The Livelihood of Non-Resident Households in the Oil and Gas Mining Areas in Papua

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Abstract. Based on structured survey among local residents and non-local residents, the study was aimed to disclose the livelihood and economic status of those households. The Method of both quantitative and qualitative analysis was performed together to attain more comprehensive understanding and its description on particularly livelihood aspects of the people. However, other aspects such as migration, education, and health also are addressed. The quality of life of non-resident household is better than the resident household. It can be examined from the household expenditure, the resident household is the lowest, while non-resident household across the Districts is always the highest. In general, the amount of non-resident household expenditure is 1.5 times higher than resident household.

Key words: livelihood, non-resident household, oil and gas mining, Bintuni Bay.

1. Introduction

Livelihood is an essential aspect of human lives [1, 2]. It has become the underlying reason for countries to put people’s living standard as the primary goal for national development [3]. In Indonesia, there have been policies for improving the quality of life [4]. Therefore, some programs are designated to improve the economic condition, the rising level of education and maternal and children health among poor households. The Indonesian government has initiated some programs focusing on the availability of education access for students from the poor. The government has also designed another program focusing on the empowerment of poor families by applying three main concepts which are economic, physical, and social aspects [5].

Aline with the purpose of increasing standard living all household in Indonesia, Tangguh Project which has been implemented in Bintuni Bay Regency, West Papua. TelukBintuni Regency which was officially established in 2002 is regency in West Papua Province as the result of the extension of Manokwari Regency. It covers an area of 18,637 km² and consisting of 24 districts and 262 kampongs [6]. Tangguh Project has conducted exploration in the area since about 2002. Therefore, the Project is also responsible for developing the surrounding community through many programs. Some social programs have been initiated under the Integrated Social Program. This project designs and empowers society to alleviate their capacity and capability in improving the social welfare of the area adjacent to the project coverage. It represents a substantial commitment of British Petroleum as the founder of the Tangguh Project to involve many aspects of development in Indonesia. Several important aspects of human lives have been implemented namely Education and Training, Tangguh Sustainability Development Program, Public Health, Local Economic Development, External Relations and Society,
Security-Based Community, Human Resource Management and Workforce Development in Papua, Tangguh Sustainability Development Program, Wildlife and Environmental Awareness and Governance [7].

It can be seen that livelihood is the main aim of the Project. It is inevitable to have availability and valid data which is used to evaluate the ongoing programs. That is why, Tangguh Project has implemented longitudinal survey since in 2002, 2005, 2007, 2009, 2011, 2013, and 2016. These structured longitudinal survey has enabled BP to achieve a lot of required data for any purposes. It also enables BP to construct some important indicators and parameters to appraise some objectives of the programs. Data and information which have been collected provide a general description of the socio-economic changes in areas where Tangguh Project is initiated.

One crucial question that needs to be addressed is how the Tangguh Project has affected the quality of life for both local residents and non-local residents. This matter is vital because of significant numbers of the influx of non-local household (migrant household) due to the operation of Tangguh Project since 2002 until now. This article is merely a small note of abundant data from a longitudinal structured survey that has been previously mentioned. There are two main aspects would be analysis, firstly, to understand the socio-economic conditions for both local residents and non-local residents. Secondly, to assess the livelihood of non-local residents living in the areas adjacent to the Tangguh Project.

2. Methods
Data was captured by a survey of 1,385 households in eight districts. These households are divided local household and non-local household. About 707 of local households (51.04 %) and 678 of non-local households (48.95 %) were structurally interviewed. Another technique of in-depth interview to several key informants has also been conducted to explore the nature of changes on socio-economic aspect and societies in the past ten years. A comparative based analysis was done to explain the difference in social, economic, and health condition between local and non-local household.

3. Findings and Discussion
At least three main important aspects are contributing to the life of people in the area of BP Tangguh project, firstly the level of the economy which is divided into economic activities, income, household business, household expenditure and economic index. Secondly, the status of health which is be seen from morbidity, health-seeking behaviour, and health index. Thirdly, the level of education which is examined using literacy, mean years of schooling, enrolment rate, and education index. Based on these three main aspects then we can generate a critical indicator to judge the level of livelihood that is welfare index.

Looking at basic livelihood of the people at villages surrounding BP Tangguh project, mostly they are in agriculture, such as fishing, hunting, food gathering, and a little inland cultivation farmer. Gradually, along with various advisory programs from BP Tangguh project, there are likely shifting economic activities from agriculture to non-agriculture such as trading, small household industry, small business, and service. The inhabitants have experienced a shift of economic structure; from relying only on the natural resource to land cultivation, manufacturing, and service. It is an indicator of social life advancement from agriculture to non-agricultural [8]. There is a change in the economic sector of society, from relying only on agriculture to more various sectors such as trade, service, and employee. In sum, the agriculture sector share to the economy of the area is still dominant, consisting of fishery (25.2%) and land cultivation agriculture (9.8%). Meanwhile, economic share in labour/services is 46.5, and trading is 16.1 per cent. Here fishery is still dominant as the main contributor to the life of the people. Moreover, in some districts such as in Weriagar District (42.3%), Bomberay District (29.6%), and Sumuri District (26.7%).

In average, household income in surrounding BP project is quite high. It shows that the productivity of each household is worthy enough. It seems likely that the income of the non-resident household is higher than the resident household. In Aranday and Weriagar Districts, the household income of migrant from out of Papua can reach 2-3 times higher (Table 1). One of the contributing
reasons is the migrant economy activity that is more dominant in trade and other sectors, while Papua inhabitants’ dominant economic activity is in the agriculture sector occupations.

Table 1. Average Households Income per Month by District

| District          | IP        | PP        | PNP      | Total     |
|------------------|-----------|-----------|----------|-----------|
| Teluk Bintuni Regency |           |           |          |           |
| Aranday          | 2,630,164 | 4,500,000 | 6,400,952| 2,912,818 |
| Babo             | 5,745,215 | 5,583,026 | 8,219,743| 6,646,620 |
| Kamundan         | 6,762,635 | 6,973,833 | 11,500,000| 7,718,103 |
| Sumuri           | 5,221,228 | 4,838,299 | 5,068,110 | 5,098,391 |
| Tomu             | 4,750,615 | 3,789,101 | 5,504,970 | 4,880,115 |
| Weriagar         | 7,675,807 | 8,760,872 | 15,600,000| 8,732,044 |
| Fakfak Regency   |           |           |          |           |
| Bomberay         | 7,508,208 | 10,600,000| 4,906,167| 7,598,872 |
| Kokas            | 5,192,831 | 4,542,413 | 6,624,869| 5,397,050 |

Source: Socio-Economic Census and Survey, 2016

The more sensitive income aspect illustrating the household economy condition is income per capita. Unlike the total household income, income per capita specifically shows income received by each person. It is an indicator the rate of income every household member. In macro, income per capita becomes one of the indicators of welfare and the development level of a region. The higher the income per capita is, the more prosperous the area is.

Income per capita variation by the district shows that Kamundan, Babo, Weriagar, and Bomberay Districts have a relatively high income per capita, around 1.5 million a month per person (Table 2). It is much higher from income per capita in the province level; about twice of income per capita in Papua Barat level that is only Rp700,000 per month. The lowest income per capita is in Aranday District, which is only Rp730,000 per month. Nevertheless, the household is over the poverty line in general—not in poverty. It is obvious when it is compared to the poverty line in Papua Barat Province that is Rp465,348 per month.

Table 2. Average Household Income per capita a Month by District

| District          | IP        | PP        | PNP      | Total     |
|------------------|-----------|-----------|----------|-----------|
| Teluk Bintuni Regency |           |           |          |           |
| Aranday          | 629,587   | 1,125,000 | 1,993,929| 730,045   |
| Babo             | 993,405   | 1,022,923 | 2,116,647| 1,425,517 |
| Kamundan         | 1,291,529 | 2,136,970 | 3,378,152| 1,751,412 |
| Sumuri           | 829,444   | 1,073,690 | 1,411,055| 1,202,371 |
| Tomu             | 733,670   | 855,140   | 1,593,813| 985,091   |
| Weriagar         | 982,380   | 1,236,935 | 4,137,464| 1,393,312 |
| Fakfak Regency   |           |           |          |           |
| Bomberay         | 1,306,875 | 2,457,493 | 1,392,724| 1,444,904 |
| Kokas            | 1,040,308 | 909,181   | 1,362,095| 1,086,736 |

Source: Socio-Economic Census and Survey, 2016

It can be examined that the household expenditure per month is around 2-3 million. There is a variation among districts. Bomberay, Babo, and Sumuri Districts are the districts with a high household expenditure, while the district with a low household expenditure is Andaray, about 2 times lower than the other three districts (Table 3). Based on the household expenditure status, IP is the lowest, while NP is always the highest. In general, the amount of PNP household expenditure is 1.5 times higher than IP household expenditure.
Table 3. Average Household Expenditure a Month by District

| District         | IP     | PP     | PNP    | Total  |
|------------------|--------|--------|--------|--------|
| Teluk Bintuni Regency |        |        |        |        |
| Aranday          | 1,761,469 | 2,950,889 | 3,311,909 | 1,825,188 |
| Babo             | 3,311,909 | 3,420,926 | 4,465,446 | 3,843,286 |
| Kamundan         | 2,919,250 | 2,956,194 | 3,758,255 | 3,064,786 |
| Sumuri           | 3,461,011 | 3,276,931 | 3,758,785 | 3,615,537 |
| Tomu             | 2,434,648 | 1,874,927 | 3,220,247 | 2,619,630 |
| Weriagar         | 3,085,984 | 2,756,625 | 3,523,097 | 3,117,751 |
| Fakfak Regency   |        |        |        |        |
| Bomberay         | 3,956,930 | 3,121,696 | 5,443,458 | 4,009,007 |
| Kokas            | 3,619,560 | 2,979,081 | 5,368,977 | 3,943,535 |

Source: Socio-Economic Census and Survey, 2016

Generally, both of the household in Bintuni and Fakfak Regency has the potential to develop well in the future. It is shown by the difference in income and expenditure, which has positive figure. A simple indicator that can be used to indicate household welfare is the balance of income and expenditure. A household is considered to have a stable economy if the difference between income and expenditure has a positive figure. In contrast, a household with a negative difference has a potential to broke and unable to fulfil its necessities. Based on this, household at Weriagar, Kamundan, Babo, and Sumuri District has the potential to develop in optimal. Especially for PNP, their economic development potential is twice better than IP (Table 4).

Table 4. Average Difference of Income and Expenditure a Month by District

| District         | IP     | PP     | PNP    | Total  |
|------------------|--------|--------|--------|--------|
| Teluk Bintuni Regency |        |        |        |        |
| Aranday          | 1,615,405 | 4,500,000 | 5,136,286 | 1,890,713 |
| Babo             | 4,312,456 | 3,016,865 | 5,061,040 | 4,310,407 |
| Kamundan         | 4,535,578 | 5,495,736 | 9,141,715 | 5,508,605 |
| Sumuri           | 4,179,828 | 3,549,618 | 4,004,210 | 4,024,527 |
| Tomu             | 3,606,417 | 2,752,957 | 3,778,918 | 3,582,047 |
| Weriagar         | 5,466,090 | 6,640,391 | 13,000,000 | 6,487,263 |
| Fakfak Regency   |        |        |        |        |
| Bomberay         | 4,619,021 | 8,199,051 | 823,573 | 4,642,230 |
| Kokas            | 3,771,318 | 3,376,686 | 3,887,743 | 3,775,671 |

Source: Socio-Economic Census and Survey, 2016

The life quality of the society is various among the districts when seen by welfare index indicator. Kamundan and Babo Districts are the two districts, which have a high welfare index. In general, it shows the life quality of the households in those districts is higher than any other districts. It also means that the quality of the economy, education, and health perspective in Kamundan and Babo Districts is the best. In another hand, Aranday Districts have the lowest level of welfare. Furthermore, its economy index is low, lower than any other districts (Table 5).
Table 5. Household Welfare Index by District

| Distrik                  | Economic Index | Education Index | Health Index | Welfare index |
|--------------------------|----------------|-----------------|--------------|---------------|
| Kabupaten Teluk Bintuni |                |                 |              |               |
| Aranday                  | 20.74          | 53.39           | 68.2         | 47.44         |
| Babo                     | 72.26          | 62.36           | 86.2         | 73.61         |
| Kamundan                 | 96.40          | 54.70           | 92.8         | 81.30         |
| Sumuri                   | 55.73          | 72.17           | 80.3         | 69.40         |
| Tomu                     | 39.64          | 62.72           | 79.5         | 60.62         |
| Werilagar                | 69.87          | 51.35           | 72.0         | 64.41         |
| Kabupaten Fakfak         |                |                 |              |               |
| Bomberay                 | 73.70          | 50.28           | 85.2         | 69.73         |
| Kokas                    | 47.17          | 64.37           | 90.0         | 67.18         |

Source: Socio-Economic Census and Survey, 2016

The bravery and independency cause the change in the economic life of the society in developing local business. Some of the developed local economic activities are trade business, home industry, and service provider for the society. The thing that also plays a role in making easy the fertile local business is cooperation. The important thing related to the society’s economic development is development innovation because of the migrant’s presence. The development of the social life in Teluk Bintuni Regency and its surrounding cannot be separated from the mingling of indigenous people and migrants. People’s migration to Teluk Bintuni region happening now influenced not only by the various ongoing activity but also by the diverse program, which is on the stage of planning. On the case of tribe migration to village areas around Tangguh LNG Project, migration is made by many tribes in Indonesia. It is interesting that the migration pattern in the village around Tangguh LNG Project happens inter-village, inter-districts, inter-regency, and even inter-island. According to the result of the survey, it is found that research migration inter-villages and inter-districts frequently occur in this region. The indication is clear enough. When examined from the origin of the ethnicity of the migrating inhabitants, the arriving migrants are mostly from the surrounding custom area, Fam and tribe living in the same region. The north region villages have the tendency of the migrant from the tribe and fam from the northern region. It is also similar to the villages in the south region. It also becomes an explanation that the unavailability of sufficient transportation facility does not guarantee that the inhabitants will not migrate and or mobile.

4. Conclusions

The population in the villages around LNG Tangguh are quite prosperous. It can be seen from the indicator of per capita income. The average per capita household income per month in each district more than one million rupiahs. Thus, in general, all households have been above the poverty line or not poor household. The condition of well-being also imaged from the well-being index. Almost all of the household in the region having well-being index are above 50.0. It shows that their living condition is wealthy. District Kamundan and Babo are two districts have the highest well-being index. This generally indicates the quality of life of households in the two districts is higher than other households in the district. This means that the quality both in the economic, education, and health district Kamundan and Babo is the best.

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