

Huyula participation model and its impact on community behaviour in rehabilitating critical agricultural lands

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ABSTRACT

The low application of conservation techniques is in line with the increasing criticality of agricultural land. Weak awareness of sustainable land management also reduces community participation in managing land wisely. This is where the form of local wisdom intervention becomes a synthesis of the downturn in the socio-cultural aspects of agriculture. So the focus of this study is to design a model of the influence of huyula participation and its impact on community behaviour in critical land rehabilitation activities. This study uses an ex post facto approach combined with a literature review. Using a survey method, with various exogenous parameters (X), namely motivation (X₁), togetherness (X₂), and concern (X₃), the endogenous parameters (Y) namely parental participation (Y₁) and their impact on abusive behaviour (Y₂). The research was conducted from March to August 2022 in Limboto watershed, with a sample size of 166 respondents. In designing a model of the influence of various parameters, SEM analysis was carried out (Structural Equation Model) Partial Least Square-based (PLS). The results showed that: (i) the factors of motivation, togetherness, and caring directly had a positive and significant effect on huyula participation, with R² of 0.577; (ii) the factors such as motivation, concern, and participation directly have a significant positive effect on huyula behaviour, but not significant on the parameter of togetherness. The value of R² of 0.786; (iii) all factors indirectly have a significant positive effect on huyula behaviour through the parameters of huyula participation; (iv) the ability of the research parameters to explain the model from the results of the Q² value by 79.40%. These results indicate that increasing motivation, togetherness, community awareness will be able to increase their participation which has an impact on improving behaviour in managing critical land in Limboto watershed. Thus the model created is able to explain the diversity of research data information.

Keywords: Huyula participation, Community behaviour, Motivation, Togetherness, Caring, SEM-PLS

Article type: Research Article.

INTRODUCTION

The decline in the function of watersheds (DAS) is in line with the destruction of forests and land (Tuurmasari *et al.* 2016). This is because land development planning has so far been less based on information on land capability and suitability, which can convert forest and agricultural land into developed land (Ekawati 2006). As a result,

there has been a change in the land ecosystem (Rendi 2017), and the expansion of degraded land. Degradation that is increasingly widespread, mainly occurs in areas with high agricultural dependence and densely populated areas (Hariyani 2020). Degraded land becomes critical because it is triggered by erosion and irresponsible human activities, such as exploitation of natural resources and pressure on the soil (Maridi 2015). Critical conditions are caused by damage to production functions, biophysics, hydrology / water management (Matatula 2009), top soil (Suparwata *et al.* 2016), soil quality (Suparwata *et al.* 2019), land productivity (Prasetyo 2013), and socio-economic-cultural communities (Yunus 2013). In addition, the occurrence of ecosystem fires is also a factor in decreasing soil fertility and environmental problems (Widaty 2020). This criticism can occur in agriculture, protected forests and outside forest areas (Mukramin & Sudarsono 2019). Minimizing the criticality of land can be done by implementing conservation farming. One of the ways to treat critical land conservation is rehabilitation activities, both inside and outside forest areas (Annas & Wahyuni 2014; Nurullin *et al.* 2020; Migunov & Gaysin 2021; Surya Suamba *et al.* 2022). The goal of rehabilitation is to restore, maintain and improve the functions of forests and land, so that their carrying capacity is maintained (Bahua & Suparwata 2018). Its implementation still considers the basic concepts of conservation, land capability (Supeksa *et al.* 2012), and determining land suitability, such as forming a specific ecosystem evaluation framework. This is a progressive step in planning and avoiding improper implementation (Amaliah *et al.* 2019). Rehabilitation is aimed at improving degraded forests and land, improving land functions (Bahua & Suparwata 2018), and increasing the amount of vegetation. The presence of vegetation can protect the soil from erosion (Indrihastuti *et al.* 2016), restore hydrological function and maintain soil fertility (Matatula 2009). Efforts to conserve critical agricultural land require cooperation from various sectors. Without investment in conservation, land degradation will occur again and farmers will seek new agricultural land (Kartika *et al.* 2019). The main factor in development is community participation, which plays the highest percentage role in the success of the program. This participation is a form of community power (Kubangun *et al.* 2014), to participate in every stage of development including enjoying the results (Doley *et al.* 2012; Dai 2019). The full involvement of the community can be implemented in life and protecting the environment. The community participation rehabilitation program is aimed at spurring rehabilitation efforts by forming community group managers (Deviyanti 2013). The community is given the responsibility for managing rehabilitation activities (Yunardy *et al.* 2017; Bahua & Suparwata 2018; Suparwata *et al.* 2019), with the support of the cooperation of various parties (Kartini *et al.* 2016). Strengthening can be done by providing training and mentoring to local communities by taking into account the socio-economic and cultural aspects of the community. This is because cultural integration plays an important role in the rehabilitation of critical land (Akhbar *et al.* 2013). The form of an answer to the reality of natural resource exploitation is the birth of a naturalist paradigm, which also considers the cultural entity of society as an important aspect of development. Like huyula, the form of local wisdom that underlies the value of mutual cooperation is based on social solidarity (Goltenboth & Hutter 2004; Hatu 2011; Yunus 2013; Annas & Wahyuni 2014; Wahyuningrum & Putra 2018; Myasnikov 2018). The practice of huyula which is complex and interconnected forms the interaction vertically and horizontally (God-Man-Nature). The strengthening of the naturalist paradigm is accompanied by a paradigm of freedom or power that prioritizes participation and empowerment in society. This also indicates that the collapse of liberalism and capitalism is due to a lack of integration of local communities related to local customs and customary laws. In this post modern era, the form of participation in local community wisdom has received more attention because of the consistency shown as evidence in protecting the environment. In this regard, the focus of the study is to design a model of the influence of various factors on huyula participation and their impact on community behavior in critical land rehabilitation activities in the Limboto watershed. This article provides an overview of the contribution of the huyula, as a form of perspective for local communities who take part in the preservation of critical land, the environment, and the socio-economy.

MATERIALS AND METHODS

The description of this study is based on empirical observations in the field and a review of various literatures, which are extracted into one form of analysis. The complexity of the review described embodies a contextual conceptual understanding in order to explain a natural paradigm phenomenon, which is judged by the lack of a dependency and modern paradigm that overrides culture and as a cause of development failure, as well as capital as a development booster. The review is based on making people aware of the importance of cultivating culture as the foundation of life, manifesting in spatial and temporal that interacts in three dimensions, namely humans

and God, humans and humans, and humans and nature. This study uses an ex post facto approach, where changes in the independent variables occur when the dependent variables are observed, and studied the relationship (Sappaile 2010; Widarto 2013; Ibrahim *et al.* 2018; Danuari & Maisaroh 2019). The method used is a survey on various characteristics or factors that influence community participation. The independent variable (X) is a participation factor consisting of Motivation (X₁), Togetherness (X₂), and Concern (X₃). Furthermore, the dependent variable (Y) is participation in the management of critical land, namely huyula participation (Y₁) and community behaviour (Y₂). This research was conducted for 5 months starting from March to August 2022 in the watershed (DAS) of Gorontalo Regency, Indonesia. The population of farmers rehabilitating critical land was 883 people from 37 farmer groups. Determining the sample was calculated based on the Taro Yamane formula with a precision of 7%, therefore 166 respondents were obtained. To test the various influences between variables and test hypotheses, data analysis was carried out using SEM modelling (Structural Equation Model) Partial Least Square-based (PLS). The dimensions of variable/variable measurement are presented in Fig. 1.

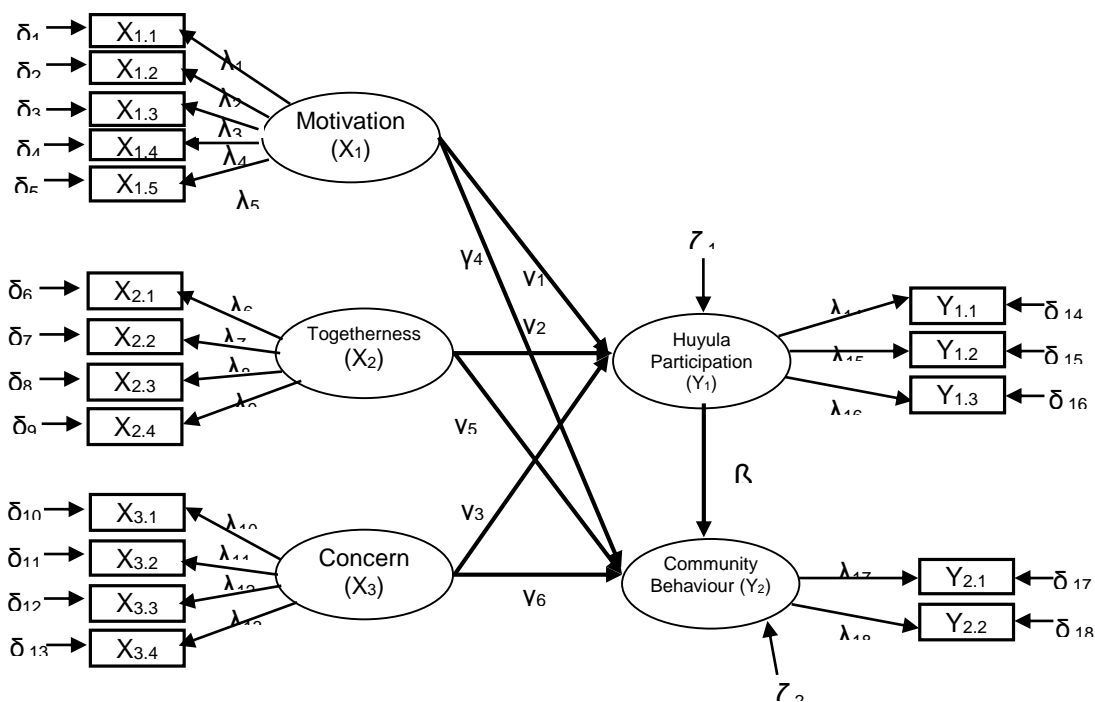


Fig. 1. Research framework and measurement of research variables.

From the research parameter measurement framework, the structural model equations in the research can be formulated as follows:

- 1) Huyula participation models in the rehabilitation community

$$Y_1 = \gamma_1 X_1 + \gamma_2 X_2 + \gamma_3 X_3 + \zeta_1$$

- 2) Community behaviour models in rehabilitation community

$$Y_2 = \gamma_4 X_1 + \gamma_5 X_2 + \gamma_6 X_3 + \beta Y_1 + \zeta_2$$

Furthermore, testing the design of the participation research model in the management of critical land in Gorontalo is described in Table 1.

RESULTS AND DISCUSSION

Models of the influence of various huyula participation factors and their impact on community behaviour in the management of critical land rehabilitation are as follows:

Structural Equation Modelling Analysis (SEM) with partial least square-based (PLS)

Outer model

The initial analysis was carried out by conducting a confirmatory factor analysis (CFA), which aimed to confirm the validation of the suitability of the indicators with the variables in the study. CFA results in this study are presented in Table 2.

Table 1. Design of the participation research model in the management of critical land in Gorontalo.

Model	hypothesis	Statistics Test	Criteria Test
Overall Model Fit	H ₀ : The sample data variance matrix is not different from the matrix <i>variance</i> estimated population H ₁ : The sample data variance matrix is different from the estimated population variance matrix	value SRMR, d_ULS, d_G, and NFI	It is hoped that H ₀ accepted, if: SRMR ≤ 0.10 or ≤ 0.08; d_ULS ≥ 2,000; d_G ≥ 0.900 and or NFI ≥ 0.90
Huyula Participation Model	H ₀ : $\gamma_1 = \gamma_2 = \gamma_3 = 0$: motivation or togetherness or concern does not affect huyula participation. H ₁ : $\gamma_1 > 0$: motivation has a positive effect on huyula participation H ₁ : $\gamma_2 > 0$: togetherness has a positive effect on huyula participation H ₁ : $\gamma_3 > 0$: concern has a positive effect on huyula participation	t- value	It is hoped that H ₀ rejected, if: t-count value ≥ 1.96
Model of Community-Based Behaviour	H ₀ : $\gamma_4 = \gamma_5 = \gamma_6 = \beta = 0$: huyula's motivation or togetherness or concern or participation does not influence the community's behaviour. H ₁ : $\gamma_4 > 0$: motivation has a positive effect on community's behaviour H ₁ : $\gamma_5 > 0$: togetherness has a positive effect on community's behaviour H ₁ : $\gamma_6 > 0$: concern has a positive effect on community's behaviour H ₁ : $\beta > 0$: huyula participation has a positive effect on community's behaviour	t- value	It is hoped that H ₀ rejected, if: T-count value ≥ 1.96

Table 2. Results of Confirmatory Factor Analysis (CFA)

Variable	Indicator	Outer Loading	Standard	Status
Motivation	X1.1	0.737	0.6	Valid
	X1.2	0.706	0.6	Valid
	X1.3	0.809	0.6	Valid
	X1.4	0.710	0.6	Valid
	X1.5	0.699	0.6	Valid
Togetherness	X2.1	0.765	0.6	Valid
	X2.2	0.717	0.6	Valid
	X2.3	0.809	0.6	Valid
	X2.4	0.608	0.6	Valid
Concern	X3.1	0.804	0.6	Valid
	X3.2	0.654	0.6	Valid
	X3.3	0.860	0.6	Valid
	X3.4	0.819	0.6	Valid
Huyula participation	Y1.1	0.865	0.6	Valid
	Y1.2	0.776	0.6	Valid
	Y1.3	0.869	0.6	Valid
Community behaviour	Y2.1	0.863	0.6	Valid
	Y2.2	0.839	0.6	Valid

In CFA there were no results below the established test standards (Table 2). This indicates that all indicators are declared valid and suitable for further analysis. This is because each indicator is able to measure constructs in SEM analysis. Even the CFA value shown is > 0.7 and is declared valid. The validity test carried out (Table 2) is also supported by the AVE value (Table 3), which is more than the test standard (> 0.5). In addition to the validity test, a reliability test was also carried out by looking at the results of Composite reliability, and Cronbach's alpha. The test results are presented in Table 3. The test results (Table 3) show that the variables of motivation, togetherness, concern, participation, and behaviour have values above the set test standard. This indicates that all research variables are in the good fit category. Thus further tests can be carried out.

Table 3. Test Results, AVE, Composite reliability, and Cronbach's alpha

Variable	AVE	Standard	Composite Reliability	Standard	Cronbach's Alpha	Standard	Status
Motivation	0.538	0.5	0.853	0.6	0.785	0.6	Good Fit
Togetherness	0.531	0.5	0.817	0.6	0.710	0.6	Good Fit
Concern	0.621	0.5	0.866	0.6	0.795	0.6	Good Fit
Huyula participation	0.702	0.5	0.876	0.6	0.786	0.6	Good Fit
Community behaviour	0.724	0.5	0.840	0.6	0.619	0.6	Good Fit

Structural model of research

As for the research model, Structural Equation Modelling (SEM) in this study is presented in Fig. 2.

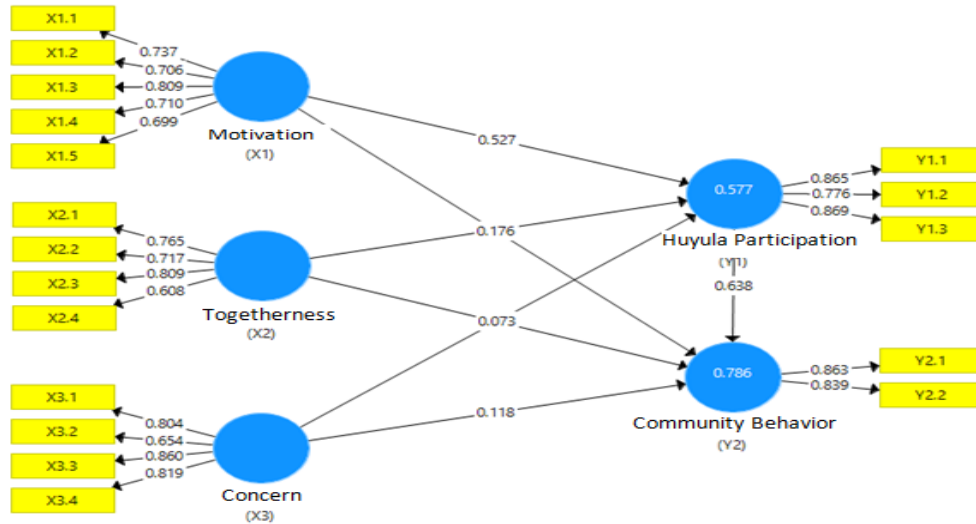


Fig. 2. Path full structural model diagram.

Based on the full model path diagram (Fig. 2) it can be described, namely: there is a first model obtained by the equation that $Y_1 = 0.527X_1 + 0.176X_2 + 0.073X_3$ with R^2 value of 0.577. These results indicate that the influence of motivation, togetherness, and concern for huyula participation is 0.577 or 57.70%. Furthermore, 42.30% is influenced by other factors outside the model. This value interprets a moderate model. Furthermore, in the second model, the equation is obtained that $Y_2 = 0.118X_1 + 0.073X_2 + 0.118X_3 + 0.638Y_1$ with R^2 value of 0.786. This indicates that the magnitude of the influence of motivation, togetherness, concern, huyula participation on huyula behaviour is 0.786 or 78.60%. The remaining value of 21.40% is influenced by other factors outside the model. These results indicate that the model is in a strong category and is included in the realm of substance, because it shows a significant influence on huyula behaviour. The value of Q^2 or predictive relevance is 0.794. This means that by 79.40%. The created model can describe or explain research data information. This means that the level of diversity of data that can be developed in the structural research model, is 79.40%. Q^2 value is categorized in *Goodness of Fit*, since the value is close to 1 or ≥ 0 . The model fit test (Fig. 2) is related to analysis Goodness of Fit (GOF) based on test criteria. The results of the equation model fit Structural Equation Modelling Partial Least Square (SEM-PLS) in this study are presented in Table 4.

Table 4. Structural Model Suitability Criteria.

GOF Measurement Results	Acceptance Parameters	Information
Chi Square = 537,108	The smaller the better	<i>Good Fit</i>
SRMR = 0,069	≤ 0.08	<i>Good Fit</i>
d_ ULS = 2.667	$\geq 2,000$	<i>Good Fit</i>
d_ G = 1.581	$\geq 0,900$	<i>Good Fit</i>
NFI = 0.952	$\geq 0,9$	<i>Good Fit</i>

Source: Processed Data (2023).

Based on Table 4, it can be seen that the model is in a Good Fit state, so that structural equations can be carried out to assess the value of the path coefficient as well as to test the hypothesis to determine the effect of motivation,

togetherness, and concern for intervening behaviour using the mediating variable huyula participation.

Testing the direct influence of motivation hypothesis (X₁), togetherness (X₂), and Concern (X₃) on Huyula participation (Y₁)

The reality of participation is related to the participation of the community to participate in initiating, to utilizing the results of activities. The low level of participation depends on various factors that can have a direct or reciprocal influence. Criteria for testing various exogenous factors towards endogenous can be accepted if *t*-count $\geq t$ -table (1.96), or if the *p*-values ≤ 0.05 , then H₁ is accepted or H₀ is rejected. However, when *t*-count $\leq t$ -table (1.96), or if the *p*-values ≥ 0.05 , then H₀ is accepted or H₁ is rejected. The results of testing the hypothesis of the influence of exogenous factors on huyula participation in the study are presented in Table 5.

Table 5. The direct effect of Motivational Variables (X₁), Togetherness (X₂), and Concern (X₃) on Huyula Participation (Y₁).

Variable Relationship	Direct Influence	<i>t</i> -count	<i>p</i> -values	Decision
X ₁ → Y ₁	0,527	8.271	0.000***	H ₁ Accepted
X ₂ → Y ₁	0,248	3.577	0,000***	H ₁ Accepted
X ₃ → Y ₁	0,120	2.165	0,031**	H ₁ Accepted

Information: ns: not significant; *. Significant at the 0.1 level (2-tailed); **. Significant at the 0.05 level (2-tailed); ***. Significant at the 0.01 level (2-tailed)
Source: Processed data (2023)

The results of the direct influence test (Table 5) between motivation, togetherness, and concern for participation show that:

Motivation has a positive and significant effect on huyula participation, because of the resulting value of *t*-count is at 8.271 > 1.96 and probability value of 0.000 < 0.05. This indicates that the higher the farmer's motivation, the better the community's huyula participation in rehabilitating degraded land. The effect of motivation on huyula participation is 0.527 (large category). This means that one unit elevation in motivation can upraise huyula participation by 0.527 units.

Togetherness has a significant positive effect on huyula participation, because of the resulting value of *t*-count is at 3.577 > 1.96 and probability value of 0.000 < 0.05. The existence of a significant positive effect indicates that when togetherness upraises, huyula participation will be elevated. The effect of togetherness on huyula participation is 0.248 (moderate category). This means that an elevation of one unit in togetherness can upraise huyula participation by 0.248 units.

Concern has a positive and significant effect on huyula participation, because of the resulting value of *t*-count is at 2.165 > 1.96 and probability value of 0.031 < 0.05. This indicates that the increasing public awareness means the farmers participation of huyula in rehabilitating critical land in the Limboto watershed also increases. The effect of caring for huyula participation is 0.120 (moderate category). This means that an increase in one unit of concern can increase huyula participation by 0.120 units.

Testing the direct influence of motivation hypothesis (X₁), togetherness (X₂), concern (X₃), and huyula participation (Y₁) on community behaviour (Y₂)

Improving environmental damage and critical land will occur, because it is supported by wise behaviour towards land use. Community participation is needed in order to foster mutual cooperation (huyula) behaviour in land rehabilitation. The results of various effects of exogenous on endogenous factors are presented in Table 6.

Table 6. The direct effect of motivational variables (X₁), togetherness (X₂), Concern (X₃), and huyula participation (Y₁) on community behaviour (Y₂).

Variable Relationship	Direct Influence	<i>t</i> -count	<i>p</i> -values	Decision
X ₁ → Y ₂	0.176	3.547	0.000***	H ₁ Accepted
X ₂ → Y ₂	0.073	1.667	0,096 ^{ns}	H ₁ Rejected
X ₃ → Y ₂	0.118	2.524	0,012**	H ₁ Accepted
Y ₁ → Y ₂	0.638	11.689	0.000***	H ₁ Accepted

Note: ns. Not significant; *. Significant at the 0.1 level (2-tailed); **. Significant at the 0.05 level (2-tailed); ***. Significant at the 0.01 level (2-tailed).

Source: Processed Data, 2023.

Various factors can influence people's behaviour to carry out huyula together. The test results (Table 6) on the influence of various factors on community behaviour show that:

Motivation has a positive and significant effect on community behaviour, since the resulting value of *t*-count is at $3.547 > 1.96$ and *probability value* of $0.000 < 0.05$. This indicates that the higher the farmer's motivation, the better the behaviour of the community in rehabilitating critical land. The effect of motivation on abusive behaviour is 0.176 (moderate category). This means that an elevation in one unit of motivation can upraise behaviour by 0.176 units.

Togetherness has no significant positive effect on community behaviour, since the resulting value of *t*-count of $1.667 < 1.96$ and *probability value* of $0.096 > 0.05$. The existence of a positive influence but not significant indicates that if the togetherness of the community is getting better, then it can increase the behaviour of the people to rehabilitate critical land in Limboto watershed. The influence of togetherness on behaviour is 0.073 (small category), meaning that an increase in one unit of togetherness can lead to elevation in behaviour by 0.073 units.

Concern has a positive and significant effect on community behaviour, since the resulting value of *t*-count at $2.524 > 1.96$ and *probability value* of $0.012 < 0.05$. This indicates that the elevating public awareness will also upraise the behaviour of farmers in rehabilitating critical land in Limboto watershed. The effect of concern for behaviour is 0.118 (small category), meaning that an elevation in one unit of concern can upraise behaviour by 0.118 units.

Huyula participation has a positive and significant effect on community behaviour, due to value outcomes *t*-count of $11.689 > 1.96$ and *probability value* of $0.000 < 0.05$. This indicates that the higher the participation of farmers, the better the behaviour of farmers in carrying out rehabilitation of critical land in Limboto watershed. The effect of huyula participation on huyula behaviour is 0.638 (large category). This means that one unit elevation in huyula participation can upraise huyula behaviour by 0.638 units.

Testing the indirect effect of motivation hypothesis (X₁), togetherness (X₂), concern (X₃), and Huyula participation (Y₁) on community behaviour (Y₂)

In addition to testing the direct effect, an indirect effect test was also carried out on the research variables. The results of the indirect effect test for each research variable are presented in Table 7.

Table 7. Indirect effect of motivational variables (X₁), togetherness (X₂), concern (X₃), and Huyula participation (Y₁) on Berhuyula Behaviour (Y₂).

Variable Relationship	Indirect Influence	<i>t</i> -count	<i>p</i> -values	Decision
X ₁ → Y ₁ → Y ₂	0,336	7.399	0.000***	H ₁ accepted
X ₂ → Y ₁ → Y ₂	0,158	2.074	0,001***	H ₁ accepted
X ₃ → Y ₁ → Y ₂	0,077	4.223	0,039**	H ₁ accepted

Note: ns. Not significant; *. Significant at the 0.1 level (2-tailed); **. Significant at the 0.05 level (2-tailed); ***. Significant at the 0.01 level (2-tailed).

Source: Processed Data, 2023.

The results of the indirect effect test (Table 7) show that:

Motivation indirectly has a significant positive effect on community behaviour. Value results *t*-count of $7.399 > 1.96$ and probability value of $0.000 < 0.05$ indicate that huyula participation can be an *intervening* variable which is good for the influence of motivation on community behaviour. The effect value is 0.336 (moderate category). This means that an elevation in one unit of motivation can indirectly upraise behaviour by 0.336 units.

Togetherness indirectly has a significant positive effect on community behaviour. Value results *t*-count of $2.074 > 1.96$ and probability value of $0.001 < 0.05$ indicate that huyula participation can be a *intervening* variable which is good for the influence of togetherness on community behaviour. The effect value is 0.158 (moderate category), meaning that an elevation in one unit of togetherness can indirectly upraise behaviour by 0.158 units.

Concern indirectly has a significant positive effect on community behaviour. Results of *t*-count value at $4.223 > 1.96$ and probability value of $0.039 < 0.05$ indicate that huyula participation can be an *intervening* variable which is good for the influence of caring for community behaviour. The effect value is 0.077 (small category), meaning that an increase in one unit of concern can indirectly upraise behaviour by 0.077 units.

Rehabilitation should not only focus on how to overcome the "impact", but how to overcome the "cause". In this case, apart from natural factors, it is humans who are responsible for accelerating damage and or preserving land resources. This is because the greatest damage to land resources occurs due to accelerated actions by human

intervention. The role of humans (society) is considered as a key control for the good and bad of this resource. However, the egoistic nature of "feeling power over nature" results in a feeling of greed, coercion of nature, dictatorship over nature, individualism, exploitation, expansiveness, and disregard for environmental aspects. Currently our attention is not only on "what has happened, but more on who caused the land damage that could occur". What's more, the tendency of people to always exploit land resources, moreover, coupled with high moral erosion and unwise use of land. All of this has implications for sensitive and serious damage to agricultural lands. In increasing motivation, togetherness and concern, a continuous and contextual counselling series is needed on the condition of the community. This is because the reality of agricultural extension regarding the environment is still weak, so a joint committee is needed to increase environmental awareness (Al Raghi & Al Mashhadany 2017). Therefore, support from competent parties (agricultural directorate, extension technicians) is needed in order to increase the intensity of visits and improve the administrative system of agricultural extension (Al Saady & Al Canay 2018). Agricultural extension reform is important to carry out using modern communication technology to improve extension performance (Abdul Razzaq & Salman 2018). This is in an effort to increase community participation, the support and role of various parties is needed for the sake of awareness of participation. Therefore, the community itself should be the priority for reconditioning and rehabilitation, both socially and culturally in creating a dignified society for a friendly land.

Responding to the decline in participation by internalizing huyula local wisdom (mutual cooperation) in the rehabilitation of critical lands

The behaviour of mutual cooperation in the community is now increasingly eroded, experiencing changes, decreases and fading (Tamba 2011; Pramono 2014; Rosyada *et al.* 2015; Rachid 2018). This process of cultural change occurs due to the process of diffusion, acculturation and assimilation (Rusdi *et al.* 2013). Modernization actually causes agricultural decline in the socio-cultural aspects of society (Rachid 2018; Rusdi *et al.* 2020). The reality of shifting and waning mutual cooperation occurs due to the entry of a new culture (Rosyada *et al.* 2015), economic pressure (Nugroho *et al.* 2016; Kusdiane *et al.* 2018; Waskitojati *et al.* 2019), the emergence of pragmatic and individualistic attitudes (Abdul Razzaq & Salman 2018; Supekta *et al.* 2012), dominating the wage system and monetization in rural areas (Rachid 2018; Al Saady & Al Canay 2018). The decline that occurred formally resulted in low community participation in mutual cooperation activities for development (Muryanti 2014). Socially it has an impact on the weakening of farmer institutions, the birth of the caste system for the peasants and the loss of the culture of mutual cooperation (Rusdi *et al.* 2020). This has implications for the increasingly difficult understanding of agriculture, sustainability and regenerating agriculture (Suparwata *et al.* 2021). Even the revolution that has occurred has not been able to have a significant impact on the economy, due to weak farmer institutions (Fajri & Supartini 2015). Past land rehabilitation policies emphasized technical aspects and ignored social aspects, as a result of which activities were less successful (Amaliah *et al.* 2019). Strengthening the foundation of participation in rehabilitation, one of which can be done by injecting local culture and wisdom that is owned by the community. Local wisdom is the noble values that apply in the order of community life to protect and manage the environment in a sustainable manner (Suparwata *et al.* 2020). Strengthening can be done by providing training and mentoring to local communities by paying attention to the socio-economic and cultural aspects of the community (Akhbar *et al.* 2013). This is because integration will form a self-worth that depends on noble desire and knowledge (Nawai *et al.* 2019). Implementing local wisdom wisely contributes to improving the conservation of critical land (Abas 2017). Gorontalo area which is thick with customs that characterize local wisdom, one of which is known as "huyula". Huyula is a form of social solidarity between community members to meet common needs and interests (Myasnikov 2018). The huyula culture has become a habit of mutual cooperation in the people of Gorontalo (Bahrudin *et al.* 2017), which has become the spirit and underlies the principles of cooperation and togetherness in agriculture (Iriana *et al.* 2008; Njurumana *et al.* 2008; Wolok *et al.* 2014). However, along with the development of huyula values, increasingly fading, changing and being neglected in the Gorontalo community are due to the social order, modernization, globalization, and the wage system (Goltenboth & Hutter 2004; Wahid, A 2008; Yuliantika & Istiawan 2017; Wahyuningrum & Putra 2018; Myasnikov 2018). The nature of the huyula (mutual cooperation) has gradually begun to experience a shift in the life order of the farming community (Iriana *et al.* 2008). This dimension indicates the low level of community participation in huyula (Suparwata *et al.* 2016; Yuliantika & Istiawan 2017; Suparwata *et al.* 2019). To revive the participation of the rehabilitation community which is implemented in the local wisdom of the huyula requires

support and cooperation from various parties. This is a form of response against the reality of anthropocentrism by strengthening the reality of naturalism, which considers cultural entities and local wisdom as important aspects of development. The practice of huyula which is complex and interconnected, forms the interaction vertically and horizontally (God-Man-Nature). The strengthening of socio-cultural attention to increase participation is an antidote to the erosion of the noble values of local wisdom. So, in this post modern era, the form of participation in local wisdom of the community gets more attention because of the consistency shown as evidence in protecting the environment. Mutual cooperation should be maintained and revitalized in the contemporary context (Tamba 2011; Abdul Razzaq & Salman 2018), in addition to participating in putting a rural development perspective on the local community with empowerment to restore mutual cooperation to its original state (Nugroho *et al.* 2016; Rusdi *et al.* 2020). The reintegration of local values of huyula in rehabilitation is an effort to build, reunite, integrate various factors and principles of participation to foster community confidence in taking an active role in rehabilitation activities. The pattern of reintegration is actually not an easy thing to achieve results or its realization. It takes time, exemplary processes, and the ability to organize social capital in society, so that society becomes more empowered. The community is given the responsibility, authority, and empowered to manage critical land by always receiving assistance from the government and related stakeholders. Strengthening again by internalizing the principles of participation, can be done through personal and group approaches through non-formal education, as well as the provision of skills in conservation-based land management. Strengthening the cultural attention involved in agricultural development is an answer to the anxiety about the erosion of local wisdom values. Organized oppression that restrains marginalized communities (agriculture) has drowned out the people's freedom to seize their welfare. The capitalist system under the guidance of modernization has fed thoughts of the goals of economic development with the restraint of large capital holders. The capitalization of agriculture at that time appeared since the 1970s, which helped change the face of agriculture by placing agriculture only as a buffer program, with the aim of advancing industrial development. However, ironically this does not resonate as is done by developed countries. This dimension is influenced by policies and political systems that are inconsistent with the vision and mission of development. Sometimes this becomes a dilemma, and often the emergence of a de-democracy in people's lives, especially in rural areas. The impact is that agricultural policies that are launched do not have a proper place in the hearts of the people, and tend to damage the environment. There is an assumption that rural and remote residents as isolated small farmers (Hermawan *et al.* 2016), are easily exploited by capitalism because it is related to capital (Prayoga *et al.* 2019). The fact is that this farmer group responds quickly to market needs and is not involved in resource extraction, which has caused natural damage so far (Hermawan *et al.* 2016).

An overview of rehabilitation activities as an effort to diversify plant species composition

In community garden management, information on species composition, diversity and evenness is needed. This information can be obtained by analyzing vegetation (Arnstein 1969). Vegetation is defined as vegetation covering the earth's surface (Bagas & Radjab 2019). Vegetation analysis in plant ecology performs to determine the various types of vegetation in a community or plant population that develop on a time and space scale (Darwis 2018). The information required is the species composition, dominance, distribution and association between the types of trees that make up the vegetation (Darmanto 2015). This condition will be closely related to the diversity of vegetation types in each area (Hatu 2011). Forest zoning systems, ecological and economic assessments of forest communities form the basis for outlining strategic priorities and aim to increase ecological efficiency (Sinaini & Iwe 2020). However, it is not uncommon for vegetation damage to occur due to disturbance. The loss of natural vegetation will result in halophyte plants such as *Tamarix aphylla*, *Juncus acutus*, *Emperica silinderika*, *Alhagi maurorum*, and *Nitraria retusa* (Huzaini & Rahayu 2013). The diversity of species in a place has an important meaning in the ecosystem. High diversity conditions have a positive effect on species growth in an area (Suparwata 2021). The diversity of plants in the yard provides economic, social, cultural, religious and beauty benefits for the community (Hatu RA 2018). The higher the diversity of an area, the more balanced the ecosystem conditions in it. The existence of a proper arrangement of vegetation composition and structure will be able to regulate sustainability in hydrological processes (Santoso 2007). Community garden development is very well implemented for ecological and economic sustainability. Community-owned gardens have high diversity, since the existing species are a mixture of wild and cultivated species (Sterberg 2001). Thus, to ensure the achievement

of balanced economic and environmental benefits, sustainable assistance by extension agents is needed (Rusdi 2013).

CONCLUSION

The decline in community participation in huyula is caused by the complexity of agricultural social problems, such as the dominance of the wage system, globalization and advances in agricultural technology, the emergence of individualism and pragmatism in the management of their farming activities. Progress in agriculture can actually weaken the socio-cultural community and even occur on the verge of extinction. The form of an answer to the collapse of participation is to integrate local huyula wisdom, which can become a spirit and mental foundation in the socio-culture-agricultural life of rural communities. Huyula local wisdom can be a buffer for the erosion of the socio-cultural aspects of society, and increase awareness of the preservation of critical land and the environment. In a direct way, motivational factors, togetherness and caring had a positive and significant effect on huyula participation, at about 57.7%. Furthermore, there is a significant positive effect on motivation, concern and participation on huyula behaviour that is equal to 78.6%. Indirectly the model created shows a significant positive influence on huyula behaviour in the management of critical land rehabilitation in Limboto watershed. Increased motivation, togetherness and concern can increase community participation in determining mutual cooperation behaviour in carrying out critical land rehabilitation. Another adaptation that is needed is to maximize the purpose of planting plants which are part of the plant diversification effort, with the types of plants being determined based on the authority of the local community.

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