Poverty alleviation model in communities peatland areas of Jambi Province

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Abstract. This research was aimed to analyze the poverty alleviation model in communities peatland areas of Jambi Province. The research design was a cross-sectional and conducted in two selected districts in Jambi Province, namely: Tanjung Jabung Timur and Tanjung Jabung Barat Districts. This research was conducted from July to December 2018. Data collection was carried out by writing a structured questionnaire consisting of family characteristics, family income, social capital, and household resource management. The number of respondents was 180 households, which was taken by simple random sampling. The data collected will be tested with a descriptive approach and SEM with the Linear Structural Relationship (LISREL) program. The results showed that the income of the community in the peatland area of Jambi Province was Rp. 4,781,000,000, or income sufficiently. The results of the analysis show that social capital and family resource management have a positive and significant effect on food security and poverty alleviation. Therefore, the poverty alleviation model in peatland areas is by utilizing social capital resources and managing family resources.

1. Introduction
Economic growth in Jambi Province has increased significantly in recent years. In 2004, the economic growth was 5.38%, but 11 years later the growth increased expressively, reaching 7.35%. This economic growth is slightly higher than the national growth (6.36%) [1]. However, this increased economic growth was also accompanied by an increase in population. In 2010, the population increased by 2.56%, which is much higher than the population increase in the previous ten years, which was only 1.89% per year. The theory states that any rise in population welfare is inversely proportional to the increase in the number of children wanted [2].

During the last ten years, the high population growth rate in Jambi Province harmed development, such as poverty. Poverty is a complex problem. This is due to the limited fulfilment of fundamental human rights individually and in groups. This includes the completion of food, health, education, employment, housing, clean water, land, natural resources and the environment, a sense of security from treatment or threats of violence, and the right to participate in social and political life. Statistical data shows, in 2010, the number of poor people in Jambi Province was 259,750 people or around 8.4%, and in 2016 this number increased to 286,113 or about 8.41%. This means that there is an inverse relationship between the success of economic development and poverty. Based on districts/cities, the highest percentage of poor people in Jambi Province was in Tanjung Jabung Barat and Batanghari Districts with scores of 11.81% and 10.79%, respectively. Meanwhile, the smallest percentage of poor people (3.13%) is owned by Sungai Penuh City [3].
Based on these conditions, future development plans must be carried out thoroughly and holistically. The development concept to be implemented must be oriented towards the poor. Every region (province or districts/city) is obliged to prepare a development plan aimed at realizing a prosperous society and having independent household food security. This concept is in line with the development goals established in Government Regulation (Presidential decree) No. 7/2005 concerning the Medium-Term Development Plan, including the fulfillment of quality food in sufficient, safe, and affordable quantities from time to time (sustainable) for the community lacking.

To achieve this target, several development plans that can be carried out are technology development and farmer resource development and farmer institutions. This can be done by increasing production and productivity. According to some researchers, farmer institutions (social capital) play an essential role in the progress and acceleration of development in rural communities, including in the development of technology and human resources. Haddad’s research [2] shows that substantial individual household social capital (social network) can play a role in gaining various forms of access in society. Each family member who actively participates in the activities of the local association, especially the production sector association, can increase the family income by 6.2 % per capita per year [4]. Based on the description above, the objectives of this research are (1) to determine the patterns of land use for communities in peatland areas, (2) to find out the level of income and poverty of the people in peatland areas, and (3) to analyze poverty alleviation models in peatland areas.

2. Research method
The research design was cross-sectional. The research was conducted in two districts in Jambi Province, namely: Tanjung Jabung Barat and Tanjung Jabung Timur Districts. The study was conducted for six months. The variables in this research are (1) characteristics of poverty (satisfaction in fulfilling food and non-food needs and fulfillment of investment needs), (2) social capital (trust, norms, networks, and cooperation), (3) family resource management (time management, family members, and financial management), and (4) family food security (food availability, accessibility, and utilization or consumption of food). The research data were obtained from primary data and secondary data. Primary data were obtained by making observations, direct interviews, in-depth interviews, and Focus Group Discussion (FGD). Secondary data were obtained from reports and journals related to research. The number of respondents taken was 180 families in Betara and Rantau Rasau villages using a purposive sampling method. Data were analyzed by using a descriptive and Structural Equation Modeling (SEM) model and processed by the Linear Structural Relationship (LISREL) Program.

3. Results and discussion
3.1. Social capital and family resource management
Social capital is a strategic investment both individually and in groups. This relationship can be done through family/kinship connections (bonding), relationships in the community (bridging), and work/formal relations (linking). The continuity of this relationship is determined by five aspects of social capital, namely trust, reciprocity, social networks, norms, and elements of commitment [7].

According to Coleman [8], social capital is a resource that can contribute to the well-being of individuals and society as well as other resources (natural, economic, and human resources). Coleman defines social structure as various forms of actions and rules that can be used by individuals and society, namely obligation and expectations, information, and norms that can hinder and encourage human behaviour. Coleman sees that social structures have high trust. Therefore, he believes that people do something for mutual benefit because, in human life which has a social network, there must be the same expectations and obligations among individuals. Coleman applied the concept of social capital to emphasize the form of norms and sanctions, especially in family life and the wider community.

In macro terms, social capital can be in the form of relationships/networks, beliefs, and norms that can be used by society [8]. According to Putnam, the social capital concept focuses on the behavioural systems of economic and political development at the regional and state (national) levels. Social
capital, in other words, is closely related to the norm system prevailing in the economic and political fields.

Hamilton et al. [9] stated that social norms (social trust) provide a significant contribution to the formation of wealth and health. The results of the analysis show that the wealth owned by the community, which comes from social norms is 12-28%. This reinforces the policy that improving people's welfare will require investment in social capital. To fulfill these needs, the community is expected to be able to utilize and explore potential social resources (social capital) that are developing in the community [6].

Social capital is a form of social and economic network in society that occurs between individuals and groups, both formal and informal. Operationally, social capital can be actualized through two interrelated size, namely the structural size and the character size [4]. The structural size is measured through groups or organizations (local associations), while the character size are calculated through the level of trust, solidarity, and morale of individuals or groups.

The data show that the potential for social capital owned by community groups in the study area is relatively low. This is because more than 52.8% of farmers stated that they disagree and strongly disagree with the roles and benefits of social capital that they have and follow. This shows that the social capital owned by farmers is not very helpful in transforming various technology packages towards smooth development in areas surrounding peatlands. If grouped by region, the community group that has a lot of disagreement about the benefits and functions of social capital is in Betara Regency, which comes 57%, while in Rantau Rasau Regency it comes 50%.

Another social group that plays a role in managing food security and poverty alleviation is the management of family resources. According to Guhardja et al. [4], family resource management is the allocation of family members for family needs according to their roles, namely as head of the family, wife and children. The results of field observations indicate that the average level of family resource management in the study area is quite close, namely 47%. This means that there are 47% of farmers who can utilize family resources in the form of time management, family members, and management of their investments for family needs.

3.2. Food security and family poverty alleviation

Food security is a condition in which food is fulfilled for the state and individuals. This is reflected insufficient food availability, such as food quantity and quality, food security, food diversity, nutrition, equity, and affordability that are in line with the religion, belief and culture of the community [10]. Food security also means the condition of food availability that can fulfil everyone's needs at any time, so that a person can live healthily, actively, and productively. The meaning contained in food security includes physical dimensions (availability), economy (purchasing power), nutrition (fulfilling individual nutritional needs), cultural and religious values, health, and time (continuously available) [11]. This means that every household or individual can access food at any time for the needs of healthy life the condition that they receive food that is following local values or culture [11].

The results of observations in the field showed that the level of food security of farmer families in the study area was considered acceptable. Data showed that there were more than 77% of farmer groups in the study area that have high and very high food security. If it is differentiated based on the research area group, it turns out that the best level of food security is in Rantau Rasau Regency (82.2%) because farmers in this area have clustered food security levels at high and very high food security levels, while in Betara Regency, there was only 71%. The results of the study are in line with the research of Suandi and Yusma Damayanti [12] that the family food security (food consumption) of farmers in the Muaro Jambi Regency, Jambi Province, is quite sufficient.

Food security is closely related to poverty alleviation. Poverty is the inability of a person or group of people to fulfill minimum basic needs such as food, clothing, health, housing and education needed to live and work [13]. The level of population poverty is measured by the total income and expenditure of the family. Based on observations in the field, the net income of farmer families in peat areas is mostly derived from oil palm, coffee, coconut, areca nut and tidal rice farming. This is consistent with the characteristics of the study area, which is mostly peat. Besides, farmers payment comes from non-agricultural businesses, such as trading, off-farm labor, as well as farmers' income as civil servants and
retirees. Operationally, income is a tool to meet farmer household consumption needs. In other words, the level of household needs of the respondent depends on the size of the income they have, meaning that the higher the level of household income, the higher the level of consumption, and vice versa. The average income of a farming family based on findings in the field is Rp. 4,527,912.50 per family per month, and Rp. 1,509,304.17 capita per month (on average there are three family members). This income is much higher than the income of farmers in Jambi Province in 2013, which reached 2.4 million per month [14].

When compared with income levels based on the income per capita, the level of income of respondents in the research area was classified as high because it is limited by the number of family members. If it is associated with the Jambi Province UMR in 2019, farmer's payment is classified as better (UMR of Jambi Rp. 2,700,000.00 per month) [15]. The results showed that farmer families in the study area belonged to the well-off group considering the price of rice prevailing at the time of the study, that is Rp. 12,000 per kilogram, and when multiplied by the standard of sayogyo which is equivalent to 320 [16]. The total income was Rp. 3,840,000.00 per capita per month while the average income in the study area was Rp. 4,527,912.50 per capita per month. The income of farmer families is obtained from various basis of livelihood and pay from family members. The high and low level of revenue of farmer families depends on the source of livelihood and the amount of income from family members' income so that it will have an impact on family consumption needs for food consumption, non-food and investment consumption needs. Most of the income obtained by farmers in the study area comes from oil palm plantations (63%), whereas oil palm plantations are not very suitable for peatlands. The development of oil palm plantations carried out by farmers has been their initiative. There is no involvement of related parties (Agriculture and Plantation, even forestry) so that knowledge about the procedures for planting oil palm owned by farmers is limited, such as seed selection, farming methods and even ways and many useful harvesting techniques are unknown to the community. This is very dangerous for the sustainability of oil palm farming carried out by farmers and the sustainability of future peatlands.

According to the confession of the KUPT of Agriculture and Food Crops in Rantau Rasau Regency, up to 2017, the development of oil palm plants in Rantau Rasau Regency was intensively done even though East Tanjung Jabung Regency Government had issued a Regulation on Eternal Food Land, but it was ignored by community groups. Regional Regulation No. 18 of 2013 concerning the Protection of Sustainable Food Agriculture Land was issued by the 2013 East Tanjung Jabung Regency Government-mandated by Law No. 41 of 2009 concerning National Sustainable Food Agriculture (PLP2B) Land Protection which states that LP2B is the field of agricultural land set to be consistently protected and developed to produce raw food for independence, resilience and national food sovereignty [17]. The protection of food land is not only to maintain the area of food and its relation to food security, but also to fight for the welfare of farmers and the addition of employment (economic aspects) and protection of ecology (environmental aspects).

3.3. Relationship between social capital and management of family resources towards food security and poverty of the population

The relationship between social capital and family resource management on food security and poverty alleviation was analyzed using the SEM model. Through this model, it can be seen the influence or relationship between constructs in causality. By the hypothesis, where the construct variable consists of four parts latent variables, namely (1) Social Capital (MSos) with variable loading: (X1) trust, (X2) norm, (X3) network, and (X4) cooperation. (2) Family Resource Management (MSuk) with variable loading: (X5) time management, (X6) family member management, and (X7) financial management. (3) Family Food Security (KPak) with variable loading: (Y1) food availability, (Y2) food accessibility, and (Y3) food consumption. (4) Family Welfare Alleviation (PKek) with variable loading: (Y4) fulfilment of food, (Y5) non-food needs, and (Y6) fulfilment of investment needs for human resources.

Based on the analysis through the SEM model with the LISREL program, the results indicated that the level of validity of the study construct of the influence of social capital and family resource management on food security and family poverty reduction in the study area were quite valid, meaning
that the models compiled in the study design are suitable or fit with the data collected. The compatibility or reliability of the research design and data captured are indicated by the values of the test equipment used. As shown in Table 1.1, the value of the model testing approaches and exceeds the desired cut-off value in each test instrument.

According to Joreskog and Sorbom [18], there are 31 test equipment used in testing the model. However, tests that are often used and relevant are measuring the value of Chi-Square (X2), Root Mean Square Error of Approximation (RMSEA), Goodness of Fit Index (GFI) and Comparative Fit Index (CFI) values [19]. Through the results of testing the model, it turns out that item loadings for latent variables in the model also show significant internal consistency (reliability). As shown in Figure 1.1, the latent variable Social Capital (Msos), for example, consists of four dimensions, namely trust, norms, networking, and cooperation which have a significant loading value. Through the model, it is known the item loadings (X1), that is, trust (λ = 0.63), (X2) norms (λ = 0.65), (X3) networks (λ = 0.65), and (X4) cooperation (λ = 0.71). The same thing was also shown by item loadings in the latent variables of family resource management, food security and family poverty alleviation, showing significant values (λ). The results of the analysis showed that the variables of social capital both directly and indirectly have a significantly positive effect on food security and poverty alleviation with the values of beta (β) of 6.78 and 5.55 respectively.

This proves that the hypothesis built previously was that social capital could causally affect food security, and alleviate family poverty, meaning that the better the level of social capital owned by the family, the better the level of food security. Therefore, in turn, it can alleviate the family of farmers from poverty. The enormous contribution of social capital influences food security and poverty alleviation in the area around peat which can be seen from the enthusiasm of the community to work together through social associations, such as their trust among or with others reaching 81% of the sample interviewed, then other social association such obeying the prevailing norms reached 89%, building togetherness through cooperation reaching 78%, and other social associations, namely through network development, reaching 72%.

**Table 1.** The Goodness of fit index the effect of social capital and family resource management on food security and poverty alleviation, 2018.

| No | Goodness of Fit Index                                      | Cut-off Value | Test result |
|----|------------------------------------------------------------|---------------|-------------|
| 1  | $X^2$ (Chi – Square) = no sign or smaller                 | 0.00          | 0.00        |
| 2  | RMSEA (Root Mean Square Error of Approximation)           | ≤ 0.08        | 0.07        |
| 3  | GFI (Goodness of Fit Index)                              | ≥ 0.90        | 0.91        |
| 4  | CFI (Comparative Fit Index)                              | ≥ 0.94        | 0.96        |

Source: Joreskog & Sorbom [18]

The results of the research found in the field were in line with the results of the research of Durkin [20], Hadad [21][22], and Suandi [4]. As found by Durkin, his analysis in Latin America that there are significant positive differences in the level of activity of family members in the activities of local associations in improving family welfare [20]. On the other hand, social capital can play a role in obtaining various accesses to public facilities in the community, such as: water and irrigation procurement, credit, and agricultural/technology inputs.

The amount of social modal access is due to the existence of networks built-in various groups (production and social) in the community. The result of this study is not much different from the findings of Haddad [21] in South Africa that the existence of social capital (social network) of healthy household individuals can play a role in gaining various forms of access in society. The latest research results that have been proven by Granoveter [22] through their research in Mozambique were about the adoption of new technologies by farmers through social systems that develop in communities, especially networks that are built through neighbouring groups and families (bonding and bridging). The results of his study concluded that social relations in community groups had a significantly positive effect on farmers in adopting new technologies in rural areas. The high motivation of farmers to implement new technology through social networks is inseparable from the level of their faith in
these community groups because they have trust and need each other. Furthermore, there has never been a relationship breakdown. About new technology, there are four roles in changing human behaviour, namely (1) intermediary, (2) amplifiers, (3) determinant, and part (4) as promoters [23].

![Figure 1](image)

**Figure 1.** The structural relationship between social capital and family resource management with family food security and poverty alleviation

The result of the study by Suandi [4] concluded that the role of social associations was through traditional institutions and “handel” groups. His findings suggest that regular institutions function not only as social institutions but also as education. Moreover, this also acts as a moving group for community food needs (Raskin). In contrast, other associations (Handel) that are through the contribution of family members in social groups and other productive groups show results that were quite significant. The involvement of family members in activities at various local associations will be able to increase family income through additional group access facilities, for example, participating in the "handel" group. This means that one member in the family involved in the "handel" group gets one part of the income, but if there is more than one involvement, the amount of income also increases. These findings are also found in other countries. Grootaer [24] found that every single active family member participating in the activities of a local association, especially the production sector association can increase family income by 6.2% per capita per year. The same study was also found in Latin America, that there were very significantly positive differences and levels the liveliness of family members in the activities of local associations in improving family economic welfare [20].

### 4. Conclusion

The level of food security of farmers in the study area is classified as beneficial. The results showed that the food security of farmers was able to fulfill the needs of each member of the farming family in fulfilling their daily needs, both in terms of food availability, accessibility, and utilization or consumption of food. Every farmer household can access food at any time for their daily needs according to local values or culture.

The level of payment obtained by farmers in the study area is classified as increased or prosperous. The results showed that the income of farmers was much higher than the average income of farmers in Jambi Province. This income is also higher than the Regional Minimum Wage (UMR) in Jambi Province (2019). This high income of farmers has a positive impact on satisfaction in fulfilling family needs, such as: fulfilling food and non-food needs and fulfilling investment needs.

The results of the analysis show that social capital and family resource management have a positive and significant effect on food security and poverty alleviation. Therefore, the model used for poverty reduction in peatland areas is through the use of social capital resources and management of family...
resources. The results showed that social interactions, norms, and collective action are essential in improving the socio-economic standard of living of farmers in peatland areas. Meanwhile, the results of research on the contribution of family resource management may include time management, utilization of family members, and investment management.

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