



Welfare indicators of fishermen around coal mining area of tanah laut reGENCY, South Kalimantan, Indonesia

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Abstract

This study was aimed to analyze the welfare indicators of fishermen's household around coal mining and outside the coal mining activities. The welfare indicators used in this study were education, health, and house conditions. The study site was Muara Kintap, Kintap district, and while Bawah Layung, Kurau district was used as comparing village. Results showed that the education level of fishermen's families in Muara Kintap was lower than those in Tanah Laut reGENCY in general, but not significantly different from those in Bawah Layung, Kurau reGENCY. The health condition in Muara Kintap was good based on the use of health personnel in baby birth and breastfeeding. The houses were, in general, small and concentrated around the coast and river mouth near the mooring site. Sanitation facilities, such as washroom and clean water source, were very limited, and thus, 74% of the fishermen's households had to buy bottled and refilled water for drinking water.

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Introduction

Tanah Laut Regency is geographically located between 3°30'33" – 4°11'38" S and between 114°30'20" – 115°23'31" E with an area of 3,846.86 km² and 175.93 km of coast alline covering 6 districts, i.e. Bumi Makmur, Kurau, Takisung, Panyipatan, Jorong and Kintap. Based on Indonesian Law Numbered 27, 2007, concerning the zonation planning area, including the administrative boundaries of the coastal districts and 4-mile sea territories, Tanah Laut regency has an area of 2,430.16 km² or 63.15% of total regency territory. The coastal area of the regency possesses either large fisheries resources potency or rich mining and mineral resources (coal in the area of 314.4 million m²).

Fisheries resources have been utilized under various productive activities, such as fish pond and fishing, as major livelihood. Mining and mineral resources have been used since early 1990s and more developed after the enactment of regional Autonomy Law in 2004. According to The Regional Development Planning Board data of South Kalimantan Province in 2012, there were 53 licensed mining companies and Coal Mining Agreement in Tanah Laut regency with an area of about 58,960 ha (Regional Development Planning Board of Tanah Laut Regency, 2013).

The occurrence of mining industries has given positive impacts on macroeconomic development of the regency, particularly gross regional revenue from mining sector (4.4 % in 1999 becomes 9.52% in 2006, and 10.90% in 2012), but this activity has also yielded potential negative impact on the coastal environment quality degradation (Central Bureau of Statistics of Tanah Laut Regency, 1999, 2006, 2012).

Muara Kintap village, Kintap district, is one of the coastal villages in Tanah Laut regency whose population is fishermen and fish farmers. There are also loading and unloading facilities shipping activities from several coal mining companies in this village. The operation of special port and the stockpile in Kintap river passes the Fish Landing Base of Muara Kintap that is also a leaning site of the fishermen's boats.

These activities certainly produce physical impacts, especially shipping path density in the river mouth of Kintap. Also, the operation of PT. Pribumi Citra Mega Utama (PCMU) port whose position is right on the beach seawards is not related with Kintap river. High number of coal transporting barges at anchor to wait for coal unloading queue in the port at least restrict the space of the traditional fishermen's fishing operations conducted inside the 3-mile distance or in zone IA.

The coal mining companies have also duties to perform empowerment programs for surrounding communities as mandated in the Indonesian Law numbered 4, 2009. Hence, this study formulated the question "have the occurrence of coal mining companies along tens of years yielded positive impact on the prosperity of surrounding fishermen communities.

Other previous studies found that the artisanal fishermen of Muara Kintap, particularly bottom gill nets (fish and shrimp) were not influenced by coal mining activities in the study site since their fishing grounds were in the area of 3-6 miles and used more than one type of fishing gears so that they can fish almost along the year. Their mean monthly income was also higher than the provincial minimum wage of south Kalimantan and that of fishermen in Bawah Layung, Kurau district, except that low income-traditional fishermen due to access limitation to the fisheries resources (Hidayat, A.S., 2014)

The objective of this study is to analyze the welfare condition of Muara Kintap fishermen who live around the coal mining activities, and to compare whether there are significant differences from that in Tanah Laut regency in general and other area of the regency where there is no coal mining activity.

Materials and methods

Site Selection

This study was carried out through survey and used comparative descriptive method. The study site were intentionally selected in Muara Kintap village, Kintap district, Tanah Laut regency, south Kalimantan province representing the problem on study.

Bawah Layung village, Kurau district, fishermen’s village with no coal mining activities, was also taken as comparison.

Data Collection

The samples were small-scaled fishermen’s households using less than 5GT fishing boats. Number of samples were determined using Slovin (Sekaran, 2000), 59 households in Muara Kintap and 39 households in Bawah Layung, respectively. Welfare indicators covered a) education, consisting of School Participation Value, Pure Participation Value, education level, and illiteracy value; b) Health, covering illness complaints, disease handling, first and last birth assistance, and breastfeeding; and c) Residence, comprising house ownership status, widest house roof, widest house wall, widest floor, drinking water source, washroom, electricity.

Data Analysis

Fishermen’s welfare indicators used people’s welfare index of the Central Bureau of Statistics. For welfare condition comparison, this study applied proportion difference test following the formula given by Mason & Lind (1996). Single proportion difference test was used to compare the people’s welfare of the study

village with the welfare index-2014 of Tanah Laut regency, while two-proportion difference test was used to compare the study village with Bawah Layung village.

Results

Study Site Description

Education Facilities

Education facilities in Muara Kintap were good enough indicated with the presence of state secondary school, 2 elementary schools with 640 students, and one Madrasah Ibtidayah. In the last few years, students had to go to other neighborhood villages, Desa Sumber Jaya, Sungai Cuka, or the capital of Kintap district, Kintapura, to get the secondary school education. The present state secondary school had 194 students and 13 teachers. In addition, this village had also private kindergarten schools with 71 students and 6 teachers.

HealthFacilities

One of the factors influencing the community’s health condition is the availability of health facilities and the community’s utilization rate. This study found that this village had standard health facilities as those in other village in general.

Table 1. Health facilities in muara kintap.

| No | Infrastructure | Number (Unit/pers.) | Facilities (medical personnel) | Number (Unit/Org) |
|----|--|---------------------|--------------------------------|-------------------|
| 1. | Auxiliary Health Center | 1 | Paramedic | 1 |
| 2. | Polyclinics | 2 | Certified TB As | 3 |
| 3. | Integrated Service Center (posyandu) | 2 | midwife | 1 |
| 4. | Pharmacy | 1 | nurse | 1 |
| 5. | Health Center for mothers and children | 1 | healer(alternative) | 2 |

Source: Kintap District in numbers, 2015.

Muara Kintap had only an auxiliary health center, since the health center is in Kintapura, about 15 km from Muara Kintap. The medical personnels in Muara Kintap were paramedic, village midwife, nurse and healer (Table 1), while doctors were only available 2 persons in Kintapura.

Economic Facilities

Market is an important facility to do various economic activities or to fulfill people’s daily needs in certain locality.

Muara Kintap had a local market operation on Monday and Wednesday, where various food materials, clothes and other family’s needs were sold. This village had also a local cooperative unit and a Fish Auction Center in the fish landing center as well. Both facilities were not well-managed. All transactions for fish and shrimps landed were not institutional, but individual. The economic facilities of Muara Kintap are presented in Table 2.

Table 2. Economic facilities in muara kintap.

| No. | Type of Facilities | Number | Remark |
|-----|------------------------|--------|----------------------|
| 1. | Local Market | 2 | Monday and Wednesday |
| 2. | Fish Market | 1 | Fish Landing Center |
| 3. | Local Cooperative Unit | 1 | Inactive |
| 4. | Private Cooperative | 1 | 1 |
| 5. | Savings Group | 3 | Active |
| 6. | Grosery Shop | 25/7 | Unit |
| 7. | Supermarket | 1 | Unit |
| 8. | Vehicle Care | 4 | Unit |

Source: Kintap District in number, 2015.

Other Public Facilities

Other public facilities were also available in the village or the regency capital, such as electricity, police station, telephone booth, soccer field, volleyball court (Table 3).

Supporting Facilities of Fisheries Business

Muara Kintap, Tanah Laut regency, has a type-D port, Muara Kintap Fisheries Port with an area of 29.452 m², that is one of the Technical Implementation Unit of Fisheries and Marine Services of South Kalimantan Province.

The use of building facilities in this port has had an operational permit from the Directorate of Fishing Fisheries, the Ministry of Marine and Fisheries. The facilities and the infrastructures were complete enough, such as Fish Auction Center, fishermens workshop, and other buildings. In 2012, an ice factory was built with production capacity of 20 tons/day to be able to meet the fishermen’s need for ice, and since early 2014 a Solar Packed Dealer for fishermen has also functioned to serve the fishermen’s need for fuel. Clean water and other supporting facilities were available as well.

Table 3. Other public and social facilities.

| Type of Facility | Number and Remark | Type of Facility | Number and Remark |
|------------------|--------------------------|-------------------------|-------------------|
| Electricity | Present (400 households) | Religious Affair Office | in the district |
| Police Station | Coast Guard | Post Office | in the district |
| Telephone Booth | Present | Bank | in the district |
| Soccer Field | 3 | Homestay/Hotel | in the district |
| Volleyball Court | 5 | | |

Source: Kintap District in number, 2015.

Beside fishing facilities, there were also ponds in Muara Kintap to promote fish farming, an irrigation channel functioning as water inlet and outlet for the fish ponds. This facility was built around 1999-2000 under Japanese Aid Program, Loan Program Sector-OECF, for Pond and Hatchery Development Project.

Fishermen’s Welfare Indicator

Education

Education level of fishermen’s families in Muara Kintap is lower than that in Tanah Laut regency in general. This condition could appear from the education level finished by the fishermen’s family members in the village. Approximately 62.62% finished only the Elementary School level,

while for the higher level of education, they were still below the education level of the people in Tanah Laut regency as a whole, and even there was nobody with D3/S1 education level. Nevertheless, the education level of the fishermen’s family members in Muara Kintap was not significantly different from that in Bawah Layung, Kurau district (Fig. 1).

Based on the pure participation value of the fishermen’s families, especially at the secondary school and high school level, in the next few years, more children in Muara Kintap will finish the secondary school and high school. The difference test on all fishermen’s educational indicators between Muara Kintap and the welfare indicator of

Tanah Laut regency and those in Bawah Layung, Kurau district, is presented in Appendix 1.

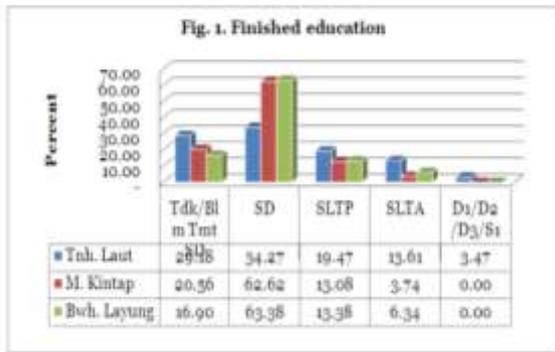


Fig. 1. finished education.

The improvement indication of children’s education condition in Muara Kintap is very significant based upon school participation value and pure participation value that are much higher than that in the regency in general and in Bawah Layung. This high participation could result from enough number of education facilities up to their secondary school level near their residences and better land transportation access to the district capital to have high school education than that in several years ago. The school participation and pure participation values are presented in Fig. 2 and Fig. 3.

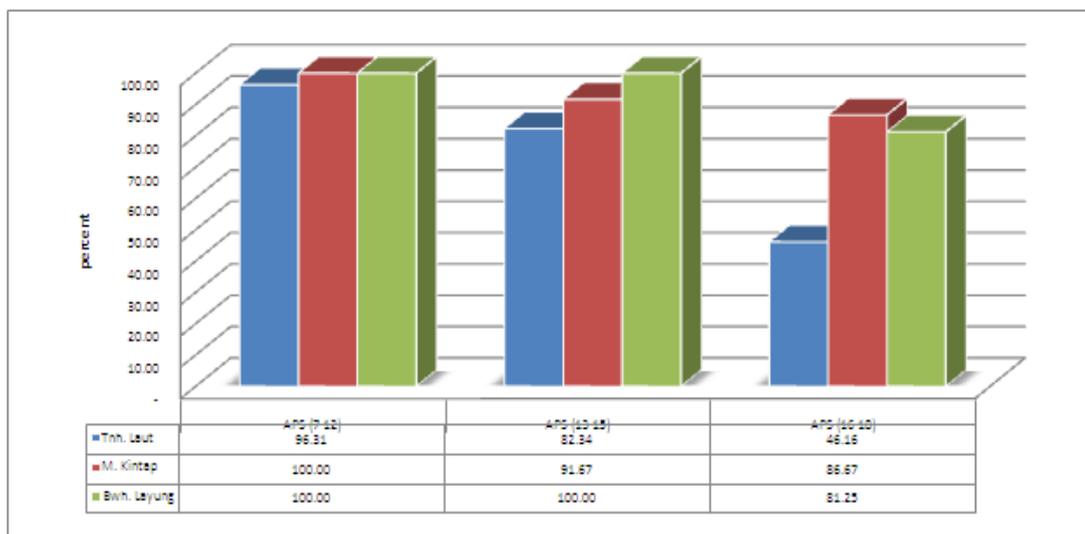


Fig. 2. School participation value.

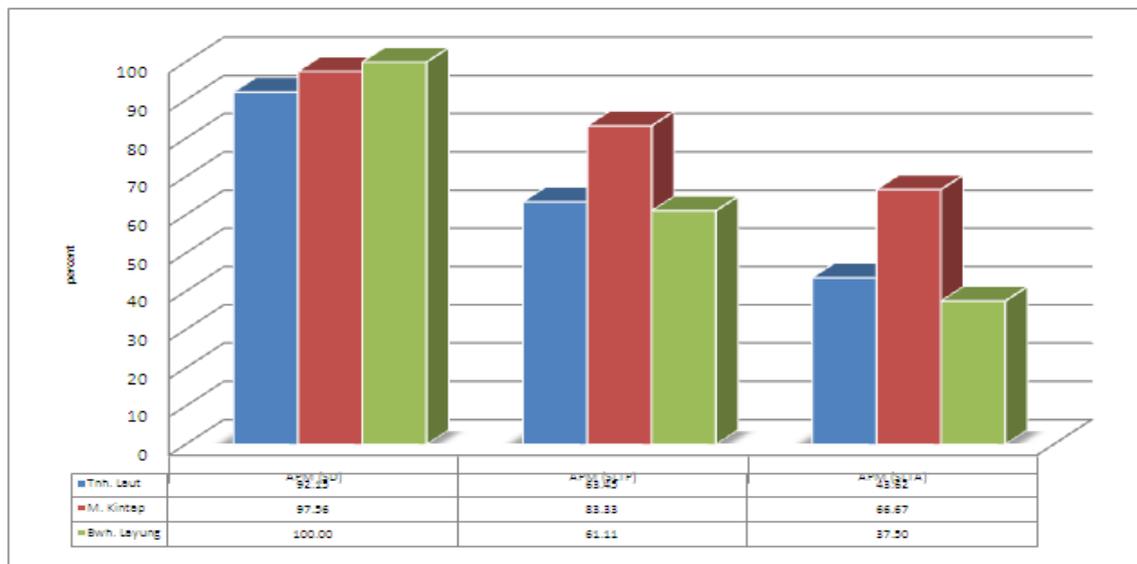


Fig. 3. Pure participation value.

The illiteracy condition of the fishermen's families in Muara Kintap was also not different from that in Tanah Laut regency in general or in Bawah Layung, Kurau district, about 3%.

Health

Most disease complaints suffered by the fishermen's families in Muara Kintap were headache, 40.38%, and fever/cough/flu, 37.50%, while 65.67% of the regency communities suffered from fever/caugh/flu and 9.17% of the complaints were headache (Fig.4). High headache sufferers could result from hot coastal area condition and their fishing activities under various weather conditions. The fishermen of Bawah Layung mostly suffered from fever/cough/flu, 54.55%, and then headache, 16.67%. This condition could be caused by different topographic position of both villages, where Muara Kintap fishermen live right on the coastal area, while Bawah Layung fishermen live inside the inland area and getting access to the coast through river, so that they get only low impact of the coastal condition.

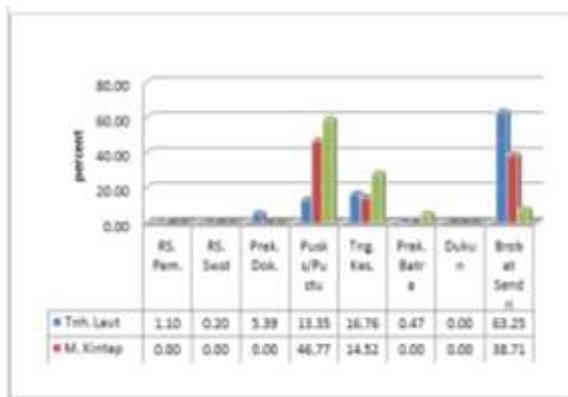


Fig. 4. Most disease infected.

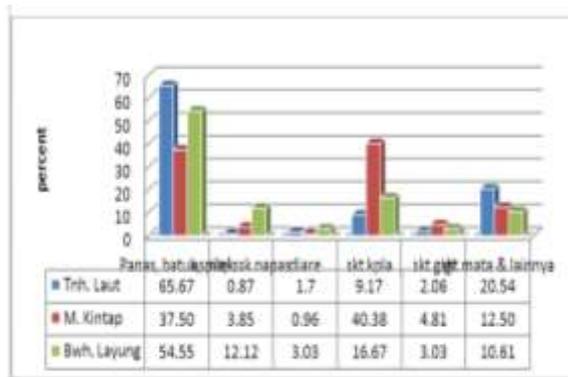


Fig. 5. Disease handling.

Sick fishermen's family members (46.77%) of Muara Kintap went to the Public Health Center or Auxiliary Health Center in the village, the rests, 38.71%, bought medicines from the local store and 14.52% went to paramedic. It is quite different from those in Tanah Laut regency, where 63.25% will buy medicines from the local store, and the rests go to the state hospital, nursing home, and other health services to get the medical care. On the other hand, the fishermen's families in Bawah Layung have better health behavior, since only small number (7.69%) of the sickness treat themselves from buying medicine in the pharmacy, while most of them go to the health center or auxiliary health center in their place and other health personnels to get the treatment (Fig.5). First and last baby's births handlings are were getting better in Muara Kintap, where 83% of the first birth and 92% of the last birth have employed health personnels, particularly midwife's services (Fig. 6). Number of childbirths actuating the health personnels have reached the Indonesian Republic Health Department's target in 2015 in which 90% of the childbirths should use the health personnels, either doctor or midwife. Compared with Bawah Layung, Kurau district, the use of health personnels in Muara Kintap is slightly higher despite not statistically significantly different.

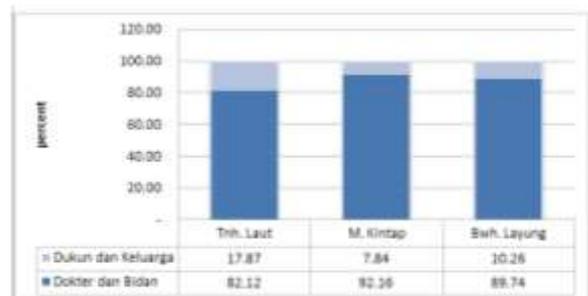


Fig. 6. First childbirth handling.

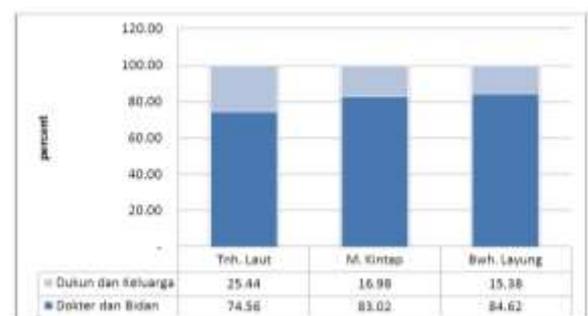


Fig. 7. Last childbirth handling.

Furthermore, fishermen’s families (92.13%) of Muara Kintap breastfeed their babies. This number is not significantly different from the welfare indicator value of Tanah Laut regency and that of the fishermen’s families in Bawah Layung (Fig. 8).

Based on this value, the awareness of breastfeeding the babies in this area has reached 90% and exceeded the condition of south Kalimantan, around 51.2% in 2011.



Fig. 8. Breast feeding.

The proportion difference test on all health indicator variables of the fishermen’s families in Muara Kintap against the welfare indicator values of Tanah Laut regency and those in Bawah Layung Kecamatan Kurau is demonstrated in Appendix 2.

House Condition

Most fishermen’s houses in Muara Kintap, 98.15% are private property, and the rests are rented houses. As a whole, house ownership status in the regency is private property, 93.31%, and the rest is under rental and official residences (Fig. 9).

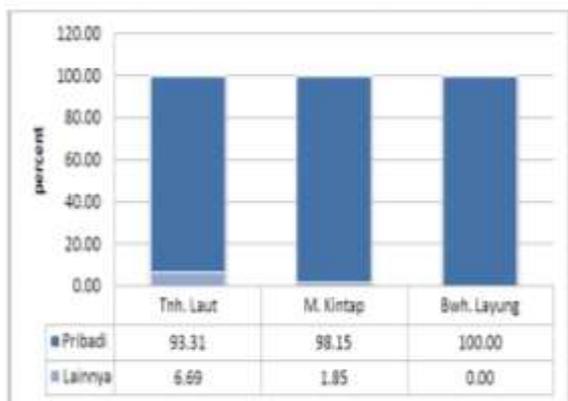


Fig. 9. House ownership status.

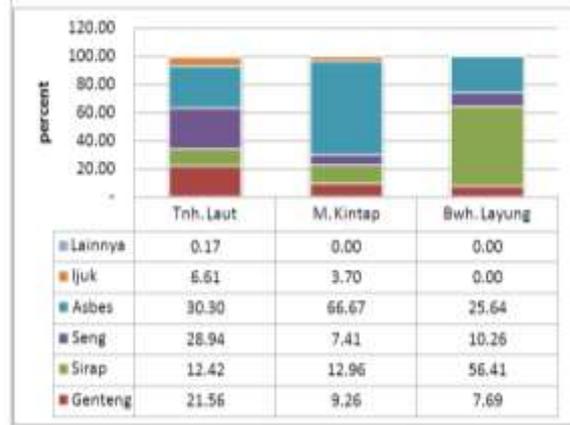


Fig. 10. Widest house roof.

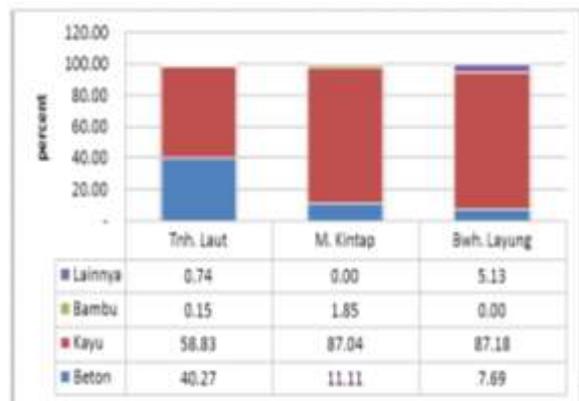


Fig. 11. Widest house wall

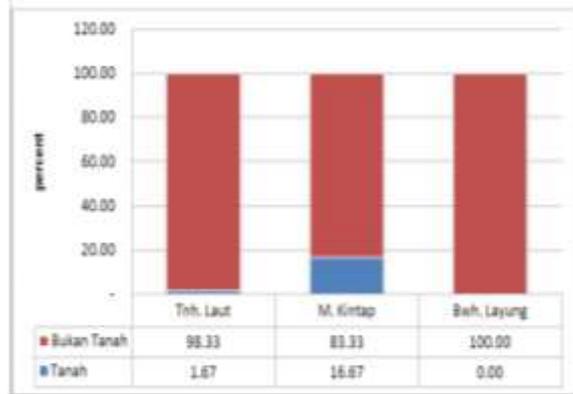


Fig. 12. House floor.

The most part of the house roof, wall, and floor conditions is poorer than the general house condition in Tanah Laut regency (welfare indicator). Beside relatively small size and close inter-house distance, 66.67 % of the fishermen’s houses used asbestos roof, and 16.61% had dirt floor, while only 1.67% of the houses in the regency had dirt floor as given in Fig. 10, 11, and 12.

Based on the residential indicators, the fishermen's house condition in Muara Kintap, Tanah Laut reGENCY, is poorer than that in Bawah Layung, Kurau district, in which most houses (56.41 %) have shingle roofs and wooden floor. Health indicator-related house is clean water source.

Clean water defined in this study is drinking water source used by the fishermen's households, such as bottled water, refilled water, drilled water spring, tap water, retailed tap water, protected water spring with $\geq 10m$ distance from the septic tank, or unprotected water spring with $\geq 10m$ distance from the septic tank.

The drinking water used by the fishermen of Muara Kintap was bottled water and refilled water (74.07%). However, 43.64% of Tanah Laut reGENCY residents used protected water spring and drilled water spring, and only 15.03% used the bottled water and refilled water.

High utilization of bottled water and refilled water could result from no tap water installation available, residential position right on the beach and very close inter-house distance, so that water spring as clean water source is very limited to only houses.

With large yard. Fishermen of Bawah Layung, Kurau district, mostly (69.23%) used the drilled spring water sold around the village (Maluka village) and 30.77% bought bottled water and refilled water for drinking water.

Other welfare indicator of the residence is washroom facility. More than 74% of the fishermen in Muara Kintap have washroom facility in their house, but these number are slightly lower than those in Tanah Laut reGENCY reaching 78.05%.

There are still high number (11.11%) of fishermen's households in Muara Kintap using public washroom relative to those in the reGENCY (Fig.14).

Nevertheless, the washroom facility of Muara Kintap fishermen is still better than that in Bawah Layung, Kurau district, where only 69.23 % of them have their own washrooms and 30.77% use the public washroom.

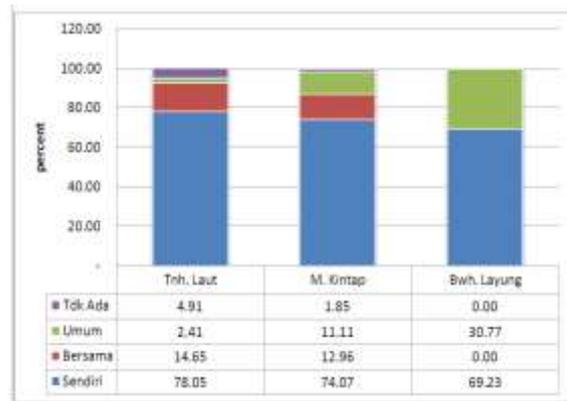


Fig. 13. Drinking water source.

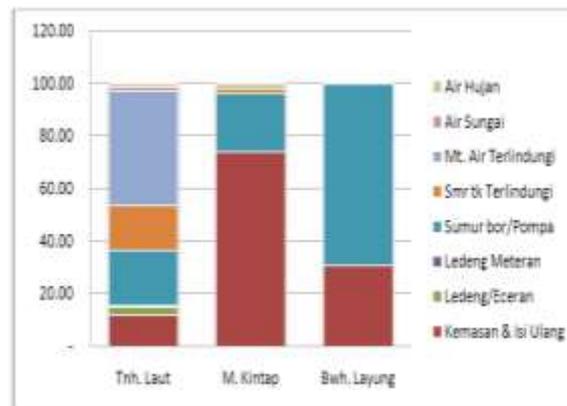


Fig. 14. Washroom.

Furthermore, access to the electricity will also determine people's welfare, since electricity has become important energy source in promoting alldaily activities. In economic context, sufficiency of electricity is an important in dikator to run the real sector of the communities and increase the added value. The access to the electricity is calculated based on the percentage of the households utilizing the electricity as major light source.

Fishermen of Muara Kintap or Bawah Layung have taken advantages of the electricity provided by the State Electricity Company. This condition is better than the general welfare indicator condition in Tanah Laut reGENCY in 2013, in which there are 3.8%of the households that could not use this facility yet (Fig.15). The proportion difference test on welfare indicator variables of the fishermen's residence and its facilities in Muara Kintap against the welfare indicators of Tanah Laut reGENCY and Bawah Layung, Kurau district, is given in Appendix 3.



Fig. 15. Electrical facilities.

Discussion

The education level of fishermen’s families in Muara Kintap is lower than that in Tanah Laut regency in general. Most of them (62%) finished the elementary school, while those who finished the secondary school and high school were only 13% and 4%, respectively. None of the fishermen’s families have got a university degree. This condition is a real potrait of how low the Indonesian coastal villager’s education level in general. Previous finding (Muflikhati, 2010) indicated that fishermen’s welfare level from educational indicators was very low. Prihandoko *et al.* (2012) also confirmed that the fishermen in the north coast of west Java averagely took formal education only for 5 years or equivalent to year 5 of the elementary school level.

Several types of jobs that could provided by the coal mining companies in the area were barge ligature, barge guide, and freshwater supplier, indicating that their low education level could not meet better job requirements, especially in mining field. In fact, any company’s employees must have certain education and skill qualifications. It is linewith some findings (Ilmi Hidayat,2010; Siska, 2013; and Risal *et al.*, 2013) that the presence of coal mining companies does not necessarily give working opportunity to the local communities. Low quality of human resources around the mining area is a main problem for local worker absorption (Harini and Ariyanto, 2011).

This condition is contradictory to the previous finding (Kitula, 2006), in which the presence of large-scaled mining companies in Gieta District, Tanzania, has given benefits to the surrounding communities.

Based on the number of respondents, the presence of mining companies provided job opportunity (42%), road development, water supply, and school buindings (20.3%), food plan supply (10.8%), small-scaled usiness (8.1%), and even 33.8% can work in minng activities).

The education quality improvement of fishermen’s families in Muara Kintap is indicated by their participation value in formal education. The school participation and pure participation values of the fishermen’s families in Muara Kintap were higher than the welfare indicator in Tanah Laut regency. This condition could certainly not be separated from the awareness development of the education importance, the increased education facilities in their village (presence of secondary school), and increasingly easier transportation access to the high school in the district capital.

The health condition of fisherimen’s families in Muara Kintap can be categorized as good, especially their awareness of benefiting the health personnels in helping baby’s birth and breastfeeding. The fishermen’s families of Muara Kintap, 92.16%, have used the health personnels exceeding the welfare indicator value of Tanah Laut (82,12%) and the achievement of south Kalimantan in 2013 (83.96 %) and the national level in 2013 (90.88%).

Many factors can affect family’s decision in birth handling and breastfeeding. According to Juariah (2009), education level, socio-economic condition, job, availability and access to health facilities, family’s support, religious leader, community’s leader, and level of mother’s knowledge on health during pregnancy, childbirth and postpartum are possible factors influencing the family’s decision in this matter.

It is interesting that even though the fishermen’s disease complaints are relatively the same between Muara Kintap and Tanah Laut regency communities (welfare indicator), there are much higher number of headache complaints in Muara Kintap fishermen.

The physical condition of fishermen's houses in Muara Kintap has quite relative deficiency and advantages and is a typical characteristic of fishermen's residence in general. Their houses are small and concentrated around beaches and river mouth that make the fishermen be near the fishing boat mooring site.

Sanitation-related house facility, such as toilet, is a very important welfare indicator. It is also related with the water source that meets the requirements for drinking water. The residential condition of Muara Kintap fishermen mentioned above makes most of them (74%) use the bottled and the refilled water, and only 22% utilize boredhole water for drinking water. This condition is quite different from that of Bawah Layung fishermen who mostly (69%) buy clean water of drilled spring from the neighborhood village, Maluka.

Difference in water source utilization as drinking water is the form of their adaptation to obtain good drinking water standard. At least it illustrates people's awareness of the importance of drinking water meeting the health requirements. In line with the condition above, according to the Coordinating Minister for People's Welfare, present sanitation and drinking water in Indonesia are not apparently optimally managed. Based on data of the Central Bureau of Statistics and the Ministry of Public Works, the national drinking water service achievement up to 2012 only reached 58.05% of the MILLENNIUM DEVELOPMENT GOALS (MDGs) in 2015, 68.87%, meaning that drinking water services need to be improved for 33 million of people to reach the target.

Conclusion

Fishermen's welfare condition in Muara Kintap, Kintap district was worse than those in Tanah Laut regency in general based on education and residential indicators, but better than those in Bawah Layung. Nevertheless, the use of health personnels in baby's birth and breastfeeding was better than that in the regency based upon the use intensity of health personnels in baby's birth and breastfeeding.

The fishermen's welfare between the area with and with no mining activities was not significantly different based on education level, health, and residence. The presence of coal mining companies did not necessarily improve people's welfare in the Muara Kintap as well.

References

BPS-Statistics of Indonesia. 2013, The development of minimum wage/Provinces in Indonesia. www.bps.go.id

BPS-Statistics of Tanah Laut Regency. 1999. Gross Regional Domestic Product of Tanah Laut Regency South Kalimantan in 1999.

BPS-Statistics of Tanah Laut Regency. 2006. Gross Regional Domestic Product of Tanah Laut Regency South Kalimantan in 2006.

BPS-Statistics of Tanah Laut Regency. 2012. Gross Regional Domestic Product of Tanah Laut Regency South Kalimantan in 2012.

Harini R. And D, Apriyanto, 2011. Impact of coal mining activity on the socio-economic condition of Ipuh Darat communities, Tenggara Kutai Kartanegara. *J. Bumi Indonesia*. 1 (3): www.lib.geo.ugm.ac.id/ojs/index.php/jbi/article/view/96.

Hidayat AS. 2014, Fishermen and Fish Farmers Household Economy Around Coal Mining of Tanah Laut Regency, South Kalimantan, Indonesia. *I IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS)* e-ISSN: 2319-2380, p-ISSN: 2319-2372. Volume 7, Issue 12 Ver. I (Dec. 2014), PP 12-18 OS.

Ilmi Hidayat M. 2010. Impact of coal mining on the community socio-economic condition in Sei Pinang district, Banjar Regency. *ZIRAA'AH* **27(1)**, 80-88.

Indonesian Law Numbered. 2007. *Pengelolaan Wilayah Pesisir dan Pulau Pulau Kecil, Pemerintah Republik Indonesia (coastal area and small islands management, the Government of Indonesian Republic)*. www.dkp.go.id/upload/UU_27_2007_%20wilayah_Pesisir_ppk.pdf.

Juariah, 2009. *Antara Bidang Dan Dukun*. Majalah Bidang Volume XIII. Jakarta.

Kitula AGN. 2006. The environmental and socio-economic impacts of mining on local livelihoods in Tanzania: A case study of Geita District.

Mason Robert D, Douglas Lind A. 1996. *Statistical Techniques for Business and Economics*. Translation of Ellen Gunawan Sitompul *et al*. Jakarta: Erlangga.

Muflikhati, 2010. Kondisi Sosial Ekonomi dan Tingkat Kesejahteraan Keluarga : Kasus di Wilayah Pesisir Jawa Barat. *Jurnal Ilm. Kel. & Kons.* Januari 2010; p : **1-10**. ISSN:1907-6037.

Prihandoko S, Amri J, Darwis SGI, Gusti P, Adrianto PL, Tjitradjaya I. 2012. Social economic condition of the artisanal fishermen in the north coast of west Java province. *J. counselling*. Vol. 3 No.1. ISSN 1858-2664.

Regional Development Planning Board of Tanah Laut Regency. 2013, Data Book and Analysis of Coastal Area Zone Plan and Small Islands of Tanah Laut Regency of 2013.

Risal S, dkk. 2013. Analisis Dampak Kebijakan Pertambangan Terhadap Kehidupan Sosial Ekonomi Masyarakat di Kelurahan Maroman. *eJournal Administrasi Reform* **1(1)**, 117-131.

Sekaran U. 2000. *Research Methods for Business: A Skill-building Approach*. 3rd ed. USA: John Wiley & Sons, Inc.

Siska. 2013. Coal Industrial impact on the community social economy around Jembayan village, Loa Kulu district, Kutai Kartanegara regency, *eJournal Administrasi Negara* **1(2)**, 473-493.

Appendix 1. Proportion difference test on fisherman’s education condition.

| Welfare Indikator | Difference test on welfare indicator of Tanah Laut Regency | | Difference test on fishermen of Bawah Layung village | |
|--------------------------------|--|-----------------|--|-----------------|
| | t-cal. | Decision | t-cal. | Decision |
| Education Condition | | | | |
| a. School Participation | | | | |
| APS (7-12) | 1.9043 | Non significant | 0,0000 | Non significant |
| APS (13-15) | 5.0284 | Significant | -4.4929 | Significant |
| APS (16-18) | 22.4636 | Significant | 3.0039 | Significant |
| APM (SD) | 2.8273 | Significant | -1.2744 | Non significant |
| APM (SLTP) | 11.2463 | Significant | 12.5692 | Significant |
| APM (SLTA) | 14.5852 | Significant | 18.4582 | Significant |
| b. Education Level | | | | |
| Not finish Elementary School | -6.3797 | Significant | 4.2058 | Significant |
| Elementary School | 18.5145 | Significant | -0.4987 | Non significant |
| Secondary School | -9.2724 | Significant | -0.4298 | Non significant |
| High School | -28.2508 | Significant | -7.4368 | Significant |
| c. Reading Ability | | | | |
| Illiteracy | 0.6077 | Non significant | 2.4896 | Significant |

Source: Processed primary data, 2014

Note:t-tab. (df=53;α/2=0.025) =2.0058

Appendix 2. Proportion difference test on fishermen’s health condition.

| Welfare Indicator | Difference test on welfare indicator of Tanah Laut Regency | | Difference test on fishermen of Bawah Layung village | |
|--------------------------------------|--|-----------------|--|-----------------|
| | t-cal. | Decision | t-cal. | Decision |
| Health and Infant Condition | | | | |
| a. Common disease infection | | | | |
| Fever, cough, flu | -23.8401 | Significant | -14.4255 | Significant |
| ashma/breathing problems | 8.3754 | Significant | -23.2874 | Significant |
| diarrhea | -5.5956 | Significant | -15.6758 | Significant |
| Headache | 25.4436 | Significant | 19.3329 | Significant |
| Toothache | 6.8150 | Significant | 4.4084 | Significant |
| sakit mata dan lainnya | -11.9478 | Significant | 2.8145 | Significant |
| b. Disease Infection Handling | | | | |
| Health Center | 25.2928 | Significant | -9.2325 | Significant |
| Health personnel | -3.0805 | Significant | -18.8226 | Significant |
| Berobat Sendiri | -20.4397 | Significant | 25.8310 | Significant |
| c. Birth assistance | | | | |
| Doctor and midwife | 4.7936 | Significant | -0/9047 | Non Significant |
| Healer and Relatives | -10.7261 | Significant | 2.0244 | Significant |
| d. Last baby birth assistance | | | | |
| Doctor and midwife | 5.3968 | Significant | 1.2976 | Non Significant |
| Healer and family | -19.0479 | Significant | -4.5845 | Significant |
| e. Breastfeeding | | | | |
| Yes | 0.0471 | Non Significant | 0.8894 | Non Significant |
| No | -0.2835 | Significant | -3.1778 | Significant |

Source: Processed primary data, 2014
 Note:t-tab. (df=53;α/2=0.025) =2.0058

Appendix 3. Proportion difference test on fishermen’s house condition.

| Welfare Indicator | Difference test on welfare indicator of Tanah Laut Regency | | Difference test on fishermen of Bawah Layung village | |
|--|--|-----------------|--|-----------------|
| | t-cal. | Decision | t-cal. | Decision |
| House Condition | | | | |
| a. House Ownership Status | | | | |
| Private | 2.5204 | Significant | -0.9647 | Non Significant |
| b. Widest House’s Roof Condition | | | | |
| Roof tile | -21.3954 | Significant | 2.7255 | Significant |
| Shingle | 0.7917 | Non Significant | -63.3541 | Significant |
| Zinc | -42.1756 | Significant | -5.5803 | Significant |
| Asbestos | 23.0148 | Significant | 25.9632 | Significant |
| Fibers | -8.3587 | Significant | 2.7255 | Significant |
| c. Widest House’s Wall Condition | | | | |
| Concrete | -46.0801 | Significant | 5.4028 | Significant |
| wood | 15.6092 | Significant | -0.0788 | Non Significant |
| Bamboo | 7.5349 | Significant | -22.7051 | Significant |
| d. Widest house’s floor condition | | | | |
| land | 19.2003 | Significant | 21.3384 | Significant |

| Welfare Indicator | Difference test on welfare indicator of Tanah Laut Regency | | Difference test on fishermen of Bawah Layung village | |
|---------------------------------|--|-----------------|--|-----------------|
| wood | -8.4823 | Significant | -9.4269 | Significant |
| e. Drinking water source | | | | |
| bottled and refilled water | 37.3678 | Significant | 25.9894 | Significant |
| boredholes/drilled spring water | 1.3941 | Non Significant | -51.9215 | Significant |
| unprotected spring | -67.7325 | Significant | 8.1991 | Significant |
| river and rain water | 2.2662 | Significant | 8.1991 | Significant |
| f. washroom | | | | |
| private | -2.3862 | Significant | 2.9067 | Significant |
| shared | -2.4600 | Significant | 18.9024 | Significant |
| public | 13.7505 | Significant | -31.0659 | Significant |
| none | -13.5399 | Significant | 8.1991 | Significant |
| g. Electricity | | | | |
| National Electricity Company | 1.9611 | Non Significant | 0.0000 | Non Significant |

Source: Processed primary data, 2014
 Note: t-tab. (df=53;α/2=0.025) =2.0058