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Development of Community Participation in Irrigation Networks East LUWU District

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Abstract: ***Every development and irrigation management development in each region must involve the participation of the surrounding community, especially the farmers. The participation of farmers in the development and management of the irrigation system is contained in the Government Regulation of the Republic of Indonesia Number 20 of 2006. The construction of irrigation networks in East Luwu District has not involved the community in its management. This type of research is explanatory research, namely research that aims to analyze the relationship between one variable with another variable or how a variable affects other variables, both direct influence and indirect influence. Based on the test results it was found that participation had a significant role in the development of irrigation networks in East Luwu District.***

Keywords: Participation, Society, government, Irrigation, SEM

1. Introduction

Irrigation is an important component of agricultural development in Indonesia, which is mostly in rural areas. Indonesia is a country where most of the population lives from agriculture with staple food is rice. Government policy in development is urgently needed to support the sector, including the management of irrigation systems at the farm level.

Government policies that regulate water and irrigation resources in Indonesia, including those stipulated in two legal grounds, namely Law Number 7 of 2004 concerning water resources and government regulation Number 20 of 2006 concerning Irrigation. Both of these legal foundations, emphasized that "the management of tertiary irrigation systems is the rights and responsibilities of water-using farmer associations". This means that all responsibilities for developing and managing irrigation systems at tertiary level are the responsibility of water user farmer association institutions. P3A institutions are needed that are strong, independent, and empowered so that the development and management of irrigation systems can be carried out well and sustainably, and ultimately able to increase productivity and agricultural production in supporting efforts to improve farmer welfare and national food security. But in reality there are still many unclear about the locus of the practice.
Every development and irrigation management development in each region must involve the participation of the surrounding community, especially farmers. The participation of farmers in the development and management of the irrigation system is contained in the Republic of Indonesia Government Regulation Number 20 of 2006 concerning irrigation. in fact, community participation has not been much involved in irrigation development and management in several regions in Indonesia. One of them is in East Luwu District which is a research study area. The construction of irrigation networks in East Luwu District has not involved the community in its management.

Participatory action research is very significant to solve conflicts of water use and other problems. There are more hands-on techniques to be identified that contribute to the conflict thus on how to address it. Finally, there is a need to learn how to handle difficult participants in public meetings around conflict arising over watershed management planning.[1].Wide-ranging consultation with irrigation interests will be critical to avoid confrontation and ensure that this innovation is accepted as a workable alternative to government control[2].

2. Research Purposes

Based on existing research problems, the purpose of this study is to analyze the role of participation, the role of character, the role of culture, the role of support, the indirect role of community participation through culture, the indirect role of community participation through policy, the indirect role of community character through culture, the indirect role of community character through community policy on the development of irrigation networks in East Luwu District. Based on the purpose of this study the development paradigm of community based development is a step that must now be developed as a solution to problems in development. Related to this, it is very closely related to community participation. As an effort to see public participation in the development of irrigation networks in the East Luwu Regency, an analysis of the irrigation network development model is needed to determine the direction of policy in the future development of irrigation networks.

3. Irrigation Network Development

Agriculture currently uses about 70% of the total water withdraw, mainly for irrigation. Although irrigation has been practiced for millennia, most irrigated lands were introduced in the 20th century. The intensive irrigation could provide for the growth of irrigated areas and guarantee increased food production[3].

Improvements in irrigation infrastructure and management may improve water availability that enables expansion of cropped areas. Such improvements could also increase the cultivation period, allowing crops of different maturation periods to be cultivated on the farm, thus increasing the number of crops cultivated and their acreage[4], [5].

Irrigation is not sustainable if water supplies are not reliable. Especially in areas of water scarcity the major need for development of irrigation is to minimize water use. Effort is needed to find economic crops using minimal water, to use application methods that minimize loss of water by evaporation from the soil or percolation of water beyond the depth of root zone and to minimize losses of water from storage or delivery systems. Nowadays, during a period of dramatic changes and water resources uncertainty there is a need to provide some support and encouragement to farmers to move from their traditional high-water demand cropping and irrigation practices to modern, reduced dem and systems and technologies[3].

Canal irrigation systems and reservoirs can serve up to thousands of farmers, and even cross provincial lines. Finally, transboundary river basins cross national boundaries. In each case, some form of coordination is required to govern provision and expropriation: to ensure that the infrastructure is built and maintained, and to allocate and distribute the water among users of the same source, and settle disputes. The greater the spatial scale, the higher the level of coordination that is needed, as indicated by the corresponding arrow on the right side, to balance the spatial arrow on the left. That coordination may be provided by the state or by collective action (or, in some cases, even by the market)as shown in figure 1 below[6].

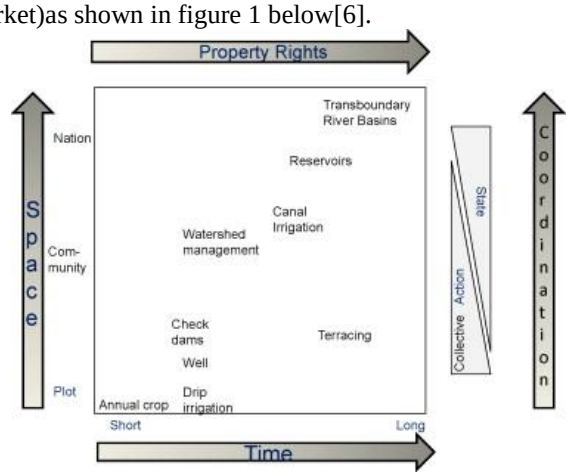

Figure 1: The role of property rights and coordination institutions for sustainable irrigation[6]

Water use conflicts have occurred in the downstream area, which greatly requires conflict resolutionmanagement of water resources. The social approach through participatory processes is a meaningful tool for resolving conflicts in every use of natural resources including the use of water[1].

4. Research Sites

Geographically, East Luwu Regency is located between 2o03'00 'South Latitude to 3o03'25' South Latitude and 119o28'56 'East Longitude to 121o47'27' East Longitude. East Luwu Regency, which is mostly in the Verbeck Mountains region, is an area with mountainous geographies. But in some places it is a plain area to swamps. The mountainous regions are north and west while the plain is the south and west. Flat to sloping conditions are found in all sub-districts with the widest in Angkona, Burau, Wotu, Malili and Mangkutana Districts. While the widest wavy and mountainous conditions in the Districts of Nuha, Mangkutana and Towuti.

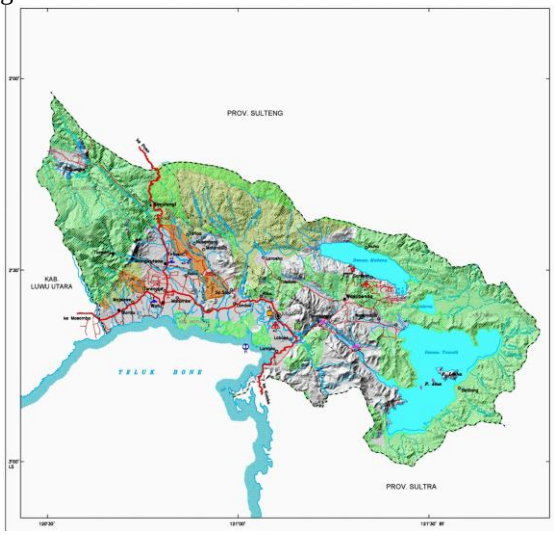

Figure 2: East Luwu District Map

5. Data Source

This type of research is explanatory research, namely research that aims to analyze the relationship between one variable with another variable or how a variable affects other variables, both direct influence and indirect influence. This study aims to examine the direct effect of participation, character, culture and policy on the development of irrigation networks, as well as indirect influence of participation and character through culture and policy on the development of irrigation networks, then direct influence and indirect influence is carried out hypothesis testing.

Based on the provisions of the method of Structural Equation Modeling (SEM) which will be a method of discussion, that the number of samples for 5 variables can be taken at least 200 respondents. The number of respondents conducted through data surveys in the implementation of this study were 200 respondents[7].

6. Data Analysis

After the research data is collected, the activities carried out are analyzing research data with data analysis techniques in accordance with the type of research. Data description used

descriptive statistical analysis techniques. Data in the frequency distribution table and then the mean is calculated
This study was analyzed using primary data collected through questionnaires using the survey method. The research questionnaire consists of questions about five variables or constructs measured by a number of indicators. Each respondent was asked to convey his perception of the indicators for these variables by choosing one number from a scale of 1 to 5. Therefore, each construct needs to be tested for validity and reliability.

Structural Equation Modeling (SEM) is a statistical tool used to complete multilevel models simultaneously which cannot be solved by linear regression equations. SEM can also be considered as a combination of regression analysis and factor analysis. The SEM model used in this study was SEM with the Partial Least Square (SEM-PLS) approach, because the data distribution in this study did not meet the multinormal distribution.

7. Research Data Results

Variables of community participation are measured reflectively by 6 indicators. The entire loading factor is high because it ranges from 0.617 - 0.856 or more than 0.50. The measurement results of construct reliability with Cronbach alpha coefficient 0.876 (more than 0.70), composite reliability 0.907 (more than 0.70) and variance extracted 0.623 (more than 0.50) explain that all participation indicators have good validity and reliability. Some key indicators as a measure of community participation include: interests (0.856) and willingness (0.834).

Community character variables are measured in a reflective manner by 6 indicators. The entire loading factor is high because it ranges from 0.603 - 0.869 or more than 0.50. The measurement results of construct reliability with Cronbach alpha coefficient 0.880 (more than 0.70), composite reliability 0.910 (more than 0.70) and 0.632 variance extracted (more than 0.50) explain that all indicators of community character have good validity and reliability . Some of the main indicators as a measure of community character include: honest (0.869), active (0.848) and tolerant (0.840).

Variables of community culture are measured reflectively by 5 indicators. The entire loading factor is high because it ranges from 0.774 - 0.920 or more than 0.50. The measurement results of construct reliability with Cronbach alpha coefficient 0.901 (more than 0.70), composite reliability 0.927 (more than 0.70) and extracted variance 0.719 (more than 0.50) explain that all indicators of community culture have good validity and reliability . Some of the main indicators as a measure of community culture include: environment (0.920), mutual cooperation (0.887) and social value (0.837).

Variable policy support is measured reflectively by 4 indicators. The entire loading factor is high because it ranges from 0.722 - 0.945 or more than 0.50. The measurement results of construct reliability with Cronbach alpha coefficient 0.871 (more than 0.70), composite reliability 0.913 (more than 0.70) and variance extracted 0.727 (more than 0.50) explain that all policy support indicators have good validity and reliability . Some of the main indicators as a measure of policy support include: utilization (0.945) and regulation (0.912).

The variable of irrigation network development is measured reflectively by 4 indicators. The entire loading factor is high because it ranges from 0.744 - 0.882 or more than 0.50. The measurement results of construct reliability with Cronbach alpha coefficient 0.863 (more than 0.70), composite reliability 0.908 (more than 0.70) and variance extracted 0.712 (more than 0.50) explain that all indicators of irrigation network development have validity and reliability. well. Some of the main indicators as a measure of irrigation network development include: rice fields (0.882), facilities (0.875) and productivity (0.866).

8. Conclusion

Based on the results of testing it was found that participation had a significant role in the development of irrigation networks in East Luwu District. This indicates that there are low and high levels of varied community participation. This can be seen from several indicators of community participation that have maximum support from the respondents of the study, namely indicators of willingness and initiative. Based on the results of testing it was known that character, culture, and culture, the community gave a meaningful role to the development of irrigation networks in East Luwu District. This is because the people who were respondents in this study came from a variety of cultural backgrounds, so there was no one specific style of culture in the study location.

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