 there are 171.17 million internet users in Indonesia. Increasing the quantity and quality of digital infrastructure has a positive effect on increasing internet service users.

Decentralization of government requires a new approach in the implementation of development. Decentralization gives regions the authority to carry out government functions, and therefore participation is the key to the success of decentralization. The participation of villagers is a factor that determines the quality of data and information. The spirit of implementing SID is people and technology. Humans in question are all people in the area. Participation is not only as an informant, but is expected to actively participate at each stage. Article 86 paragraph 3 of the Village Law states that SID includes hardware and software facilities, as well as human resources.

Before SID, there were several information systems initiated by the government and the private sector, but almost all of them stopped halfway and were generally only used as a complement to village office administration. The main cause of failure of village information systems before SID lies in the approach used, from the top down.

The top down approach places villagers as objects in the compilation and management of village data as a basis for planning. In the process villagers were not involved except as passive sources of information. Villagers were interrogated without asking what data was collected. So it is not uncommon to cause indifference by villagers because they feel they are not interested.

The second cause is a lack of creativity in approaches to compiling and managing village data. The data processing and compilation process is done manually and done by HR with minimal experience. Weaknesses in the processing and compilation of village data for some village officials are not recognized as a cause of inequality in rural development. The quality of good and bad village planning is largely determined by accurate data and then gives birth to precise village development.

Current developments are faced with the challenges of technological development. Technological developments have entered the era of the industrial revolution 4.0 marked by changes in production patterns from industry-based to platform-based. This change is marked by the use of digital technologies such as cellular internet and artificial intelligence technologies. Technology 4.0 penetrates the limits of human imagination, technology that was once only fiction or fiction can now be made based on digital technology through the integration of physical manufacturing technology and virtual manufacturing that is controlled through artificial intelligence.

The industrial revolution 4.0 is the disruption of internet technology into the processing of goods and services with the aim of efficiency, speed, and accuracy (Schwab 2016). Technology 4.0 has similarities with its predecessor, Technology 3.0 in the process of mechanization and automation in the production process. But the difference is the use of the internet and artificial intelligence so that the production process can be faster than 3.0 technology. Robot technology, artificial intelligence, internet of things (IoT), nano technology, and cloud computing are the results of the industrial revolution 4.0.

Formulating SID using a technological approach is a new innovation in village data and information management. With an inclusive approach that integrates people and technology. Human weakness (human error) at least minimized, time and cost efficiency and data produce precision data with a digital technology approach.

## FINDINGS AND DISCUSSION

### Change in Rural Development Paradigm

Under the new order regime, the diversity of local government (now called villages) in various regions of the Unitary State of the Republic of Indonesia was abolished and uniformed in one governance concept, namely village (government version of local government). The government creates a uniform system of local government (village) and limits its authority in carrying out government affairs at the local level. This practice was legalized through Law No. 5 of 1979. Diversity of forms and structures of government and authority inherent in villages according to the logic of the New Order is a form of weakening of central authority in controlling village territory, economic development and national stability can only be achieved if the center can fully control the countryside (Hans, 2003).

The reform era returns the principle of decentralization in the government system contained in Law no. 22 of 1999, and subsequently provide recognition of villages based on the rights of origin (self governing community). Furthermore, the development of village democratization is contained in Law no. 32 of 2004. After the era of Law 32 of 2004 ended, the spirit of village democratization was further reinforced through Law No. 2014 and partly regulated in Law 23 of 2014.

The existence of villages as the smallest governmental entity administering entities has been legally regulated through Law No. 6 of 2014. Through this law the village obtained the right of origin (recognition), subsidiarity, and diversity. These three aspects are key in the management of government. The principle of recognition is interpreted as a recognition of the right of origin. Recognition can be understood as respecting the equality of status and position; (b) respect and recognize diversity. The purpose of recognition is not only for recognition, respect and affirmation of different cultural identities but greater is socio-economic justice (Eko, 2015). Recognition also has implications for governance at the local level based on cultural diversity and customs.

The application of recognition principle in Law No. 6 of 2014 was also followed by the principle of sub-attendance. In principle, subsidiarity is the antithesis of the principle of residuality that places villages under city / district governments that receive the transfer of some authority in the implementation of decentralization. Eko (2015) defines subsidiarity in the form of local affairs practices or the interests of local communities better handled by local organizations so that it can be concluded that subsidiarity is the localization of the use of authority and decision making; secondly, the state does not give up authority within the framework of decentralization but rather establishes local-scale village authority; thirdly, the village government does not intervene

(intervene) from the atasters on the local authority of the village, but instead provides support and facilitation to the village. The principle of recognition and the principle of subsidiarity are two aspects that become the spirit of Law No. 6 of 2014.

The substance of village governance is contained in Law No. 6 of 2014, Zakaria (2014) explains five aspects of reform that are very fundamental in the practice of village autonomy and local governance at the village level as well as the village's authority in regulating its own community, including:

1. The village is not an administrative village that is uniform.
2. Extensive authority of the village based on the principle of recognition and subsidiarity.
3. Financial consolidation and village assets.
4. Integrated development planning.
5. Democratization through participation, empowerment and assistance

UU no. 6 of 2014 mandates the authority to the village to regulate its own government affairs as contained in article 18 "village authority encompasses authority in the field of village administration, implementation of village development, village community development, and empowerment of village communities based on community initiatives, rights of origin and village customs ". Article 2 (for villages) and article 3 (for traditional villages) regulates the village's authority in structuring the government system. Article 7 letter a Permendesa No. 1 of 2015 also regulates local-scale local authority covering the field of village governance.

### **Stages of the Implementation of Village Information System**

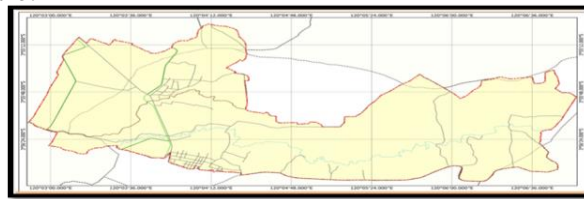
Village information systems as instruments for processing and compiling village data and information are implemented by integrating technology 4.0. The use of technology aims to produce data accuracy. SID is designed to be a deliberative program where every villager can actively participate. The bottom up empowerment paradigm is the main framework in implementing SID, villagers are not seen as passive objects, but instead place them as active subjects.

The SID stage begins with program socialization by the village government with the aim of explaining the SID implementation process and the objectives to be achieved. The SID is being developed in the village of Mattirowalie. The second stage is the recruitment and supply of village cadres who will then serve as the SID team.

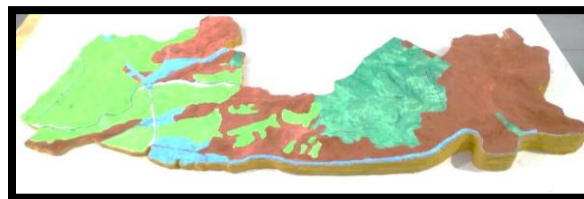
The third stage is data and information retrieval activities in the form of basic data and social data. Basic data includes information on the extent and boundaries of RT and RW areas, hamlet boundaries, and village boundaries (primary data) obtained through focus group discussion (FGD) activities. The baseline data also includes information obtained from important documents held by the village (secondary data). Social data is a collection of several thematic data compiled according to village needs. Retrieval of social data using household survey methods.

The fourth stage is the stage of spatial data retrieval. Spatial data used is a satellite image map which is then used to determine the coordinates of each building, public facilities, and agricultural areas. At this stage tracking is also carried out to determine the boundaries of the region. This stage ends with village sketching.

After the initial data retrieval and spatial data are completed, the fifth step is inputting data based on spatial information. Spatial data will be displayed in two models namely contour maps (3 dimensions) and digital maps created with the help of software.

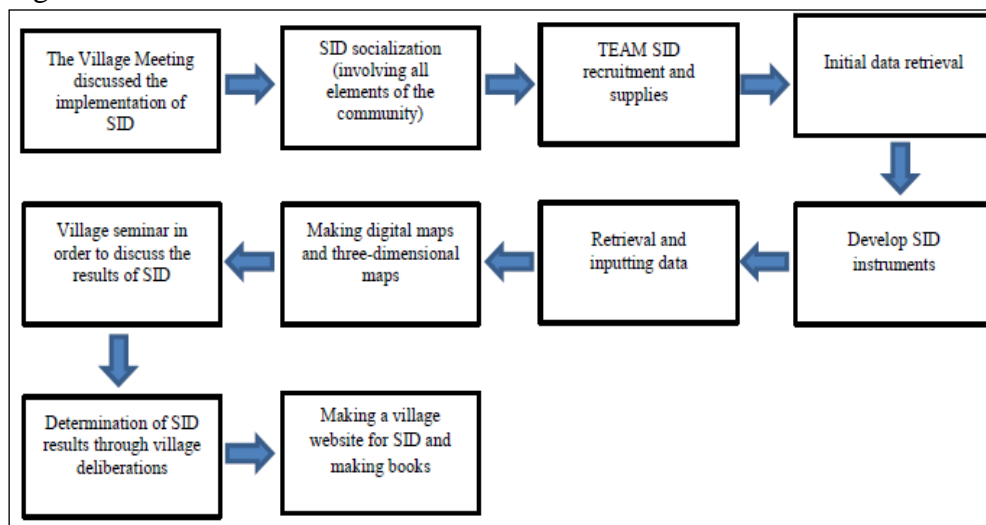


**Figure 1. Map of digitization results**



**Figure 2. Three-dimensional map**

Data collected in the fifth stage is then verified together by village officials through a village consultation forum. This activity aims to reduce errors in data collection and input. After the data goes through a verification process with the residents, the data will be agreed and determined as the standard SID data. The sixth stage is the final stage of making SID. After the verified data is collected and corrected, the next step is publishing the results of the SID preparation at the village level.



**Figure 3. Stages of the Village Information System**



## Village Information Systems and Participatory Development Planning

Article 86 of the Village Law expressly regulates village rights in making SID as a reference in carrying out rural development. The quality of available information affects the success rate of development programs. The need for quality information is a challenge for the village government to work towards developing a village information system that has a clear alignment with populism and ecology.

Development planning is in the arena of power and knowledge contestation (Li 2007). Obligations and participation in development planning need not be limited by expertise claims, it negates the participatory development paradigm. Participatory development is a solution to the top down development model and ignores the locality and diversity proposed by development, participation raises the central issue of reflexivity and suggests how various forms of knowledge, power, and agency relate to one another in the lives of actors (Arce and Fisher 2018) (Binns 2017).

The presence of the Village Law as a legal and moral basis in the rural development agenda is not without criticism. White (2017) The Village Law is not enough to create democratic and deliberative rural development planning. Village deliberations as a village deliberative forum in preparing development plans often only function as a forum for village heads to submit their development proposals.

Electoral democracy systems provide strong legality to the power elite. Elites assert themselves as representations of their constituents and therefore the claims of development planning are inherent. Through an electoral democracy system, the elite can articulate the needs and interests of the community in every development agenda. Of course this alienates community participation in the development process.

One of the strategies of the local elite in motivating welfare through political figures (Paskarina 2017). The form of political figures is patronage and populism as a basis for welfare management. Elites with substantial economic capital resources provide alternative channels for welfare management, side by side with the state as the highest formal institution in welfare management. Elite as a ruling class is not only he who is in the government power structure but those who have strong socio-economic capital and are able to influence public policy making and decision making (Haryanto, 2017). The phenomenon of elite capture will flourish and it is difficult to stem it when social relations are in the socio-cultural dimension (Setiadi, et. Al. 2016) such as Pamali culture to ask and refute the decisions of people who are considered important or elder, prioritizing harmonization, and patronage.

Anti deliberative planning practices are not new in the dynamics of rural development. Rural social movements are needed as control over the implementation of development. Is it true that what is planned is the people's welfare agenda or only part of capital accumulation. Social movements must

depart from critical individual consciousness and subsequently expand into collective consciousness.

Rural social movements cannot stand alone without the support of data and information. All this time, access to data and information related to development is difficult to access by the general public, except for those who work as academics and NGO practitioners. Maybe it's because of the limitations of the data infrastructure (hardware and software) and maybe the limitations of the knowledge infrastructure.

Technological developments open up opportunities for active participation in development. SID is designed as a source of information that is made in a participatory manner, and opens opportunities as widely as possible for villagers to be able to access information. With data and information that are easily accessible to villagers, they can participate in development starting from the planning stage to the implementation and evaluation stages. The experience of participatory development can be seen in the Wana Asri case, participatory mapping accompanied by NGOs, villagers can identify and spatially show the village's vital assets, and can then be utilized for the common good (Shohibuddin, Cahyono, Bahri 2017).

Through SID, village data and information are more precise. In some cases, SID functions to reduce rural development gaps due to poor quality data and information. SID is an alternative method that integrates several scientific disciplines. Researchers and planners, often trapped in a narrow approach in conducting rural studies. Rist on villages has been in the dichotomy of socio-economic studies and physical studies of village environment (Sjaf et.all 2016). SID tries to eliminate the dichotomy, socio-economic analysis and physical study of the environment are not separate aspects, the two aspects affect each other.

Analysis based on digitizing spatial data as one of the features of SID is one of the analytical tools that can be used to see how socioeconomic conditions are. One of the benefits is that data related to land use and tenure will be displayed spatially, of course this makes it easy for users of information to be able to see how the structure of diagramming in the area. Land use analysis can also be used to analyze how people's livelihoods and livelihood patterns in an area.

SID as a participatory program in the process involves various stakeholders together in identifying and analyzing with various methods such as focus group discussions (FGD), population censuses, and digitizing spatial data. There are main components in the implementation of SID, namely humans and technology. Technology is an analytical aid, while humans are active subjects using technological devices. Implementation of SID without human (community) involvement is something that can be carried out properly. The involvement of villagers in SID activities is not only as a research but also acts as a researcher (through expert assistance). Departing from the assumption that only the villagers themselves are able to identify and annul the area because they have lived and lived long in the area. So ignoring the participation and existence of villagers in the implementation is wrong.



## CONCLUSION

Technological development as part of social change is a challenge in the management of village governance. Technological developments open space for the creation of inclusive development where all parties are involved in the development process and there is no distance between the government and the community. The Village Law provides considerable opportunities in order to create inclusive development.

Failure to achieve development goals is a result of poor quality planning. Villages that have precise data will have speed and accuracy in the planning and development process. SID is a rural data and information processing instrument that integrates computing technology and internet networks by producing spatial village data. The spirit of implementing SID is people and technology.

SID offers a participatory approach where each villager has their respective roles. In addition, data and information on results from SID can be easily accessed by villagers using a smartphone device.

The making of SID serves not only to improve the quality of development planning, but also to improve the quality of public services based on local needs. In addition, the availability of data at the local level can encourage transparency and accountability in development at the rural level. No less important is encouraging villagers to participate in rural development.

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