READINESS FOR CHANGE OF BANTARSARI VILLAGE RESIDENTS TOWARDS CLIMATE CHANGE

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Abstract. Climate change is a global phenomenon that affects humans' lives in many ways. Lifestyle shifts are inevitable to sustain the vulnerable environment affected by climate change, and people in rural areas are no exception. Therefore, those people's readiness for change towards this lifestyle must be measured to prepare for the future. This research investigates the readiness for change of Bantarsari Village residents in the viewpoint of community involvement using a quantitative method of SEM-PLS. We use a questionnaire to gather data from Bantarsari Village residents as the population of this research, and the population is divided into four categories: gender identity, age, occupation, and education. The questionnaire contains 26 questions using a five-point psychological scale from "strongly disagree" to "strongly agree" about lifestyle change, participation, and preferences towards sustainable life. The results show that community involvement is significantly correlated with readiness for climate change where 99.3% of the readiness is affected by community involvement. This research result can be used to raise awareness among the government or related stakeholders that people in rural areas should also participate in sustainable life to face climate change.

Keywords: readiness for change, rural area, climate change, sustainable life

A. Introduction

Climate change is a concerning global phenomenon that gradually destroys humans' lives. Climate change creates temperature and weather shifts that heavily impact the Earth and humans' behaviour in all places in the world. Rural areas, places that are considered safe from this phenomenon due to habits of their people, are not exceptions. These areas also take consequences for the phenomenon that are majorly caused by environment-damaging behaviours of urban people. For instance, [1] reveals that climate change increases the probability and crop failure although the farmers do not know climate change. The study in [2] shows that fishers in coastal areas of Pacitan regency must adapt to new behaviours since climate change alters the weather and environment of the sea. These two studies are intriguing, showing that rural people are often unaware of climate change. As a result, the people are struggling to adapt to the obvious change. The psychological concept referring to this is called "readiness for change".

Readiness for change is a measurement of to what extend an individual accept, adapt, and reject a phenomenon that alters the status quo [3]. This measurement is a cognitive behavioural

precursor consisting of beliefs, attitudes, and intentions of accepting, adapting, and making change [4,5]. This concept is critical for overcoming climate change since it involves not only individual perception but also organisational perception towards a change [6]; in this case, a group of people is considered an organisation. By this concept, this readiness can be measured scientifically and thus be used for further actions of overcoming climate change.

Indonesia is the largest archipelagic country in the world where two-thirds of the country is ocean. Therefore, climate change significantly affects Indonesian people since climate change alters the ocean behaviour, and the behaviour change cause weather and temperature shifts. Unfortunately, although the awareness of climate change among rural people increases as shown in [7] and [8] (considering the fact that the people have already experienced the negative impacts), it does not imply the people's readiness for the change. The measurable index towards climate change is rarely measured since most research regarding climate change perception focus on awareness, not readiness. Therefore, such readiness must be measured for discovering the people's real perception towards this world-level change.

Some studies about readiness for climate change have been conducted outside Indonesia. Study by [9] investigates readiness for climate change among people in the Arctic, particularly Nunavut, Canada. It shows that the people's readiness is heavily influenced by the government preparedness as the polar region is one of the most affected areas by climate change (as per north polar ice level reduction). Meanwhile, [10] reveals that readiness for change among people in Africa is generally low. Despite the challenging environment and extreme scarcity of basic life resources like food and water, the readiness is low because of high illiteracy level among the people. These two studies provide contrasting results although both studies areas are significantly affected by climate change, and it is interesting in the viewpoint of psychological readiness for climate change.

We are motivated to conduct such study on a region in Indonesia. We choose a village in a rural area of West Java Province called Bantarsari Village. This readiness is critical for ensuring that the people can adopt new methods of farming, water management, and disaster management that will occur due to the climate change. Individual readiness alone is not enough to tackle the issue. Existing research, such as [9] and [10] indicates that community involvement can provide contrasting results despite the similar challenges. Hopefully, this research can give such awareness so that the residents of Bantarsari village and the government can be more prepared for sustainable life in this climate change era.

B. Methods

This research uses a quantitative approach namely PLS-SEM (Partial Least Squares Structural Equation Modelling) to investigate the correlation between variables involving community involvement and readiness for change index. Data were collected using two types of Likert scales, namely "Readiness for Change" and "Sustainability Involvement". The instrument "Readiness for Change" uses 13 items, whereas the instrument "Sustainability Involvement" uses 12 items. The population is residents of Bantarsari village, and the number of subjects involved is 128 people, selected using random sampling technique. The data are analysed by SmartPLS 2024.

1. Data Analysis

Table 1. Subject grouping based on gender identity

Gender Identity	Frequence	Percentage
Male	57	44%
Female	71	56%
Total	128	100%

Here are the demographic analysis based on sampling of 128 residents of Bantarsari Village.

Table 1 shows that majority of the subjects are females who are 71 people, consisting of 56% of the samples. The rest is identified as males who are 57 people, 44% of the samples.

Table 2. Subject grouping based on age

Age (years old)	Frequence	Percentage
< 20	18	14%
20<age≤25	34	26.5%
25<age≤30	25	19.5%
>30	51	40%
Total	128	100%

Table 2 shows that there are 18 subjects younger than 20 years old (14%), 34 subjects aged between 20 – 25 years old (26.5%), 25 subjects aged between 25 – 30 years old (19.5%), and 51 subjects older than 30 years old, the largest age group, which consists of 40% of the samples.

Table 3. Subject grouping based on education level

Education Level	Frequence	Percentage
Not graduated from elementary school	4	3.2%
Elementary school	18	14%
Junior high school	21	16.4%
Senior high school	38	29.6%
Diploma 3	12	9.4%
Diploma 4/Bachelor's degree	32	25%
Master's degree	3	2.4%
Doctoral degree	0	0%
Total	128	100%

Table 3 shows that the distribution of education level among the subjects are 4 for these who do not possess elementary school education (3.2%), 18 for elementary school (18%), 21 for junior high school (16.4%), 38 for senior high school (29.6%), 12 for diploma 3 (9.4%), 32 for diploma 4/bachelor's degree (25%). 3 for master's degree (2.4%), and 0 for doctoral degree (0%). Majority of the samples have senior high school education level.

Table 4. Subject grouping based on occupation

Occupation	Frequence	Percentage
Student	29	22.6%
Entrepreneur	16	12.5%
Merchant	27	21%
Farmer	48	37.5%
Unemployed	8	6.4%
Total	82	100%

Table 4 shows that subjects whose occupation is student, entrepreneur, merchant, farmer, and unemployed consist of 29 people (22.6%), 16 people (12.5%), 27 people (21%), 48 people (37.5%), and 8 people (6.4%) respectively. The majority is farmer.

C. Results And Discussion

1. Theoretical Model

Based on the hypothesis constructed in this research, the model of this research is analysed by SEM analysis.

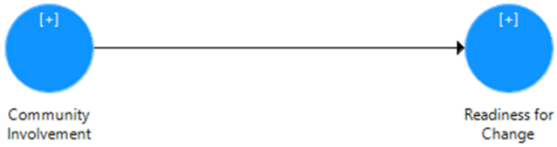

Figure 1. Theorical Model

2. SEM Model

The theoretical model explained in Section 3.1 is detailed by an SEM diagram model that facilitates connection interpretation between community involvement and readiness for change. The connections are represented by arrows, and the arrows indicate a direct cause-effect relationship between variables.

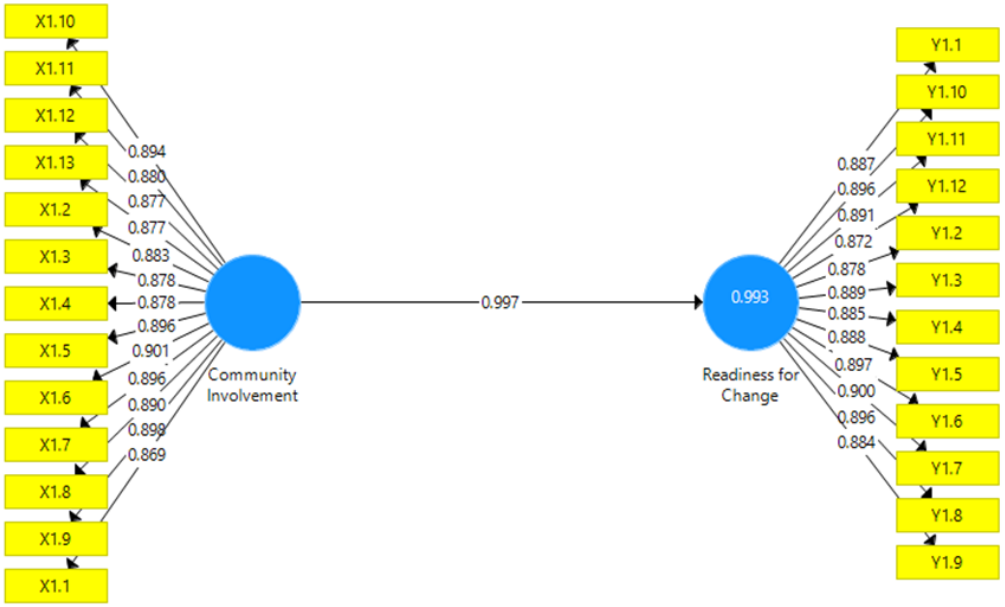

Figure 2. Model of cause-effect relationship between variables

3. Outer Model Test

This model is used to determine the reliability of a measurement. There are three types of correlations between variables and their indicators: convergent validity, reliability, and discriminant validity. The index used to determine the validity is called loading factor. The loading factor more than or equal to 0.7 is considered valid. However, in the case of model development, loading factor on the interval 0.5 – 0.6 is still tolerable [11]. Based on Table 5, we conclude that the model is valid because all the loading factors are more than 0.7.

4. Reliablity Test

This test is used to determine the stability and constancy of measurement results such that it can be considered reliable. It is indicated by subjects' consistency of answering a question, resulted by several tests. This test uses internal consistency through composite reliability and Cronbach's alpha coefficient.

According to [12], the value of Cronbach's alpha and composite reliability must be more than 0.70 for confirmatory research; the value between 0.60 and 0.70 can be still considered valid for exploratory research. Here is the result.

Table 6. Result of reliability test

Variable	Cronbach's Alpha	Composite Reliability	Reliability Boundary	Result
Community Involvement (X)	0.977	0.979	0.70	Reliable
Readiness for Change (Y)	0.976	0.978	0.70	Reliable

Table 5. Result of convergent validity test

Variable	Item	Outer Loading Value	Outer Loading Boundary	Result
Community Involvement (X)	Item 1	0,869	0,7	Valid
	Item 2	0,877	0,7	Valid
	Item 3	0,883	0,7	Valid
	Item 4	0,878	0,7	Valid
	Item 5	0,878	0,7	Valid
	Item 6	0,896	0,7	Valid
	Item 7	0,901	0,7	Valid
	Item 8	0,896	0,7	Valid
	Item 9	0,890	0,7	Valid
	Item 10	0,898	0,7	Valid
	Item 11	0,894	0,7	Valid
	Item 12	0,880	0,7	Valid
	Item 13	0,877	0,7	Valid
Readiness for Change (Y)	Item 1	0,887	0,7	Valid
	Item 2	0,878	0,7	Valid
	Item 3	0,889	0,7	Valid
	Item 4	0,885	0,7	Valid
	Item 5	0,888	0,7	Valid
	Item 6	0,897	0,7	Valid
	Item 7	0,900	0,7	Valid
	Item 8	0,896	0,7	Valid
	Item 9	0,884	0,7	Valid
	Item 10	0,896	0,7	Valid
	Item 11	0,891	0,7	Valid
	Item 12	0,872	0,7	Valid

5. Reliablity Test

Table 6. Result of reliability test

Variable	Cronbach's Alpha	Composite Reliability	Reliability Boundary	Result
Community Involvement (X)	0.977	0.979	0.70	Reliable
Readiness for Change (Y)	0.976	0.978	0.70	Reliable

This test is used to determine the stability and constancy of measurement results such that it can be considered reliable. It is indicated by subjects' consistency of answering a question, resulted by several tests. This test uses internal consistency through composite reliability and Cronbach's alpha coefficient.

According to [12], the value of Cronbach's alpha and composite reliability must be more than 0.70 for confirmatory research; the value between 0.60 and 0.70 can be still considered valid for exploratory research. Here is the result.

Based on Table 6, the Cronbach's alpha and composite reliability values are more than 0.70, showing high consistency and stability. Therefore, the variables used in this research are considered valid.

6. Average Variance Extracted (AVE) Test

This test demonstrates the diversity of manifest variables possessed by latent variables. The boundary of AVE value is 0.5, meaning that the value above 0.5 is considered reliable [11]. Here is the result.

Table 7. Result of AVE test

Variable	AVE Value	AVE Value Boundary	Result
Community Involvement (X)	0.785	0.5	Reliable
Readiness for Change (Y)	0.790	0.5	Reliable

The AVE values are more than 0.5. The results show high instrument consistency and stability. It concludes that all the variables are valid measurement tools.

7. Structural Model Analysis

Structural model or inner model analysis is used for predicting the correlation between latent variables. The structural model is evaluated by variance percentage for evaluating R-square value of latent endogen variables and AVE for evaluating predictiveness. This procedure uses jackknifing and bootstrapping to obtain stability of estimation. Here is the result.

Table 8. R-square (R^2)

Variable	R-square	Adjusted R-square
Readiness for Change	0.993	0.993

Based on Table 8, we conclude that the correlation between community involvement and readiness for change is 0.993. This value indicates that 99.3% of readiness for change variables are explainable by community involvement variables, and the rest is by other variables.

8. F-square

Here is the result.

Table 9. F-square

Variable	Community Involvement	Readiness for Change
Community Involvement		149.683
Readiness for Change		

Based on Table 9, community involvement F-square towards readiness for change is 149.683, strongly correlated.

9. Fit Model Test

The test is obtained by examining Standardised Root Mean Square Residual (SRMR). SRMR is the average of covariance residuals based on transformation of sample covariance matrices and correlation-estimating covariance matrices. If the value is less than 0.10, the SRMR is valid [13].

The SRMR shown in Table 10 is 0.049, less than 0.10. Therefore, the model satisfies the goodness of fit model criteria.

Table 10. Result of model fit test

	Saturated Model	Estimated Model
SRMR	0.049	0.049
d_ULS	0.784	0.784
d_G	1.447	1.447
Chi-Square	2716.652	2716.652
NFI	0.846	0.846

10. Hypothesis Testing

Bootstrapping is here used to investigate the correlation between variables. Bootstrap approximation represents non-parametric precision of estimations. In the PLS method, decision of accepting or rejecting a hypothesis is based on significance value (p-value) and T-table value. The significance value is obtained by evaluating parametric coefficients and t-statistic significance value. A hypothesis is accepted if t-value < 1.96 and p-value <0.05 with significance level of 5% and is rejected if t-value > 1.96 or p-value > 0.05. Here are the hypotheses of this research.

a. H_o: P1 = 0: There is not any positive nor significant corelation between community involvement and readiness for change among residents of Bantarsari village.
b. H_1: P1 > 0: There is a positive and significant corelation between community involvement and readiness for change among residents of Bantarsari village.

Table 11: Path coefficient

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Conclusion
H_1: Community Involvement → Readiness for Change	0,997	0,997	0,001	1479,095	0,000	accepted

According to Table 11, we conclude that community involvement is strongly correlated with readiness for change with O = 0.997 where its t-statistics is 1479.095 > 1.96 and its p-value is 0.00 < 0.05. Therefore, the hypothesis H_1 stating that There is a positive and significant corelation between community involvement and readiness for change among residents of Bantarsari village is accepted.

D. Conclusion

The community involvement among residents of Bantarsari village towards sustainable life is strongly correlated to their readiness for change. The result shows that 99.3% of readiness for change of the people are influenced by their communal involvement in sustainable life. Therefore, this community involvement plays a significant role in developing people's readiness for climate change and help them survive this challenging era.

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F. References

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