IOSR Journal of Humanities And Social Science (IOSR-JHSS)
Volume 25, Issue 10, Series 8 (October. 2020) 21-26
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

Investigation of Community Behavior on Jeneberang River Management

Andi Sarrafah[1], Hamsu Abdul Gani[2], Nurlita Pertiwi[2]
[1](*Population and Environmental Education, Postgraduate Program Universitas Negeri Makassar, Indonesia*)
[2](*Engineering Faculty, Universitas Negeri Makassar, Makassar)*

Abstract:
Background: Jeneberang River in South Sulawesi, Indonesia,is one of the essential water resources for the community. With its stable flow discharge, the river becomes a drinking water source for one million South Sulawesi population. Nevertheless, over the last ten years, the river has suffered alarming environmental degradation.
Materials and Methods: Quantitative studies distribute 210 questionnaires to communities living in riverbanks, being upstream, central, and downstream communities. Correlation analysis uses the Structural Equation Model with the help of the AMOS Program.
Results:Analysisdescriptive of community behavior resulted that the highest value is in the variable control of river water and mineral use. These results show that some communities have a good understanding in the management and utilization of rivers. SEM analysis resulted that the indirect influence of self-efficacy on variables through environmental attitudes became a key result of research. The descriptive behavioral analysis results also show that the lowest indicator is the termination of a pollutant source or the public's inability to stop the source of pollutants.
Conclusion: The results showed that river management's community behavior is in the moderate category with the highest indicator is control of water utilization and materials river. In contrast, the lowest behavioral indicator is the termination of pollutant Sources. SEM analysis shows that Self-efficacy is the crucial factor in people's behavior in river management.
Key Word:**S**elf-efficacy; Water pollution, Water resources

Date of Submission: 07-10-2020 Date of Acceptance: 22-10-2020

I. I.INTRODUCTION

Jeneberang River in South Sulawesi, Indonesia, is one of the essential water resources for the community. With its stable flow discharge, the river becomes a drinking water source for one million South Sulawesi population. Nevertheless, over the last ten years the river has suffered alarming environmental degradation. More comprehensive river flows and fluctuating flow discharges are indicators of declining environmental quality. On the other hand, the river is also experiencing the burden of pollution due to human activity. Agricultural activities that produce fertilizer waste and pesticides are increasingly widespread and impact river water pollution. Concerns about the ecological quality of the river require environmentally-friendly river control and management measures.

Rural community activities are inseparable from river water conditions. Settlements and rice fields that are close to the river make a reciprocal relationship between man and the river1. Therefore, in the Jeneberang river management, it is necessary to study the community's behavior in managing the river. Environmentally friendly river management includes pollution control, protection of the river's physical quality, prevention of cliff erosion, and improved water content function.

Management of agricultural land that includes fertilization activities and excessive spraying of pesticides can lead to pollution. The earlier research has revealed that 30% of the volume of fertilizers and pesticides can be absorbed in crops. In comparison, 70% will be wasted and drift with water flow and become sediment on the river[2]. The river's physical quality is characterized by the presence of vegetation on the riverbank and control erosion and sedimentation. Prevention of such destruction through the prevention of tree felling in river basins, protecting cliff erosion, and sediment volume control. Erosion and sedimentation are triggers for flooding and will simultaneously aggravate the physical quality of the river3.

This study describes the behavior of the community in river management. Environmental behavior territorially refers to Ajzen's Theory of Planned Behavior that cognitive aspects and personal factors drive the birth of human behavior.The cognitive aspect is characterized by knowledge of the facts or meaning of

the information received.4. This study explores the community's knowledge of river management principles. It includes utilizing ecosystem functions, pollution control techniques, and conservation techniques that support efforts to improve river quality. Environmental attitudes are also strongly related to river management behavior. A positive attitude to environmental issues will have consumption behavior that leads to environmental awareness. Positive attitudes can be encouraged through education about eco-friendly lifestyles. In addition to education on the environment, environmentally friendly behavior is also influenced by several factors such as demographic characteristics (age, education, gender, and income level), knowledge and belief. Attitudes towards river protection can stem from the community's affective part or emotional condition towards the river's quality. In addition, knowledge or information received by the public about the risk of river damage may affect a person's thinking or belief in action. Conclusive components can also be formed in communities that manage rivers through long-held ness or beliefs. A person's motivation or encouragement to act in environmental protection is also a predictor of river protection behavior. An interest in solving environmental problems characterizes intrinsic motivation.

In contrast, extrinsic motivation requires others' intermediary to stimulate the birth of the desire to act. The community's motivation is expected to be born from within themselves and from the outside to be able to solve environmental problems related to river management. Self-Efficacy owned by a person encourages the formation of environmental behavior. Perry and Davenport[5]define self-efficacy as an individual's belief that they perform the specific actions necessary to produce the desired outcome in a situation.

Meanwhile, Greason and Cashwell[6] define self-efficacy as one's evaluation of one's ability or self-competence in performing a task, achieving a goal, or addressing a problem. Self-efficacy has a strong relationship with the decision to act, in the context of environmental responsibility. It plays a crucial role in a person's decision to act in environmental protection. Self-efficacy can be an intermediary or mediator in the interaction between behavioral factors and environmental factors, and self-efficacy can be a determinant of the success of performance and work7.

This study focuses on the determining factors of community behavior in river protection. Correlational studies review the relationship between personal factors to river management behavior.

II. MATERIAL AND METHODS

This study's type of research is quantitative research with a survey approach. Questionnaires were distributed to 210 people being upstream, central, and downstream regions. This research population targets people who live in watersheds and conduct agricultural activities. This research is seen in terms of analysis in the correlational research group that wants to see the direct influence and indirect influence. Analyze data using the Structural Equation Model with the AMOS Program.

Study Design: Quantitative research with ex-post-facto study

Study Location: It was done in Jeneberang Waterhed in Gowa Regency, South Sulawesi, Indoensia.

Study Duration: November 2019 to March 2020.

Sample size: 210 respondents.

Sample size calculation: All communities who live or manage land within 1 km of the Jeneberang River, located in the administrative area of Gowa Regency. Two criteria selected the respondent: 1) The age are more than 25 years and 2) The respondent have more than five tears experience in land managing.

Subjects & selection method: The sampling method used was the quota sampling method. The number of samples in each upstream, middle and downstream area is 70 samples. The simple random sampling method population carried out determination of the number of samples in each area

Statistical analysis

Data was analyzed using SEM analysis SPSS. The instrument was tested for validity and reliability, while the variable should fulfill tha normality, outliers, multicolinierty,and singularity. After the model's eligibility index is good, the correlational model is fit.

III. RESULT

Description of Community Behavior in The Management of Jeneberang River

The Behavioral Instrument consists of 24 question items, so the lowest possible value appears is 24 and the highest value is 96. The value range is divided into five categories so that the distribution of knowledge is presented in table 1.

Table no 1: Distribution of Community Behavior in The Management of Jeneberang River

Category	Interval Score	Frequency	Percentage
Very Low	21-37	0	0.0
Low	38-54	91	43.3
Moderate	55-71	103	49.0
High	72-88	16	7.6
Very High	89-105	0	0.0
Total		210	100

Based on the description of table 1 above illustrates that some respondents showed moderate category behavior of 103 people or 49%. The community has not shown good behavior in the sustainable management of Jeneberang River.

Table no2 Rating Categories

Average Value	Category
1.0 – 1.7	Very Low
1.8 – 2.5	Low
2.6 – 3.3	Moderate
3.4 – 4.1	High
4.2 – 5.0	Very High

Details of four variable indicators are presented in table 3. The highest value is in the variable control of river water and mineral use based on the Table above. These results show that some communities have a good understanding of the loaning and use of Jeneberang River.

Table no3.The correlation test with SEM analysis begins with an analysis of model suitability with the goodness of fit criteria

Table no3: Assessment Indicators

Indicator/variable	Average Value	Category
Management of Water Absorption Functions	3.0	Moderate
Prevent Riverbank Erosion	2.5	Low
Control Water Utilization and Materials River	3.9	High
Termination of Pollutant Sources	2.2	Low
River Physical Control	2.8	Moderate

The highest value is in the variable control of river water and mineral use based on the Table above. These results show that some communities have a good understanding in the loaning and use of Jeneberang River.

The goodness of Fit Test Results

Table no4 shows the correlation test with SEM analysis begins with an analysis of model suitability with the goodness of fit criteria. Table no 4 summarized from the standards outlined by Hair et.al.8to reference the results of SEM analysis evaluation. Based on the above description results, the seven measurement variables are eligible for evaluation or Goodness-of-Fit. So that the model presented is acceptable.

Table no 4: Goodness-of-Fit Performance Evaluation

Measurement	Standard	Value
Chi Square/df (cmin/df)	<3 good; <5 Permitted	2.974
p-value for the model	> .05	0.05
CFI	>.95 very good; >.90 good; >80 permitted	0.888
GFI	>.95	0.963
AGFI	>.80	0.799
RMSEA	<.05good; .05 - .10 moderate; >.10 bad	0.100
PCLOSE	>.05	0.050

SEM Analysis Results

Structural Analysis of Equation Modeling (SEM) in this study was made with three independent variable components. It consisting of knowledge (X1), motivation (X2), Self-Efficacy (X3), while variable intervening in the form of attitude (Z), and for dependent variable is Behavior (Y). The causal relationship between variable Y and variable X and an indirect form of influence is built from the theory, and then diagrams are created using AMOS 22 software.

Furthermore, SEM analysis was conducted to find direct influence and indirect influence between variables. The result of a regression weight value showing the direct influence between variables is presented in Table no 5

Table no 5: Regression Weights: (Group Number 1-Default Model)

Correlation	Estimate	S.E.	C.R.	P	Label
Attitude <-- Knowledge	3.539	0.959	3.689	***	RZX1
Attitude<-- Motives	0.231	0.077	2.993	0.003	RZX2
Attitude<-- Self-Efficacy	1.141	0.232	4.925	***	RZX3
Behavior <-- Attitude	0.456	0.122	3.75	***	RZY
Behavior<-- Knowledge	1.73	0.657	2.635	0.008	RYX1
Behavior<-- Motives	-0.119	0.056	-2.133	0.033	RYX2
Behavior<-- Self-Efficacy	-0.487	0.194	-2.513	0.012	RYX3

Based on the analysis results above, the complete SEM analysis results are obtained as in figure 1 with the caption in table no 6.

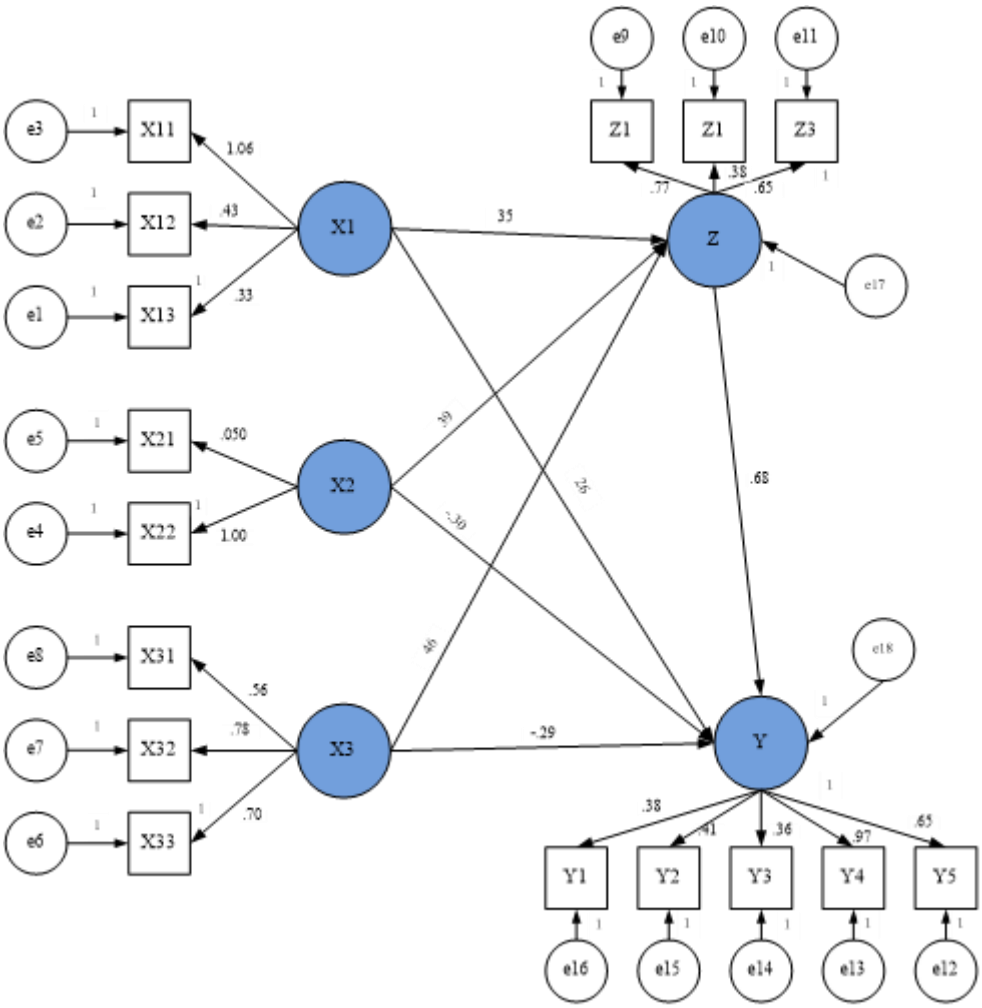

Fig.1. Model of The Relationship Between Variables

Table no 6: Variable and Indicators

Code	Variable and Indicators	Code	Variable and Indicators
X1	Knowledge of River Management (KRM)	X31	Experience of other people
X2	Motivation River Management (MRM)	X32	Personal Experience
X3	Self-Efficacy River Management (SERM)	X33	Psychologies
Z	Attitude River Management (ARM)	Z1	Cognitive
Y	Behavior River Management (BRM)	Z2	Affective
X11	Cognitive	Z3	Conative
X12	Affective	Y1	Water infiltration function behavior
X13	Psychomotor	Y2	Prevention of riverbank erosion and its banks
X21	Extrinsic	Y3	Control of water use and river materials
X22	Intrinsic	Y4	polluting source termination

Correlation analysis based on table 6 and figure 1 results in direct and indirect influence between variables. (Figure 2)

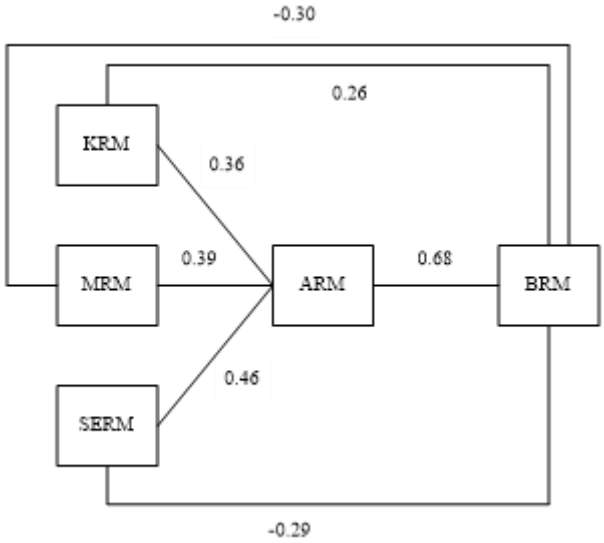

Fig.2. Direct and Indirect Influence

Based on the analysis results above, community knowledge directly affects behavior with a value of 0.26. The one that has no direct effect on behavior is in motives – attitude with a value of 0.27. A result of the total effect value for direct influence and indirect influence is presented in table 7

Table no 7: Total Effects effect of variables on behavior

Influence	**Categoric**	**Contribution Value**	**Percentage**
Indirect Influence on Behavior	Knowledge - Attitude - Behavior	0.25	25%
	Motivation - Attitude - Behavior	0.27	27%
	Self Efficacy - Attitude - Behavior	0.31	31%
Direct Influence on Behavior	Knowledge – Behavior	0.26	26%
	Motivation - Behavior	-0.30	-30%
	Self-efficacy - Behavior	-0.29	-29%
Total Effects		0.5	50%

Based on the results of the analysis in table 6 shows that the most considerable correlation value on the analysis of the indirect influence of self-efficacy on river management behavior. Self-efficacy, which includes other people's experience, personal experience, and Psychologist, is the most crucial variable in river management behavior.

The analysis results also showed that the total effect of each variable on river management behavior is = 50%. There are still other variables that affect the behavior of river management by 50%. Unaccounted for variables such as local wisdom factors, government policy support, and local institutions are part of the factors that influence river management behavior.

IV. DISCUSSION

The results showed that analysis of the indirect influence of self-efficacy on variables through environmental attitudes became a key result of research. The descriptive behavioral analysis results show that the lowest indicator is the termination of a pollutant source or the public's inability to stop the source of pollutants. The most significant sources of polluters in farmers' activities are fertilizers and pesticides. Agricultural activity in Indonesia is extraordinarily strong with intensive exposure to fertilizers and chemical pesticides. On the other hand, agricultural activities become the source of people's livelihoods, so most of the population strives to reach the highest production targets.

Some developing countries create programs to meet food needs by increasing production targets. The use of chemical fertilizers and pesticides enables the best food growth and sustainability. On the other hand, the practice has an impact on the quality of the environment.[9]

In addition to the risk of pollution due to fertilizers and pesticides, Jeneberang River also experiences a pollution burden due to domestic activities and household waste. This is related to Wantasen[10] which outlines that the river's central and lower parts are experiencing nitrogen pollution problems due to livestock waste, household waste, and industrial wastewater. While forest and grassland areas have a negative effect on nitrogen concentrations.

The analysis description shows that Jeneberang river management efforts should begin with the right approach to the community. Prevention of polluters sources at the household level begins with the educational process of environmental damage risk due to river management errors.

V. CONCLUSION

The results showed that river management's community behavior is in the moderate category with the highest control of water utilization and materials river indicators. In contrast, the lowest behavioral indicator is the termination of pollutant sources. SEM analysis shows that self-efficacy is crucial factor in people's behavior in the river management.

REFERENCES

[1] K. Bird, R. Boopathy, R. Nathaniel, and G. LaFleur, Water pollution and observation of acquired antibiotic resistance in Bayou Lafourche, a major drinking water source in Southeast Louisiana, USA, *Environ. Sci. Pollut. Res.*, vol. 26, no. 33, pp. 34220–34232, 2019.

[2] A. Bisht, N. Kamboj, V. Kamboj, and A. Bisht, A review on the role of emerging anthropogenic activities in environmental degradation and emphasis on their mitigation,*Arch. Agric. Environ. Sci.*, vol. 5, no. 3, pp. 419–425, 2020.

[3] S. Issaka and M. A. Ashraf, Impact of soil erosion and degradation on water quality: a review,*Geol. Ecol. Landscapes*, vol. 1, no. 1, pp. 1–11, 2017.

[4] E. Kim, J.-A. Lee, Y. Sung, and S. M. Choi, Predicting selfie-posting behavior on social networking sites: An extension of theory of planned behavior,*Comput. Human Behav.*, vol. 62, pp. 116–123, 2016.

[5] V. Perry and M. A. Davenport, An inductive framework of self-efficacy to understand and support farmers in conservation agriculture, *J. Soil Water Conserv.*, vol. 75, no. 2, pp. 198–208, 2020.

[6] P. B. Greason and C. S. Cashwell, Mindfulness and counseling self- efficacy: The mediating role of attention and empathy, *Couns. Educ. Superv.*, vol. 49, no. 1, pp. 2–19, 2009.

[7] T. Schipper, S. L. Goei, S. de Vries, and K. van Veen, Developing teachers' self-efficacy and adaptive teaching behaviour through lesson study, *Int. J. Educ. Res.*, vol. 88, pp. 109–120, 2018.

[8] J. F. Hair, J. J. Risher, M. Sarstedt, and C. M. Ringle, When to use and how to report the results of PLS-SEM, *Eur. Bus. Rev.*, 2019.

[9] M. D. Ruffatti, R. T. Roth, C. G. Lacey, and S. D. Armstrong, Impacts of nitrogen application timing and cover crop inclusion on subsurface drainage water quality, *Agric. Water Manag.*, vol. 211, pp. 81–88, 2019.

[10] S. Wantasen, J. N. Luntungan, A. E. Tarore, and T. B. Ogie, The impact of nitrogen fertilizer on the aquatic environment in the Upper Tondano watershed, North Sulawesi Province, in *Journal of Physics: Conference Series*, 2020, vol. 1434, no. 1, p. 12031.