

## Accessibility Impact to Government Programs on the Household Income Contribution at the Various Livelihood Sources of Farmers

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### ABSTRACT

*This paper aimed (1) to describe the accessibility of farmers to programs made by the government for rural development, and (2) to analyze the impact of this accessibility on the contribution generating household income of farmers in South Sumatra wetlands. This research was an experimental research using Split Plot Design. The study resulted that accessibility had a significant effect on the income structure of farmers' households. If accessibility was high to very high, the sector and types of off-farm activities were more developed and diverse. Household income in low accessibility was dominated by subsistence agriculture, although the types of off-farm activities varied, but their contribution to total household income was very small. In high accessibility areas, the income contribution from subsistence farming was relatively small, but the diversity of activities was large, which could increase the total household income, i.e. trade, non-agricultural labor, forest income, government projects, beca, drivers, carpenters, welding, shipping, etc. The total income of households in high accessibility was higher than in low accessibility areas. The better the accessibility, the better the total household income will be as long as the government manages farmers in off-farm activities.*

*Keywords: Alternatives, Livelihood, Accessibility, Wetlands*

### INTRODUCTION

Banyuasin district is one of the districts that are actively undertaking national scale physical development in South Sumatera Province and about 15% of the local population is poor with income below the regional minimum wage (UMR, less than 140 US\$/month) or very poor with less income of around 4-5 US\$/day (Zahri et al., 2018; Wildayana & Armanto, 2018a; 2018b). The local poverty condition is also triggered by social and economic and bio geophysical constraints (Shao et al., 2022; Sulak & Türk, 2022; Scoones et al., 2020).

The limitations of bio geophysical wetlands have been widely studied and known not only by researchers, but also by the wider community, including the appropriateness of wetlands marginal for intensive rice farming (including the

marginally suitable classification (suitable S3 class) to suitable (class S2); Integrated and comprehensive water pressure and increased population pressure and degradation of wetlands resources (Armanto, 2019a; 2019b). Some of the common socio-economic constraints found in wetlands are limited formal education levels, cultural differences among ethnic groups (Wagle et al., 2020), high levels of population growth especially in remote areas and government policies which does not take sides with the farmers (Vilas-Boas et al., 2022), such as the unclear ownership of land for farmers, the government has not succeeded in controlling rice prices at the farmers level, the free market is still unfavorable to farmers and the lack of government initiatives to improve public infrastructure,

accessibility of farmers to be limited (Munir et al., 2020; Imanuddin et al., 2019; Räisänen & Tuovinen, 2020; Qadeer et al., 2021). All this has an impact on farmers' difficulties to increase household income to achieve farmer welfare (Bergstrom, 2018; Fusco et al., 2018).

Accessibility is everything (an object, service or environment) that is easy to achieve (Thiam et al., 2021; Zhang, 2021), meaning that accessibility is not just the willingness of everything, but the willingness of everything that is easy to achieve (Lavieri et al., 2018; Santana et al., 2020). Accessibility is a right of access which is a service of need to do something (e.g. travel) that must be prepared by the government (Groenewegen et al., 2021; Mcguire et al., 2022; Moritz et al., 2022). Accessibility can be linked to land use arrangements in both agricultural and non-agricultural sectors, therefore accessibility will facilitate a location to be achieved through a networked transportation system (Lázaro-Lobo & Ervin, 2021; Loorbach et al., 2017; 2020). If a place to another place is close or can be reached in a short time, it is said that the accessibility of both places is high (Marques et al., 2018; Farooq et al., 2021). Likewise, if both places are distant and difficult to relate, then the accessibility of both sites is low. Therefore, different land use will provide different accessibility (Proka et al., 2020; Abijith & Saravanan, 2021). The use of travel time is a better accessibility measurement performance than distance usage because it can occur even though the distance is two distant places, but can be reached in short invitation, then both places have high accessibility (Tavakoli et al., 2017; Viana et al., 2021).

Understanding accessibility can be characterized by three fundamental questions, namely who/where questions, what and how (Alikhani et al., 2021). For the question of whom or where the person is, accessibility is part of the person or place of the person. What opportunities will be achieved, this is the function of land use, the activity in it, or the resources (including people) that enable the person to be able to meet their living needs (Le

Goff et al., 2022; Xu et al., 2020). The question of how are the factors that separate people with specific places, such as distance, time, cost, information and other factors that act as a deterrent or obstacle to accessing a place (Li et al., 2018; Liu & Zhang, 2021).

One variable that can be stated whether accessibility levels are high or low can be seen from the number of network systems available in the area (Fedele et al., 2019; Wildayana & Armanto., 2021). The more network systems available in the area, the easier the accessibility is, and the lower the accessibility level, the more difficult it is to reach it from other areas (Gao et al., 2022; Guth et al., 2022). Determinant factors that affect the function of low accessibility are the condition of land and topography, because it can be a barrier for smoothness to conduct interaction in an area (Zhang et al., 2022; 2020; Zhu et al., 2021). Accessibility can also mean transportation for people and agricultural products (goods). In general, it can be said that areas with asphalt roads are most easily accessible (due to fast and easy transportation), whereas in areas with footpaths are least accessible or accessible (Wildayana & Armanto, 2018c; 2018d).

Accessibility can be mentioned as a key factor for development, where bio geophysical constraints can interact with the socio-economic aspects of development in the wetlands (Jamali et al., 2021; Kumar & Madhu, 2020). The mechanisms linking to accessibility, poverty and livelihood can be stated as not well documented such as bio geophysical accessibility (Hao & He, 2022; Hu et al., 2021). This paper tries to fill the accessibility gap of four locations that have different accessibility with each other, so that the location has a very different chance because of the difference of their accessibility, even though the resources they have are almost the same (Twisa & Buchroithner, 2019; Hölscher et al., 2018). This paper aimed (1) to describe the accessibility of farmers to programs made by the government for rural development, and (2) to analyze the impact of this

accessibility on the contribution generating household income of farmers in South Sumatra wetlands. In addition, it will look for how to improve some livelihood alternatives to generate household income of farmers.

## RESEARCH METHODS

The selection of the research sites was determined on the basis of the purposive method by considering each location chosen to represent each accessibility level and the chosen location was the area cultivated with rice farming. Sampling method used is cluster sampling (sampling area). From Banyuasin District of South Sumatera, four sub-districts are considered to represent accessibility to be studied and as the center of rice production. From each sub-district, two or four villages with recalcitrant accessibility were recovered. Four sub-district locations selected on the basis of accessibility level, namely Tanjung Lago (very high); Talang Kelapa (high); Muara Telang (medium); and Makarti Jaya (low).

This research is an experimental research using Split Plot Design with two factors; first factor (F) determining Main Plot is rice farming system that includes ricefields (F0) and traditional system (F1). The second factor (R) called Sub plot is the location of the sub-district that reflects the accessibility level (very high, high, medium and low), namely Tanjung Lago (R0); Talang Kelapa (R1); Muara Telang (R2); and Makarti Jaya (R3). The number of treatment combinations was  $2 \times 4 = 8$ , and each treatment combination was repeated eight times (by mentioning the number of respondents in the field). The overall number of treatment combinations was  $2 \times 4 \times 8 = 64$  treatment combinations.

The observed data are rice yield, roads, buildings, agricultural crops (seed, fertilizer, pesticide, water and agricultural tools), institutions of farmers, extension, marketing, price, farmer income, and wages. The data obtained were processed statistically by analysis of variance (two-way ANOVA). If the variance results show a significant difference, then proceed with Posthoc LSD Test (Least Significance

Difference) with a 5% confidence level, whereas if the variance results show a significant difference, then proceed with Posthoc LSD Test with 1% confidence level.

Selected 340 respondents were interviewed with a stratified random sampling. The interview approach was conducted by participatory observation, where the researcher lived in the village and developed a trust relationship with the farmers being interviewed; In-depth interviews with key informants; and household surveys to obtain data and information via interviews.

## RESULT AND DISCUSSION

Results and discussions of this research will cover the describing the accessibility of farmers to programs made by the government for rural development; analyzing the impact of the accessibility on the contribution generating household income of farmers; income generating through subsistence farming; income generating through agricultural farming; income generating through non-agricultural farming; income generating through forest resources; and income generating through governmental projects.

### Describing the Accessibility of Farmers to Programs made by the Government for Rural Development

The government will influence dominantly on the livelihood availability of farmers, such as government policy to develop plantation plasma BUMDES. This policy has a major impact on social organization and production relationships in rural areas. Each state policy would be made at the national institutions and distributed via provinces, districts, sub-districts and would be applied in villages. The heads of villages and farmers had to adjust each policy to fit the village-specific conditions as best as they could do. Some villages may follow the policy provided for a particular case, while for other villages need to adjust the policy to rural conditions or even not be applied. Although the national policy has considered many

aspects of whole general problems, but the availability of available rural accessibility at the policy still is constrained by the the village levels (Table 1).

**Table 1**  
**Initiation of public accessibility in the research area**

Accessibility	Initiator of making public accessibility		
	Farmers	Private	Government
Physics (roads, bridge, building etc.)	√√√√	√√	√
Saprotan (seeds, fertilizer, pesticide, water and tools)	√√	√√√	√√
Institutions (cooperatives, BUMDES)	√√	√√√	√√
Extension	√√√√	√√	√
Marketing	√√√√	√√	√

Note : √√√√: very dominant; √√√: dominant; √√: relatively dominant; √: less dominant

Source : \*/ Results of field survey (2021)

Changes in land values are not only determined by physical and chemical characteristics, but also accessibility and infrastructure, especially roads. More specifically accessible land and infrastructure, the value of the land will be higher. It is clear that a hectare of land located in the interior of the city of Palembang represents a higher agricultural value of one hectare of very fertile land in remote areas. This means that the value of land can also change over time relative. Increased commercialization of agricultural products creates new possibilities for using less productive land by planting commercial crops, such as rubber, palm oil and other crops.

Accessibility may consist of physical accessibility and non-physical accessibility. The physical accessibility is performed by the construction of public facilities and infrastructure including accessibility to public buildings; public road; drainage and irrigation channels; and accessibility on public transport. Non-physical accessibility can be in the form of general service; information services; other special services etc.

Accessibility will affect changes in land use typically initiated by governments, the private sector and farmers. Almost all types of land use change are driven by the government and are directly related to macroeconomic developments. This means that the government is very dominant in determining overall land use change (Table 1). This is because making accessibility requires enormous amounts

of funds and resources, while the private sector plays only a relatively small role in land-use change, especially in areas with high economic impact. Accessibility for land-use change initiated by farmers is very limited because farmers only seek subsistence livelihoods, not directly related to macroeconomic development.

#### **Analyzing the Impact of the Accessibility on the Contribution Generating Household Income of Farmers**

If the opening of new accessibility is not done seriously and prudently from government, thus private, public and all possible parameters of total household income will be affected as a whole. If this happens and will lead to the threat of sustainable development and the environment, such as the threat of flooding, land and water degradation, pollution, and other environmental problems.

Based on its accessibility Tanjung Lago belongs to sub-district, which is highly accessible, therefore some governmental projects have been applied in this area and it became a close partner of governmental institutions in implementing some governmental policies, particularly in regional development. Besides that, Tanjung Lago has also received many government projects in the development of the hinterland area of Palembang, and many farmers are involved in the development process and at the same time benefiting from government projects. On the other hand,

strict supervision by district governments has limited the ability of farmers to reinterpret the governmental policy to fit their circumstances, in other words most of the government projects are top-down projects.

Makarti Jaya is completed with minimum physical infrastructure and mentioned as less accessible; therefore, some governmental projects have not been applied in this area. If the projects will be applied in this area, so the project goals are hardly to be achieved because they will be constrained by many physical infrastructures. Thus, it has not been a close partner of governmental institutions in implementing some governmental policies, particularly in regional development because it has a weak relationship with the government. The same policy applied at Tanjung Lago also arrived at Makarti Jaya, but the authority of Makarti Jaya does not yet have the ability to implement the governmental policy due to physical accessibility limitations. Makarti Jaya also did not get the privilege because of the same fund entry with Tanjung Lago. Makarti Jaya is out of reach of strategic projects of the central government. So far, few activities of the government program for Makarti Jaya.

### **The Implementation of the Rural Cooperatives (BUMDES)**

Since last three decades, the central government and the private sectors have established a cooperative BUMDES system for oil palm plantations in all research locations. The cooperative system has twin goals to balance individual economic status and to organize agricultural production on a national scale.

Farmers in Tanjung Lago do not experience major problems with BUMDES and can accept it as one source of farmer income. Farmers in BUMDES do not experience difficulties with the production allocation taken from plasma of farmers. As the population increases, the proportion of production available for each household declines. Therefore, innovative farmers behave proactive to create some private farming activities, whether utilizing

sections of collectively managed land or building new farming enterprises. Most of these innovative farmers have become more successful, other farmers soon followed them. Furthermore, many farmers have developed an open market economy and increasingly diverse sources of household income.

In Makarti Jaya, the BUMDES implementation is poorly developed. In theory BUMDES in Makarti Jaya belongs a part of the same BUMDES system with Tanjung Lago, but its relative inaccessibility makes it a source of income for farmers in a sustainable way. Farmers have no motivation to do more business than is necessary in cooperative tasks, since their share of collective production is minimized by the system because of the lack of control of government and private parties. This inadequate division of results causes dissatisfaction of farmers to meet their basic food needs. Worse yet, new members (mostly urban people who buy their land) can join the BUMDES without contributing something to the BUMDES that causes social tension among members.

### **Social Forestry and Forest Conservation**

Since last three decades, the central government has started to apply the concept of managing forests with local communities including farmers living surrounding the forest, with a view to increasing the sense of forest ownership by farmers and the wider community, so that illegal logging actions could be terminated. Local governments establish specific land uses in permitted areas. Associated with such allocations are protection policies that limit the exploitation of certain forest areas. Farmers who receive areas classified for reforestation or forest protection will receive annual payments to supervise the land and protect it from being cleaned or cultivated.

In Tanjung Lago, reaction of farmers to social forestry policies was minimally responded because more than 60% of households do not want to be responsible for protecting forests. To meet the Ministry

of Forestry goals, the village heads decided that all farmers jointly protect the forest and remuneration would be equally distributed among those who had participated in taking care of the forest. Remuneration offered for forest protection is too small for farmers, and forests needing to be protected are located too far from their village. Instead, farmers pursue better income earning opportunities such as agricultural intensification, formal and informal employment, and small-scale trade. Pressure from forest protection policies encourages farmers to seek better living conditions outside the agricultural sector.

Farmers in Makarti Jaya depend on forest resources in order to survive, but they ignore the forest conservation policies. Some villages located on coastal areas, making their forest areas are easily identified by the local government. Thus, farmers fear the impact of not obeying the law. Forest protection policy in Makarti Jaya received little positive response from the community, but it was still implemented. In contrast, in some villages, the policy is almost neglected. The government has imposed a prohibition regulation on land clearing by burning and limitation of slash-and-burn cultivation because this system will quickly decrease land resources. However, some farmers have little choice, and they still continue to do that system for feeding their households.

### **Accessibility Effects on Access to Governmental Projects**

Regional development projects often do not have to target their goals to certain individuals, who are involved in the projects or they really need the projects. Some inaccessible farmers are often overlooked in the selection process due to the unavailability of additional costs to work in hard-to-reach areas (low accessibility). Furthermore, areas with better infrastructure (high accessibility) may have greater potential to utilize the assistance offered by the government projects. Government projects can achieve faster performance progress in relatively

accessible areas, although there is a greater need elsewhere, especially in areas that are difficult to access. The reality on the ground, strategic projects are impossible to offer or are placed in too remote areas. For example, Makarti Jaya has some physical inability to provide access to land transportation and lack of marketing channels, which makes Makarti Jaya extremely ineffective for plantation projects. This reason can result in the distribution of projects that marginalize the least accessible areas (low accessibility), and often the most in need of support.

Makarti Jaya even access to agricultural extension services is limited, not even all villages in Makarti Jaya benefit from agricultural extension projects. It is almost impossible for individual village households to participate in such projects because their very limited lands are dedicated exclusively to annual crops. They cannot afford to dedicate a piece of land for a delayed investment return.

Tanjung Lago benefits from a comparative abundance project. Unfortunately, this abundant aid has not always translated into benefits for farmers. Many local government projects provide seeds to farmers to give them the opportunity to generate additional income. If the seeds will be distributed and will be planted, the seeds are not available on the market, and the price is high. But since the same project has been implemented in many villages in the area, when trees produce agricultural products (for example fruits), the market is flooded with agricultural products and prices fall sharply. Because the project does not offer a means to process fruit or a viable way to bring it to larger markets, thus the aims of government to improve the welfare of farmers through fruit tree projects cannot fulfill its mission to increase income of households. Generally, most farmers are interested to participate the governmental projects for the following reasons, namely: they want to join the projects if the remuneration is reasonably high; despite the high labor needs farmers still are able to manage their time to input their employment according to their choice;

seeds are freely given free, but the forest will be used by farmers to be maximized in the future.

Farmers tended to follow the most favorable directions from the government, thus the government projects are prioritized for the forest conservation. However, the conservation policy made by the center government has never been so popular for farmers. They remain concerned that the few remaining forest will be degraded if replanting fails, there is no planning made to prevent this possibility. It is not surprising that farmers responded skeptically to new projects. The center government does not yet has a famous reputation for creating effective income-generating opportunity for local farmers and large-scale projects are unpleasant because there are too many vested interests from state development executives ranging from government staff to contractors in the field.

**Income Generating through Subsistence Farming**

The conceptual how-to-farming-generating income for farmers is presented in Table 2. There are four main options for generating income of households. Each of the four options is strongly related with the

governmental development projects; marketing of agricultural and forestry products; alternative to work other than agriculture (off-farm income), and migration. The four elements of the farmer's income sources have a positive effect on the household economy, while the negative influence is shown as the degradation of natural resources.

Accessibility is generally enhanced by the government in order to increase farmers' income, which is facilitated by the distribution of agricultural inputs and marketing of agricultural products. These public facilities include the improvement of road infrastructure, buildings, service systems, agricultural extensions, farmer group formation, information from mass media, and others. The provision of service facilities is sought to grow and develop traditional farming into more advanced farming, as well as to encourage farmers to increase production, thereby increasing their income and welfare. The impact of the accessibility on improving the distribution of farmers' income can be accessed from the increase in farmers' income from subsistence farming; agricultural income; non-agricultural income; forest income; and governmental projects (Table 2).

**Table 2**  
**Accessibility effects on generating household income (%) & LSD test \*/**

Research sites	A**/	B	C	D	E
Tanjung Lago	22.34 <sup>a</sup>	21.67 <sup>a</sup>	23.05 <sup>a</sup>	18.27 <sup>a</sup>	14.67 <sup>a</sup>
Talang Kelapa	30.01 <sup>b</sup>	21.06 <sup>a</sup>	16.47 <sup>b</sup>	19.95 <sup>a</sup>	12.51 <sup>a</sup>
Muara Telang	45.97 <sup>c</sup>	21.87 <sup>a</sup>	12.04 <sup>c</sup>	12.35 <sup>b</sup>	7.77 <sup>b</sup>
Makarti Jaya	68.51 <sup>d</sup>	20.15 <sup>a</sup>	4.55 <sup>d</sup>	4.56 <sup>c</sup>	2.23 <sup>c</sup>

Note : \*/ individual values within the each column and indicated with the similar superscripts are not significantly different at 5% test according to LSD test

\*\*/ A (Subsistence farming); B (Agricultural income); C (Non-agricultural income); D (Forest/environmental income); E (Governmental projects)

Source : Results of field survey (2021).

The accessibility plays an important role in the community economy as shown by the income structure of households. Some activities such as trading, weight from non-agricultural labor, non-timber forest products, government projects, beca, drivers, carpenters, welders, shippers and others are able to contribute more household income. Conversely, poor

accessibility sites, in fact, the agricultural sector are dominated by farming activities. Non-farm income sources are limited and only trading and non-agricultural laborers make a relatively large contribution.

Subsistence farming is called as self-sufficiency agriculture, where farmers focus on cultivating food in sufficient quantities to meet the needs of their own

families. The characteristic of subsistence agriculture is to have a variety of crops and animals to eat, sometimes fiber for clothing and building materials. Decisions about which crops to plant usually depend on what the household wants to eat in the coming year, also considering the market price if it feels too expensive and they choose to grow it themselves. Most subsistence farmers also trade little of their crops (barter or money) for goods that have little effect on their survival and which cannot be generated on land, such as salt, cooking oil, spices, bikes, and so on. Most subsistence farmers grow alternative crops and are found in less accessible locations.

The results of ANOVAs analysis show that accessibility influences income of households from subsistence farming is significantly different, the location of Tanjung Lago with the highest accessibility is the subsistence farming contributing the lowest to total household income (22.34%) and significantly different from the subsistence farming in Talang Kelapa (30.01%), Muara Telang (45.97%) and very different from Makarti Jaya (68.51%), so it can be concluded that the difference of accessibility gives significantly different percentage distribution and subsistence farming contribution to the highest total income is shown by the lowest accessibility. In other words, it can be said that farmers who live in the lowest-accessibility location (Makarti Jaya 68.51%) get household income which is dominated by income contribution from sector subsistence farming, while in high accessibility location, income source is more diverse.

### **Income Generating through Agricultural Farming**

Agricultural income is an important indicator for the welfare of farmers because it is able to provide information about the survival of the household of farmers and as a consideration in the perspective of agricultural policies that favor the farmers. Agricultural income includes the components of income generated from various commodities cultivated by farmers (on-farm income).

Agricultural income can come from income generated from the sale of food crops, fruits, vegetables, farms, fisheries and others. Compared to the five-year average in the 2005-2010 periods, annual agricultural revenues per year were relatively stable from 2011 to the present. This stable positive trend is the result of compensation by the reduction of labor employed in agriculture. It is estimated that agricultural revenues continue to show positive trends increase in the coming years due to the increasing influence of accessibility provided by the government.

ANOVAs analysis results show that accessibility does not affect income of households from agricultural income for all research sites. This is because agricultural income of households is expressed in terms of relative or in percentage of total income of households. However, if the income contribution is expressed in absolute units, it is expected that accessibility will significantly affect farmers' income from the agricultural income sector. Theoretically, the higher the accessibility of a location, then income also increases.

### **Income Generating through Non-Agricultural Farming**

Areas with high agricultural growth rates are likely to show higher incomes and greater heterogeneity of income. In addition, regions with higher incomes from non-agricultural productive activities have higher total revenues than total agricultural activities. The result of ANOVAs analysis showed that accessibility influenced non-agricultural income of households significantly different, Tanjung Lago location with higher accessibility (23.05% to total household income) and significantly different from Talang Kelapa (16.47%), Muara Telang (12.04%) and very different from Makarti Jaya (4.55%), so it can be concluded that accessibility gives positive non-farm income increase and the highest increase is indicated by the highest accessibility.

Although the contribution of non-agricultural income is not significantly different to total household income, the survey results show that income from



outside agriculture sector is more important in its contribution to total household income. Trade and shipment activities are an important source of income as a source of income from non-agricultural sectors in regions with irrigated wetland agroecosystems, although the types of activities in this sector are more diverse; only non-agricultural labor activities and more consignments. The contribution of revenues from the agricultural sector is much greater. Sources of income from farming and farm labor make a relatively large contribution. However, only a few activities in non-agricultural sectors such as non-agricultural and trade workers have significant contribution, since the types of activities in this sector are relatively limited (maids, rented houses and others).

### **Income Generating through Forest Resources**

Forest income is related to non-timber forest products, such as oyster mushroom, dammar sap, jelutong, gather sap, rattan, honey, nipa, bamboos, firewood, charcoals and plantation development activities are other activities that support the increasing income of households from the forestry sector. So that the additional income of forest farmer group members who carry out this activity can be expressed as forest income.

By 2021, precisely in areas with greater accessibility, forest revenues are getting better because farmers can directly sell forest products that have been cultivated as forest products. ANOVAs analysis results show that accessibility affects income of households from forest income is significantly different. Tanjung Lago (18.27%) and Talang Kelapa (19.95%) were not significantly different and showed significant differences with Muara Telang (12.35%) and Makarti Jaya (4.56%), so it can be concluded that accessibility gives positive increase of forest income and highest increase Indicated by the highest accessibility.

### **Income Generating through Governmental Projects**

Accessibility is an indicator of a site's openness to economic centers, public services and information flows. Members of the community in locations with good accessibility can utilize the service facilities available facilities and infrastructure as well as information available. Thus, the economic movement occurring in that location is heavily influenced by changes that occur outside and informed quickly. Such circumstances will affect the pattern of community life and ultimately also on the structure of income, including the structure of household income of households. The works offered are divided into some jobs, namely daily wages, labors, welders, drivers, guiders, local restaurants and others.

Differences in location accessibility lead to differences in specific characteristics in terms of income structure and the role of off-farm sectors to total household incomes of farmers. With good accessibility, non-agricultural sectors are more dominant in their contribution to household income, more markedly different from locations with low stability. The types of activities in locations with high accessibility are more diverse, trade revenues, non-agricultural labor and remittances from household members working off-site are important sources of income. While the sources of income at low accessibility sites from agriculture are only farming activities.

Conversely, in locations with poor accessibility, it is the income of the dominant agricultural sector. The activities of farming, farming and livestock are able to contribute highly to household income of households. However, revenues from non-agricultural sectors, although in a lesser number of species, are only trade activities, non-agricultural workers and items that contribute to a relatively higher portion. Therefore, it can be understood when in a location with good accessibility a higher income level, which is a result of good accessibility.

The results of ANOVAs analysis show that accessibility influences income of households from governmental projects significantly different, the location of Tanjung Lago is higher and significantly different than that of Coconut and Muara Telang and very different from Makarti Jaya, so it can be concluded that accessibility can increase forest income Positively and the highest increase was shown by technical irrigation rice fields.

## CONCLUSION

Increased accessibility of the region is an important supporting factor in the development of the local economy which includes the expansion of employment and business opportunities in the agricultural out sector with the productivity of higher production factors. Undoubtedly, non-agricultural activities contributed to increasing the income of rural households, but this activity has been carefully expressed as contributing ineffectively to reduce the distortion of income distribution among rural populations. To mitigate this distortion, the impact of various branches of rural activities on household welfare needs to be identified.

Characteristics of household income structure of farmers were predominantly influenced by differences in accessibility. A location with good accessibility, the off-farm sector was more developed and the types of activities were more diverse. Household income in areas with low accessibility was more dominated by subsistence farming (farming, livestock and farm labor). Although the types of activities outside agriculture were more diverse, the contribution to total household income was very small. In contrast, in areas with high accessibility, the contribution of income from subsistence farming was relatively small, but there was a great diversity of activities, so the diversity of these activities was more important to increase the total household income. Sources of income from this sector included trade, non-agricultural labor, forest revenues, government projects, beca, drivers, carpenters, welders, shippers etc., so that the total household

income in areas with high accessibility was more higher compared to areas with low accessibility. Differences in accessibility turned out to affect the total structure of household income positively, so it can be said that the better the accessibility of the region, then the total household income will be better as long as the government manages for farmers in the activities outside of agriculture. So overall it was reasonable to say that per capita income was higher in locations with good accessibility.

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