

## DETERMINANTS OF POVERTY RATE IN THE BARLINGMASCAKEB AREA USING THE SUSTAINIBILITY LIVELIHOOD APPROACH (SLA)

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### ABSTRACT

The high poverty rate in the Barlingmascakeb area is higher than the poverty rate in Central Java Province, so it is necessary to conduct research to analyze the effect of education rate, expenditure per capita, road length, and land area on poverty in the Barlingmascakeb area using the Sustainability Livelihood Approaches (SLA). The data used is from 2017 to 2022. The analytical tool used is the multiple linear regression method of pooling time series data models. The results showed that the variables of education rate, expenditure per capita, road length, and land area simultaneously had a significant effect on the poverty rate variable in the Barlingmascakeb area. While partially the variable education rate has a positive and significant effect on poverty in the Barlingmascakeb area, the expenditure per capita variable has a negative and significant effect on poverty in the Barlingmascakeb area, the road length variable has a negative and significant effect on poverty in the Barlingmascakeb area, and the land area variable has a positive and significant effect on poverty in the Barlingmascakeb area. So efforts are needed from the government in reviewing the curriculum according to user needs, as well as the need for information dissemination so that the needs of labor graduates are able to find appropriate job opportunities, provide jobs, improve access to better roads, the need for agricultural counseling for farmers, as well as various policies and programs of assistance to poor farmers.

**Keywords:** sustainability livelihood approach; poverty; education rate; expenditure per capita; road length

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### 1. Introduction

Poverty is an important issue for developing countries, as well as for Indonesia. So every poverty alleviation program must be understood and interrelated with other activity programs. The problem of poverty is a problem in all countries in the world so the United Nations (UN) issued the Sustainability Development Goals (SDGs) program as a world development agenda for peace and human prosperity in the world today and in the future. The SDGs state that no poverty is the priority point. This means that the world agrees to eliminate poverty in any form in all corners of the world. Poverty in Indonesia has decreased as seen from the percentage of poverty in Indonesia in 2022 of 9.57% lower than in 2021 of 9.71%. Meanwhile, in Central Java Province, the percentage of poverty in 2022 is 10.98%, which has decreased compared to 2021, which was 11.25%. More details regarding the percentage of poor people by province and region in Indonesia in 2017-2022 are presented in Table 1.

**Table 1.** Percentage of Poor People by Province and Region in Indonesia 2017-2022 (percent)

Percentage of Poor People (percent)						
Province	2017	2018	2019	2020	2021	2022
Indonesian	10,12	9,66	9,22	10,19	9,71	9,57
Papua	27,76	27,43	26,55	26,80	27,38	26,80
West Papua	23,12	22,66	21,51	21,70	21,82	21,43
East Nusa Tenggara	21,38	21,03	20,62	21,21	20,44	20,23
Maluku	18,29	17,85	17,65	17,99	16,30	16,23
Gorontalo	17,14	15,83	15,31	15,59	15,41	15,51
Aceh	15,92	15,68	15,01	15,43	15,53	14,75
Bengkulu	15,59	15,41	14,91	15,30	14,43	14,34
West Nusa Tenggara	15,05	14,63	13,88	14,23	13,83	13,82
Central Sulawesi	14,22	13,69	13,18	13,06	12,18	12,30
South Sumatera	13,10	12,82	12,56	12,98	12,79	11,95
West Sulawesi	11,18	11,22	10,95	11,50	11,85	11,92
Special Region of Yogyakarta	12,36	11,81	11,44	12,80	11,91	11,49
Lampung	13,04	13,01	12,30	12,76	11,67	11,44
Southeast Sulawesi	11,97	11,32	11,04	11,69	11,74	11,27
Central Java	12,23	11,19	10,58	11,84	11,25	10,98
East Java	11,20	10,58	10,20	11,46	10,59	10,49

Source: Central Java Province BPS

Based on Table 1, even though the proportion of poverty in Central Java Province has decreased, the average poverty rate in 2017-2022 is always higher than the poverty rate. So that Central Java Province is one of the provinces with a fairly high poverty rate being ranked 14th in the province with the highest proportion of poor people. In Table 1 for Central Java Province it can be seen that there is a decrease in the proportion of poverty percentage in 2022. However, for poverty in the Barlingmascakeb region (Banjarnegara, Purbalingga, Banyumas, Cilacap, and Kebumen Regencies) according to Table 2, it is still higher than the proportion of provincial missionaries. The percentage of poor people in Central Java Province and 5 districts can be seen more fully in Table 2.

**Table 2.** Percentage of Poor People in Central Java and Barlingmascakeb Region 2017-2022 (percent)

Regency/City	Percentage of Poor People (percent)					
	2017	2018	2019	2020	2021	2022
Central Java Province	13,01	11,32	10,80	11,41	11,79	10,93
Cilacap Regency	13,94	11,25	10,73	11,46	11,67	11,02
Banyumas Regency	17,05	13,50	12,53	13,26	13,66	12,84
Purbalingga Regency	18,80	15,62	15,03	15,90	16,24	15,30
Banjarnegara Regency	17,21	15,46	14,76	15,64	16,23	15,20
Kebumen Regency	19,60	17,47	16,82	17,59	17,83	16,41

Source: Central Java Province BPS

Regional development is an effort to reduce poverty. Regional economic development is a way in which the community and local regional government manage existing resources, then form a

pattern of a partnership between the local government and the private sector to create new job opportunities to be able to increase the development of economic activities in the region (Arsyad, 1999). Regional development should be adapted to the potential conditions of the region. To be able to optimize development and continue their livelihood so that the people are more prosperous and avoid poverty, the regions are required to carry out various activities to utilize the livelihood assets they have. The SLA approach can be used to see the condition of livelihood assets and their accessibility in dealing with internal stress and shock (external). Where the livelihood assets according to the Department for International Development (DFID, 1999) are Human Capital, Financial Capital, Physical Capital, Natural Capital, and Social Capital. These livelihood assets will later be applied to describe the abilities, possessions, and activities of a person or community in living their lives. Saragih (2007) states, livelihoods can be sustainable if existing livelihoods enable people or communities to deal with and recover from pressures and shocks, enable people or communities to manage and strengthen capabilities and ownership of resources for their welfare and that of society in the future, besides that, it does not reduce the quality of existing natural resources.

The Barlingmascakeb area with abundant resources can be found in this area. Barlingmascakeb stands for Banjarnegara, Purbalingga, Banyumas, Cilacap, and Kebumen which are one of the metropolitan areas in Central Java Province. The Barlingmascakeb area is a priority for economic development in western to southern Central Java. Various poverty alleviation efforts are one of the most important goals in development carried out in the region. Poverty alleviation can be done by exploiting the potential that exists in society (Fedryansyah & Resnawaty, 2017).

One of the building blocks of the SLA approach is human capital, to determine the condition of human capital in terms of educational level. This is based on previous research by Aristina et al. (2017) poverty rate is closely related to education. This is because education is closely related to the economy. The higher a person's education level, the more knowledge, and skills possessed will also increase to be able to encourage an increase in one's productivity. This is in line with research from Adinugraha (2016) and Hasanah et al. (2021) the higher the education, the more it can support their welfare. The SLA approach for financial capital used is expenditure per capita. This is based on previous research from Hasanah et al. (2021) and Rohmah & Prakoso (2022) expenditure per capita affects poverty. Because the higher the spending, the higher the level of purchasing power of the people, which indicates that the welfare of the community is getting better. The next livelihood asset is physical capital which is explained by road infrastructure in this case using the long road approach. Panjaitan et al. (2019) stated that infrastructure also contributes to improving the welfare of each individual. Economic activity will grow along the way thereby creating economic opportunities for anyone (Prasetyo and Firdaus, 2009). In addition, to determine the condition of natural capital using the area of paddy rice production in using this SLA approach. Surung and Dahlan (2012) in their research stated that the cause of poverty for farmers was the land factor. So sufficient land ownership is the key to family welfare. Extensive land will produce more economic value so that household needs can be met.

In this study, the capital assets used only focus on the types of human capital, financial capital, physical capital, and natural capital. For social capital assets, it is not included, because most of the previous studies using the SLA approach used primary data, for social assets primary data used a network approach (organizations, formal groups, etc.). Based on several reviews of the

existing literature, there are at least indicators of social capital that are by needs, when compared to other capital. This was explained in the research by Williges et al. (2017) where in his research only used human capital, financial capital, physical capital, and natural capital. Based on this background, research on the effect of education level, per capita expenditure, road length, and land area on poverty needs to be carried out so that poverty in the Barlingmascakeb area can be reduced.

## **2. Literature Review**

### *2.1 Regional Development*

According to (Todaro and Smith, 2006) the development of a country is measured by the level of social welfare in achieving a better life for the long term in a consistent and sustainable. Development performance is assessed by increased production and equitable distribution of basic needs such as clothing, food, housing and health, reduced poverty, and increased quality of life. National development that focuses on regional development is an important approach to achieving sustainable growth and progress in a country. Regional development includes efforts to develop economic, social, and infrastructure potential in different areas so that they can contribute significantly to national economic growth.

#### *2.1.2 Poverty*

The Sustainable Development Goals (SDGs) are a series of development goals set by the United Nations (UN) in the 2030 Agenda for Sustainable Development. One of the main goals of the SDGs is no poverty (poverty alleviation). This is reflected in the first point of SDGs, which aims to eradicate extreme poverty and ensure everyone's access to basic needs such as food, clean water, adequate housing, education, and health services (Ishartono and Raharjo, 2015). Poverty is a population that lives in a state of malnutrition and poor health, has a low of education rate, lives in areas that have a bad environment, and earns a low income (Todaro and Smith, 2011:250)

#### *2.1.3 Sustainability Livelihood*

Sustainability Livelihood Approach (SLA) is the efforts made by a person or family in achieving their life expectancy. The livelihood assets according to DFID (1999) are human capital, financial capital, physical capital, natural capital, and social capital, which will be used to describe the abilities, ownership, and activities of a person and society in living their lives.

##### *2.1.3.1 Education Rate*

Lestari in Wirawan (2016: 3) states that the level of education is an individual activity in developing attitudes, abilities, and forms of behavior, both for life in the future through certain or unorganized organizations. According to Suputra and Dewi (2015), good education will have an impact on adding insight and perspectives and capabilities in the development process.

### 2.1.3.2 Expenditure per Capita

The average expenditure per capita is the cost incurred by all household members for consumption within a month, both originating from purchases and producing independently, then divided by the number of household members in the household (BPS, 2023). Income is the main factor influencing per capita expenditure (Permana et al., 2016). When income increases, spending on consumption also increases. The relationship between the two can be written in the following mathematical function:

$$C = a + bY \quad (1)$$

Where 'C' is the amount of household consumption expenditure, 'a' is the amount of consumption if there is no income, 'b' is the household's marginal desire to consume, and 'Y' is income ready for consumption.

### 2.1.3.3 Road Length

Tambunan (2005) states that the economic benefits of having road infrastructure are very high if the existing infrastructure is built to serve the needs of the growing community and business world, so that it can grow economic activity along the road and will create economic opportunities for anyone (Prasetyo and Firdaus, 2009).

### 2.1.3.4 Land Area

According to Mubyarto, the land area is the entire area where the planting and planting process is carried out, the land area will guarantee the amount and yield that will be obtained by farmers. Increased land area ownership will affect the income of farmers. Conversely, when the land area used is narrow, it will reduce farmers' income because the rice they get is small. Increased income will increase the welfare of farmers so that it can reduce poverty (Priseptian and Primandhana, 2022)

## 3. Research Methodology

The data analysis technique in this study used multiple linear regression analysis. Data processing using e-views application tools. The data used is secondary data from 2017-2022. Panel data regression analysis is used to analyze the effect of the independent variables (education rate, expenditure per capita, road length, and land area) on the independent variable (poverty rate). The linear regression model equation is as follows:

$$TK = \alpha + \beta_1 TP_{it} + \beta_2 PK_{it} + \beta_3 PJ_{it} + \beta_4 LL_{it} + u_{it} \quad (2)$$

Furthermore, the above model can be expressed in the form of a linear log through the transformation of the variable. The following is a linear log equation model:

$$TK = \alpha + \beta_1 \ln TP_{it} + \beta_2 \ln PK_{it} + \beta_3 \ln PJ_{it} + \beta_4 \ln LL_{it} + u_{it} \quad (3)$$

where:

TK	= Poverty Rate (Percent)
TP	= Education Rate (Year)
PK	= Expenditure per Capita (thousand rupiahs)
PJ	= Road Length (Km)
LL	= Land Area (Ha)
ln	= Natural Logarithm (Percent)
$\alpha$	= Constant
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$	= Elasticity Parameters
$u_{it}$	= Error Term

There are three tests in mentioning estimation techniques for panel data (Dimas, 2016), namely:

### *3.1 Chow test*

If the value of  $f \leq 0.05$  then  $H_0$  is rejected and  $H_1$  is accepted, meaning that the best model is the Fixed Effect, whereas if the value of  $f > 0.05$  then  $H_0$  is accepted and  $H_1$  is rejected, it means that the best model is the Common Effect.

### *3.2 Hausman test*

If the significance value is  $> 0.05$  then  $H_0$  is accepted and  $H_1$  is rejected. The best art model is Random Effect. If the significance value  $\leq 0.05$  then  $H_0$  is rejected and  $H_1$  is accepted, meaning that the best model is the Fixed Effect.

### *3.3 Lagrange Multiplier Test (LM)*

If the Breush-Pagan Probability (BP) value is  $\leq 0.05$  then  $H_0$  is rejected and  $H_1$  is accepted. If the Breush-Pagan Probability (BP) value is  $> 0.05$  then  $H_0$  is accepted and  $H_1$  is rejected. Where  $H_0$  Common Effect and  $H_1$  is Random Effect.

Next, a classic assumption test is carried out which includes:

### *3.1 Normality Test*

In this test uses the Jarque-Berra test (JB test) with a significance of 5% (0.05). If the significance value is  $\geq 0.05$  then the data is normally distributed, whereas if the significance value is  $< 0.05$  then the data is not normally distributed.

### *3.2 Multicollinearity Test*

To find out whether the model has multicollinearity or not, it can be done by looking for the correlation coefficient value of each independent variable. If the correlation coefficient value of each independent variable is  $< 0.8$ , then multicollinearity does not occur.

The analytical tool used to find the effect of the independent variables on the dependent variable uses statistical tests.

### 3.1 R-Squared Test ( $R^2$ )

Where the value is in the range of 0 to 1 ( $0 \leq R^2 \leq 1$ ). If  $R^2$  is close to 1, then the calculation results show that the variation of the dependent variable as a whole can be explained by the independent variables. Meanwhile, if the value of  $R^2$  is close to 0, the calculation results show that the variation of the dependent variable as a whole cannot be explained by the independent variables.

### 3.2 t Test

This study conducted a t-test with alpha ( $\alpha$ ) = 0.05. In the t-test, if the t-count  $\leq 0.05$ ,  $H_0$  is rejected and  $H_1$  is accepted, meaning that there is a significant influence between the dependent variable and the independent variable. If t-count  $> 0.05$   $H_0$  is accepted and  $H_1$  is rejected, it means that there is no significant effect between the dependent variable and the independent variable.

### 3.3 f Test

If f-count  $>$  f-table or f significance  $< 0.05$  then  $H_0$  is rejected and  $H_1$  is accepted, meaning that there is a simultaneous influence between the independent variables and the dependent variable. If f-count  $\leq$  f-table or f significance  $> 0.05$  then  $H_0$  is accepted and  $H_1$  is rejected, meaning that there is no simultaneous influence between the independent variables and the dependent variable.

## 4. Results

To determine the best model it is necessary to do:

### 4.1 Chow test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	17.490773	(4,21)	0.0000
Cross-section Chi-square	43.977942	4	0.0000

Testing using the Chow test shows prob. Cross-section Chi-square p-value obtained = 0.00 where the value is less than 0.05. This means that  $H_0$  is rejected or the Fixed Effect model is better than the Common Effect model. So that it will proceed to the Hausman Test.

### 4.2 Hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	69.963091	4	0.0000

Testing using the Hausman Test shows prob. Cross-section Random p-value obtained = 0.0000 where the value is less than 0.05. This means that  $H_0$  is rejected or the Fixed Effect model is better than the Random Effect model. Because the Chow test and Hausman test have been carried out and both produce the best model, namely the Fixed Effect, the LM test does not need to be carried out because the best model has been obtained.

Next, a classic assumption test is carried out which includes:

#### 4.1 Normality Test

Jarque-Bera	Probability
0.219327	0.896136

The statistical value of the Jarque Bera test is 0.219327 with a p-value of 0.896136 where the value is greater than 0.05. So that the assumption of normality is met.

#### 4.2 Multicollinearity Test

	LNTP	LNPJ	LNPJ	LNLL
LNTP	1	-0.311659	0.188769	0.435128
LNPJ	-0.311659	1	0.313186	-0.158766
LNPJ	0.188769	0.313186	1	0.379778
LNLL	0.435128	-0.158766	0.379778	1

From the output of the correlation matrix above, none of the variables correlates  $> 0.8$  so it can be concluded that there is no multicollinearity problem.

Furthermore, to find the effect of the independent variables on the dependent variable using statistical tests.

R-squared	Adjusted R-squared
0.975672	0.966404

The magnitude of the coefficient of determination,  $R^2$  is 0.975672 This means that the variable poverty rate in the Barlingmascakeb area can be explained by the variable education rate, expenditure per capita, road length, and land area of 97.56%, while changes in the variable poverty rate of 2.44% are influenced by variables other than the variables of education rate, expenditure per capita, road length, and land area.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	198.2185	46.01207	4.307967	0.0003
LNTP	16.35818	5.671467	2.884295	0.0089
LNPJ	-25.55286	5.111615	-4.998981	0.0001
LNPJ	-2.288265	0.690964	-3.311697	0.0033
LNLL	3.621417	1.044758	3.466274	0.0023

In the regression output results obtained, there are four variables, namely the education rate, expenditure per capita, road length, and land area which have a significant effect on the poverty rate variable where the probability t count of these four variables is  $<0.05$  (smaller than  $\alpha = 5\%$ ).

F-statistic	Prob(F-statistic)
105.2741	0.000000

Then, the f-statistic value obtained is 105.2741 with a prob (f-statistic) of 0.0000 which is smaller than 0.05. So it can be concluded that the variables of education rate, expenditure per capita, road length, and land area together have a significant effect on the poverty rate variable in the Barlingmascakeb area.

## 5. Discussion

Mathematically the results of multiple linear regression analysis can be written in the estimated equation as follows:

$$TK = 198.2185 + 16.35818 \ln TP_{it} - 25.55286 \ln PK_{it} - 2.288265 \ln PJ_{it} + 3.621417 \ln LL_{it} + u_{it} \quad (4)$$

### 5.1 The Effect of Education Rate on Poverty Rate

The results of multiple linear regression analysis with the panel data model show that the education rate variable which in this case is explained by the average length of schooling shows a coefficient value of 16.35818 with a probability value of 0.0089 or less than  $\alpha = 5\%$  ( $0.0089 < 0.05$ ), then  $H_0$  is accepted and  $H_1$  is rejected which indicates that the variable education rate has a positive and significant effect on the poverty rate in the Barlingmascakeb area. The majority of the population, most of whom only graduated from SD/MI, make them only work in the agricultural sector. Low education makes them lack the ability and special skills to compete in finding better jobs. In addition, the higher the education of the community, the higher the poverty because the education possessed by this community is not by the qualification requirements for available job opportunities so it is not absorbed in the work industry and causes a lot of unemployment. This condition results in low productivity and low income so it can have an impact on increasing poverty. The results of this study are in line with Agustina et al. (2018) and Surbakti et al. (2023) which state that the education rate has a positive effect on the poverty rate.

### 5.2 The Effect of Expenditures per Capita on Poverty Rate

The results of multiple linear regression analysis with the panel data model for the expenditure per capita variable show a coefficient value of  $-25.55286$  with a probability value of 0.0001 or less than  $\alpha = 5\%$  ( $0.0001 < 0.05$ ), then  $H_0$  is rejected and  $H_2$  is accepted which indicates that the expenditure per capita variable has a negative and significant effect on the poverty rate in the Barlingmascakeb area. Expenditure per capita is the cost incurred to meet basic needs. When the community's needs are greater, the demand for goods and services will also increase. This will encourage increased supply to increase job opportunities. Increased employment opportunities cause income to also increase, when income increases, spending per capita will also increase to meet these basic needs. So that increased income and social welfare can reduce poverty. The

results of this study support the research of Hasanah et al. (2021) and Rohmah & Prakoso (2022) which show that expenditure per capita has a negative and significant effect on the poverty rate.

### *5.3 The Effect of Road Length on Poverty Rate*

The results of multiple linear regression analysis with the panel data model for the road length variable show a coefficient value of  $-2.288265$  with a probability value of  $0.0033$  or less than  $\alpha = 5\%$  ( $0.0033 < 0.05$ ), then  $H_0$  is rejected and  $H_3$  accepted which indicates that the road length variable has a negative and significant effect on the poverty rate in the Barlingmascakeb area. The existence of road infrastructure can facilitate the mobilization of goods and services, so economic activity will grow along the road and be able to create employment opportunities and economic opportunities for anyone. This is based on the construction of infrastructure in the form of roads which will affect the mobility of goods and services, speed up the process of production and distribution of goods and services as well as agricultural products, so that it will increase people's income and welfare thereby reducing poverty. The existence of infrastructure will also accelerate the distribution of development which is adjusted to the needs of each region, this can encourage new investment, open up job opportunities, as well as equal distribution of income and social welfare to reduce poverty. The results of this study support the research of Purnomo et al. (2021) which shows that road length has a negative and significant effect on the poverty rate.

### *5.4 The Effect of Land Area on Poverty Rate*

The results of multiple linear regression analysis with the panel data model for the variable land area show a coefficient value of  $3.621417$  with a probability value of  $0.0023$  or less than  $\alpha = 5\%$  ( $0.0023 < 0.05$ ), then  $H_0$  is accepted and  $H_4$  is rejected which indicates that the variable land area has a positive and significant effect on the poverty rate in the Barlingmascakeb area. If the area of land owned cannot be used optimally due to limited quality of human resources, where the majority of farmers only have an elementary school education, the productivity of the land they own is also relatively low, when productivity is low, income is also low so that it has an impact on increasing poverty. In addition, the weather factor also determines the decline in land productivity. The long dry season results in drought, so that agricultural land does not get enough water supply for irrigation causing its productivity to decrease. Rainfall with high intensity can be accompanied by wind causing floods and many rice plants that collapse, thereby reducing land productivity. Farmers whose main activities are farming depend on the land they cultivate, so decreased land productivity will affect their production which can reduce income and food instability and will have an impact on increasing poverty. The results of this study support the research of Bintariningtyas and Juwita (2021) which shows that land area has a positive and significant effect on the poverty rate.

## **6. Conclusion**

Based on the results of the research and discussion regarding the determinants of poverty in the Barlingmascakeb area, it can be concluded that the education rate has a positive and significant effect on poverty in the Barlingmascakeb area. This means that when the education rate increases, the poverty rate in the Barlingmascakeb area will also increase. This shows that human

capital from the aspect of education rate has not been fully able to overcome poverty in the Barlingmascakeb area. Expenditure per capita has a negative and significant effect on poverty in the Barlingmascakeb area. This means that when expenditure per capita increases, the poverty rate in the Barlingmascakeb area will decrease. This shows that financial capital from the aspect of expenditure per capita has been able to overcome poverty in the Barlingmascakeb area because when income increases, the need for expenditure will also increase so welfare will be guaranteed and will reduce poverty. Road length has a negative and significant effect on poverty in the Barlingmascakeb area. This means that when there is an increase in the expansion of the length of roads, both national roads, provincial roads, and regency/city roads, it will reduce poverty. This shows that physical capital from the aspect of road length has been able to overcome poverty in the Barlingmascakeb area. The land area has a positive and significant effect on poverty in the Barlingmascakeb area. This means that when there is an increase in land expansion, it will increase poverty. This shows that natural capital from the aspect of land area has not been fully able to overcome poverty in the Barlingmascakeb area. The existence of climate change and the average population who only graduated from elementary school makes land productivity low so people's incomes and food stability are also low, this has an impact on increasing poverty. Therefore, efforts are needed from the government in reviewing the curriculum according to user needs, as well as the need dissemination of information so that the needs of labor graduates can find suitable job opportunities, provide jobs, improve access to better roads, the need for agricultural counseling for farmers, as well as various policies and programs of assistance to poor farmers.

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