

## Original Research Article

# Analysis of Welfare Levels of Fishermen Workers of Gill Net Fishing Equipment in Karangsong Village, Indramayu Regency

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### ABSTRACT

Indonesia is an archipelagic country with a high diversity of aquatic biological resources, so it has the potential for sustainable fisheries resources that can accommodate the economy. However, it has not created an even distribution of welfare for labor fishermen because poverty is still happening. This research was carried out in Karangsong Village, Indramayu Regency, from September to October 2022 to analyze the welfare level of fishermen working for gill net fishing gear in Karangsong Village, Indramayu Regency. The method used is a descriptive case study with a quantitative approach. Data collection techniques were carried out by direct observation, and interviews were completed by filling out questionnaires of 30 respondents. Respondents were taken using a purposive sampling technique. The research parameters include ten welfare indicators summarized by the Central Statistics Agency (2015). The results of the research show that based on the welfare indicators according to the 2015 BPS, it is known that the income of labor fishermen comes from wages from the fishery profit sharing system and other jobs with an average total income of IDR 5,086.667 per month. Meanwhile, total expenditures came from food and non-food spending, with an average of IDR 3,792,667 per month. The fishermen working for gill net fishing gear in Karangsong Village are classified as having a high level of welfare, between a score of > 2.31 and a total score of 2.76. Labor fishermen classified in high welfare were 27 respondents, while labor fishermen classified in moderate welfare were three respondents.

*Keywords: Welfare, labor fishermen, gill net, fisheries*

### 1. INTRODUCTION

Indonesia is an archipelagic country with a very high diversity of aquatic biological resources. The sustainable potential of Indonesian marine capture fisheries resources reaches about 6.5 million tons per year with a utilization rate of 5.71 tons per year. Indonesia's marine economic potential is predicted to reach USD 1,338 billion annually [10]. One of the productive waters in Indonesia is the northern waters of the island of Java. Indramayu Regency is an area known as the area that has the highest fishing activity in the North of Java Island. In general, Indramayu Regency is an agricultural area and a fishing or maritime area. Fishermen supply more than 45% of West Java's marine fishery production in Indramayu Regency [7]. The length of the beach is 114 km, with the potential for fishing in the sea which is quite significant in managing marine resources [5]. In 2015, 61.50% of West Java's total marine fishery production came from Indramayu Regency [3]. Indramayu Regency is the district with the highest fishery product production in 2015, 2016, and 2019 in

West Java Province. According to the Department of Fisheries and Maritime Affairs of West Java Province, in 2015-2016, production data from capture fisheries in Indramayu Regency reached 290.933.80 tons. The production is obtained from fishermen's catches, amounting to 40,545 RTP (as many as 14.94% owners and 85.06% fishery workers) [2]. According to the West Java Central Statistics Agency, the production data of capture fisheries products in Indramayu Regency in 2019 reached 167,474 tons.

Karangsong Village is one of the areas in Indramayu District as a potential fish producer, which is  $\pm$  4.5 km from the center of the capital city of Indramayu Regency. The fish landing site in Karangsong Village is located around the coast of the Java Sea, which is located inside the shoreline. Karangsong village has fish production dominated by gill net fishing gear output. Approximately 80% of the total fishing units in Karangsong Village are gill net fishing units [6].

Labor fishermen use the majority of gill net fishing gear in fishing operations which supports the success of the high catch production rate. The number of catches is one of the main factors in the income of labor fishermen in meeting their daily needs. Thus, the high fishing volume determines the payment of labor fishermen in Karangsong Village. The low income of labor fishermen is caused by the dependence of labor fishermen on fishing activities; the selling price of fish received by labor fishermen is not large or very far from the market price [1].

According to data from the Central Statistics Agency of West Java, 2014-2016. Indramayu Regency is recorded as a population that has low welfare. The poor people in West Java, Indramayu, were 14.29% in 2014, 14.98% in 2015, and 13.95 in 2016. This condition of labor fishermen must be resolved to create equitable welfare and eradicate poverty. Based on these data, this research aims to analyze the welfare level of fishermen working for gill net fishing gear in Karangsong Village, Indramayu Regency.

## **2. METHODOLOGY**

This research was carried out in Karangsong Village, Indramayu Regency, from September to October 2022. The research object is the welfare level of fishermen with gill net fishing gear. The research method used is a descriptive case study method with a quantitative approach. Data collection techniques were carried out by direct observation, and interviews were completed by filling out questionnaires of 30 respondents. Respondents were taken using a purposive sampling technique. The respondents' criteria are labor fishermen groups who live in Karangsong Village, labor fishermen groups who own or operate with gill net fishing gear, labor fishermen groups who have families (consisting of wives or children), labor fishermen groups who sail outside Java Island, a group of labor fishermen who have >5 years of experience, a group of labor fishermen who are willing to be interviewed and can communicate well. The research parameters include ten welfare indicators summarized by the Central Statistics Agency (2015). The data used in this study are primary and secondary data. Primary data were obtained using interviews and questionnaires to get information on household income, household consumption and expenditure, living conditions, housing facilities, the health of family members, ease of obtaining health services from medical personnel, ease of enrolling children in education, ease of access to health care services. Access to information and communication technology, quality of education of family members, children's sense of crime disturbance. Meanwhile, secondary data collected in the form of several previous research journals, data from related agencies or institutions, internet search results, the Department of Fisheries and Marine Affairs in Indramayu and West Java Regencies, the Central Statistics Agency for Indramayu and West Java Regencies, and other media information related to research.

## 2.1 Data Analysis

Data analysis includes classifying data based on variables and respondents, tabulating data based on variables from all respondents, presenting data for each variable studied, performing calculations to answer the problem formulation, and performing calculations to test the hypothesis proposed by Sugiyono [12]. Data analysis in this research uses ten welfare indicators summarized by the Central Statistics Agency (2015), including:

### 2.1.1 Household Income

Household income can be calculated by the following formula [9]:

$$\text{TPRN} = \text{PN} + \text{PAN} + \text{PIN}$$

Information:

- TRPN = Household income (Rp/month)
- PN = Husband's income (Rp/month)
- PAN = Wife's income (Rp/month)
- PIN = Income from other sources (Rp/month)

The formula above concludes that household income is generated from three sources: husband's, wife's, and other sources.

### 2.1.2 Household Expenses

Household expenditure can be calculated by the following formula [8]:

$$\text{Ct} = \text{C1} + \text{C2}$$

Information:

- Ct = Total household expenditure (Rp/month)
- C1 = Household expenditure on food (Rp/month)
- C2 = Household expenditure on non-food (Rp/month)

The formula above concludes that household expenditure is generated from two sources, including household expenditure on food and non-food.

The following indicators that will be used as measurements of the welfare level of gill net fishermen can be seen in (Table 1), with the determination of the level of welfare based on the final score, including the following:

1. Score > 2.31 (high welfare level)
2. Score between 1.65 – 2.3 (medium welfare level)
3. Score between 0.64 – 0.99 (low welfare level)

**Table 1. Welfare Indicators According to the Central Statistics Agency in 2015**

No	Welfare Indicator	Criteria	Score	Weight
1.	<b>household income</b>			
	a) Income is greater than the Regional Minimum Wage	Not poor Poor	0.75 0.50	25%
	b) Income equal to the Regional Minimum Wage	So poor	0.25	

	c) Income is less than the Regional Minimum Wage			
2.	<b>Household consumption and expenditure</b>			
	a) Expenditure is less than income	Not poor	0.75	
	b) Expenditure equals income	Poor	0.50	25%
	c) Expenditure is more significant than income	So poor	0.25	
3.	<b>Condition of residence</b>			
	a) Roof: tiles (5)/asbestos (4)/zinc (3)/shingle (2)/leaf (1)	Permanent (score 15-21) Semi-permanent (score 10-14)	0.3 0.2 0.1	10%
	b) Room: wall (5)/half wall (4)/wood (3)/bamboo wood (2)/bamboo (1)	Nonpermanent (score 5-9)		
	c) Owned status: own (3)/rent (2)/ride (1)			
	d) Floor: porcelain (5)/tile (4)/plaster (3)/wood (2)/earth (1)			
	e) Area: wide > 100 m <sup>2</sup> ( <sup>3</sup> )/medium 50-100 m <sup>2</sup> ( <sup>2</sup> )/narrow < 50 m <sup>2</sup> ( <sup>1</sup> )			
4.	<b>Residential facilities</b>			
	a) Yard: spacious > 100m <sup>2</sup> (3)/enough 50-100 m <sup>2</sup> ( <sup>2</sup> )/narrow < 50 m <sup>2</sup> ( <sup>1</sup> )	Complete (score 21-27) Enough (score 14-20)	0.12 0.08	4%
	b) Entertainment: Video (4)/TV (3)/ <i>tape recorders</i> (2)/radio (1)	Less (score 7-13)	0.04	
	c) Cooling: AC (4)/refrigerator (3)/fan (2)/natural (1)			
	d) Source of electric lighting: electricity (3)/petromak (2)/lamp paste ( 1 )			
	e) Fuel: gas (3)/kerosene (2)/coal (1)			
	f) Water source: PAM (6)/bore well (5)/well (4)/spring (3)/rainwater (2)/river (1)			
	g) MCK: own KM (4)/public KM (3)/river (2)/garden (1)			
5.	<b>Health of family members</b>			
	Number of sick family members in one month	Fine (< 25% sick) Enough (25-50% pain) Less (> 50% sick)	0.3 0.2 0.1	10%
6.	<b>Ease of getting health services from personnel medical</b>			
	a) Distance to nearest hospital: 0 km (3)/0.01-3 km (2)/> 3 km ( 1 )	Easy (score 17-23) Enough (score 12-16)	0.15 0.1	5%
	b) Distance to polyclinic: 0 km (3)/0.01-2 km (2)/> 2 km (1)	Difficult (score 7-11)	0.05	
	c) Cost of treatment: affordable (3)/reasonably affordable (2)/difficult affordable (1)			
	d) Treatment treatment: good (3)/enough (2)/poor (1)			
	e) Contraceptives: easy to get (3)/quite easy (2)/difficult (1)			
	f) Family planning consultation: easy (3)/enough (2)/difficult (1)			
	g) Drug price: affordable (3)/enough			

	(2)/difficult to reach (1)			
7.	<b>Ease of entering children into education level</b>			
	a) Tuition fees: affordable (3)/reasonably affordable (2)/difficult affordable (1)	Easy (score 8-9)	0.15	
		Enough (score 6-7)	0.1	5%
	b) /0.01-3 km (2)/> 3 km (1)	Difficult (score 3-5)	0.05	
	c) Admission procedure: easy (3)/enough (2)/difficult (1)			
8.	<b>Ease of accessing information and communication technology</b>			
	a) Ease of access: easy(3)/enough (2)/difficult (1)	Easy (score 6)	0.06	
		Enough (score 4-5)	0.04	2%
	b) Access device: computer (3)/mobile phone(2)/public telephone (1)	Difficult (score 2-3)	0.02	
9.	<b>Quality of education of family members</b>			
	a) Number of family members who can read and write : all(3)/some (2)/ none (1)	Good (score 6)	0.3	
		Enough (score 4-5)	0.2	10%
		Less (score 2-3)	0.1	
	b) Number of family members who can complete basic education: all(3)/partial (2)/ none (1)			
10.	<b>A sense of security from the interference of crime</b>			
		Safe	0.09	
		Safe enough	0.06	3%
		Not safe	0.03	

Source: Central Bureau of Statistics (2015)

### 3. RESULTS AND DISCUSSION

Geographically, Karangsong Village is located at coordinates 06°18'45" - 06°19'45" South Latitude and 108°21'30" - 108°22'30" East Longitude. Karangsong Village is directly adjacent to the surrounding area, covering the northern area bordering the Pabean Udik Village, the southern area bordering the Tambak Village, the western region bordering the Paoman Village, and the eastern region bordering the Java Sea. Karangsong Village is one of the villages located in Indramayu District, Indramayu Regency, West Java Province. Karangsong Village has an area of 410 Ha. Based on the topography, the area's altitude generally ranges from 0-18 m above sea level in the form of swamps, ponds, rice fields, and yards. Indramayu Regency is part of the land surface in the form of plains with a slope between 0%-2%. This situation affects drainage, if the rainfall is high, then certain areas will be inundated, and when the dry season will result in drought. Karangsong Village is located along the north coast of Java Island, which makes the air temperature in Karangsong Village relatively high, around 29°C. The climate type in Karangsong Village includes a tropical climate with climatic characteristics, such as daily air temperature ranging from 29°C, air humidity between 70-80%, and an annual average rainfall of 200 mm/year. Karangsong Village will have a population of 6,723 in 2022, a male population of 3,444, and a female population of 3,279.

#### 3.1 Fisherman Characteristics

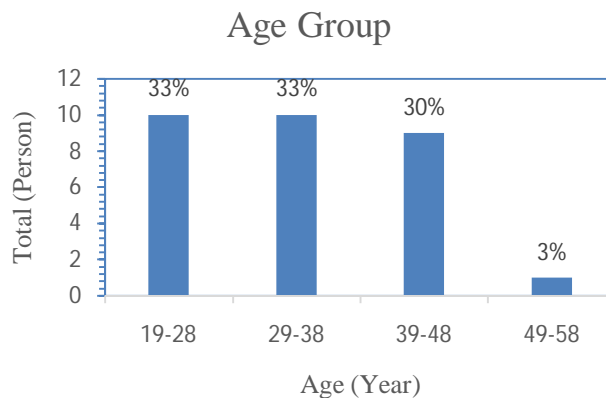
The characteristics of fishermen obtained in this research include:

##### 3.1.1 Fisherman Status

Gill net fishermen in Karangsong Village are divided into two categories: skipper fishermen and labor fishermen. Skipper fishermen are fishermen who have capital, ships, machines, and fishing gear. The skipper fishermen employ labor fishermen to operate the boat. Labor fishermen are fishermen who work as crew members (Children of the Ship). The skipper fishermen and labor fishermen generally share the results with 60% for skipper fishermen and 40% for labor fishermen. The skipper fishermen mostly do not live in Karangsong Village and come from outside Java Island, while labor fishermen mostly live in Karangsong Village and come from Indramayu Regency.

### **3.1.2 Age Group**

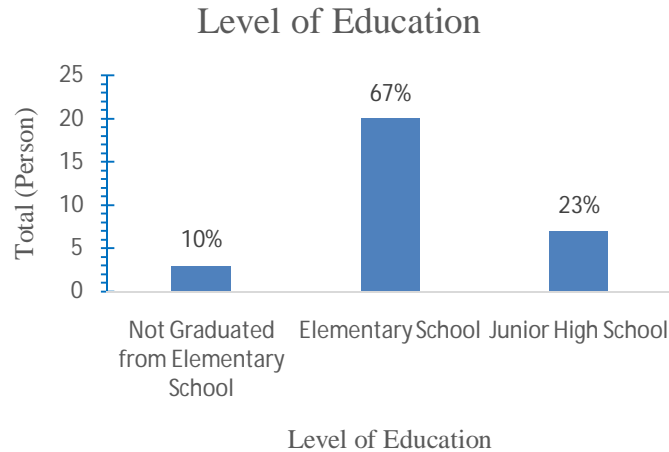
The age of the workforce is sufficient to determine success in doing a job, both physical and non-physical. The older you are, the more productive you are because you are considered to have more work experience, so it can be seen that age is closely related to productivity. Based on the data in Fig. 1 shows that the distribution of respondents in the age group of gill net fishing gear workers aged 19-28 years with a percentage of 33%, aged 29-38 years with a rate of 33%, aged 39-48 years with a ratio of 30% and aged 49 -58 years with a percentage of 3%. So it can be seen that the age group of fishermen who work with gill net fishing gear in Karangsong Village is dominated by the age group of 19-38 years, which means that all fishermen are productive.



**Fig. 1. Age Group of Fishermen Workers of Gill Net Fishing Equipment in Karangsong Village**

### **3.1.3 Level of Education**

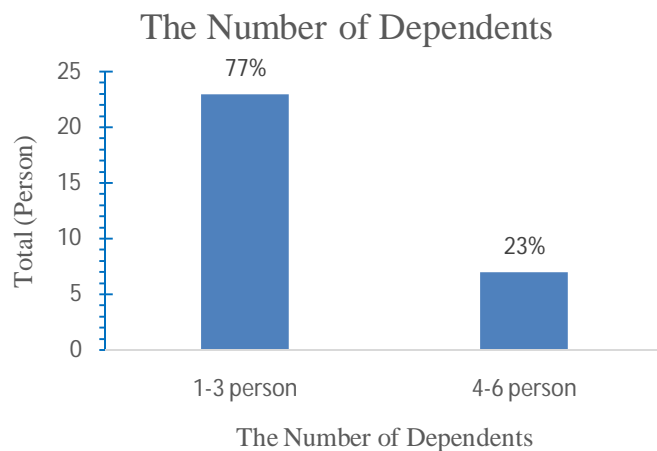
The level of education for labor fishermen is obviously to make an extraordinary contribution to improving the standard of living. The low education of labor fishermen affects skills, mindset, and mentality. Based on the data in Fig. 2, it shows that the distribution of respondents is based on the education level of fishermen, gill net fishing gear workers, fishermen workers with education not completing Elementary School with a percentage of 10%, Elementary School with a percentage of 67% and Junior High School. With a rate of 23%. So it can be seen that the education level of gill net fishing gear workers in Karangsong Village has low education, with the dominant fisherman taking six years of education or elementary school.



**Fig. 2. Education Level of Fishermen Workers of Gill Net Fishing Equipment in Karangsong Village**

### **3.1.4 Number of Family Dependents**

A large number of dependents in household life can affect the level of consumption that must be issued by the household concerned because it is related to its increasing needs [11]. The data in Fig. 3 shows that the distribution of respondents based on the number of dependents of gill net fishing gear workers with 1-3 dependents has a percentage of 77% and the number of dependents 4-6 people has a rate of 23%. So it can be seen that the number of dependents of fishermen working for gill net fishing gear in Karangsong Village has several dependents.

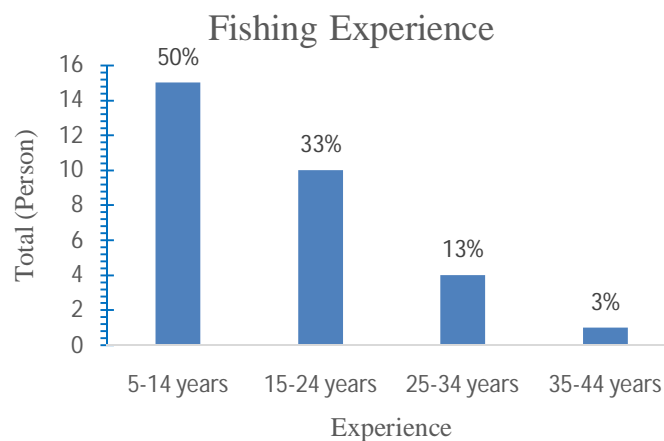


**Fig. 3. Number of Dependents of Fishermen's Families as Gill Net Fishing Equipment Workers in Karangsong Village**

### **3.1.5 Work Experience**

Experience or length of work is a determining factor in the success of fishing activities. The longer the fishing activity is carried out, the more experience the labor fishermen will gain. Experience is needed for labor fisherman production management. Based on the data in Fig.

4 shows that the distribution of respondents based on the work experience of fishermen, gill net fishing gear workers with 5-14 years of work experience has a percentage of 50%, work experience of 15-24 years has a rate of 33%, work experience of 25-34 years has a percentage of 13 % and work experience of 35-44 years has a ratio of 3%. So it can be seen that the work experience fishermen working with gill net fishing gear in Karangsong Village have a long work experience with an average of 5-14 years of experience. The longer the work experience of fishermen, the more trained and skilled fishermen are in the fishing process.



**Fig. 4. Work Experience of Fishermen as Gill Net Fishing Equipment Workers in Karangsong Village**

### **3.2 Central Bureau of Statistics Criteria**

The Central Bureau of Statistics (2015) criteria obtained in this research include:

#### **3.2.1 Household Income Indicator**

Fishermen's income is the main source of fishermen's households to meet their daily needs. The source of fishermen's income comes from net income from fishing. Based on the research results, the average monthly income of fishermen working for gill net fishing gear in Karangsong Village is IDR 5.086.667, so the income of fishermen working for gill net fishing gear is higher than the Regional Minimum Wage of Indramayu Regency of IDR 2.391.567.

#### **3.2.2 Household Consumption and Expenditure Indicators**

Household spending is grouped into two categories: expenditure on food and non-food. Thus, households will allocate their income to meet their needs or expenses at a certain income level. Based on the research results, the average monthly expenditure of fishing households working for gill net fishing gear in Karangsong Village reached IDR 3.792.667. In this case, total food expenditure is more significant than non-food expenditure.

#### **3.2.3 Residential Status Indicator**

The condition of the residence is one indicator of the assessment of the level of welfare seen from the roof, property status, floor, cubicle, and area and then classified into three, namely permanent, semi-permanent and non-permanent. The better the living conditions, the more prosperous the household can be. Based on the research results, fishermen who work for

gill net fishing gear in Karangsong Village have criteria for permanent residence in each of 28 families with a percentage of 93% and semi-permanent in each of 2 families with a rate of 7%.

#### **3.2.4 Residential Facility Indicator**

Residential facilities are one of the indicators for assessing the level of welfare seen from the area of the yard, entertainment, cooling, water sources, toilets, sources of lighting, and fuel and then classified into three, namely complete, sufficient and less. Based on the research results, fishermen who work for gill net fishing gear in Karangsong Village have full housing facilities criteria in each of 26 families with a percentage of 87% and sufficient in each of 4 families with a rate of 13%.

#### **3.2.5 Family Member Health Indicator**

Household health is one of the indicators for assessing the level of welfare. The criteria for household health are seen from the number of household members who often experience illness in one month [4]. Based on the research results, fishermen who work with gill net fishing gear in Karangsong Village have good family health. Unfavorable conditions will result in the disruption of every activity carried out.

#### **3.2.6 Indicators of Ease of Getting Health Services from Medical Personnel**

Utilization of labor facilities is one of the indicators for assessing the level of welfare seen from the distance to the nearest hospital, distance to the polyclinic, treatment costs, drug handling, contraceptives, family planning consultations, and drug prices and then classified into three, namely easy, moderate and difficult. Based on the results of the research, fishermen who work for gill net fishing gear in Karangsong Village have criteria for accessible health worker facilities in each of 16 families with a percentage of 53%, sufficient in each of 13 families with a rate of 43% and difficult in 1 family with a ratio of 3%. This is due to the distance between the local hospital and the polyclinic. The cost of treatment, handling, and the price of drugs vary as well as the use of different contraceptives and family planning consultations.

#### **3.2.7 Indicator of Ease of Enrolling Children in Education Level**

The ease of enrolling children in education is one of the indicators for assessing the level of welfare seen from school fees, distance to school, and admission procedures and then classified into easy, moderate, and challenging. Based on the results of the research, fishermen who work for gill net fishing gear in Karangsong Village have the criteria of ease of entering children into education with easy criteria in each of 11 families with a percentage of 37% and sufficient in each of 19 families with a rate of 63%.

#### **3.2.8 Indicator of Ease of Accessing Information and Communication Technology**

Ease of accessing information and communication technology is one indicator of the level of welfare assessment seen from the ease of accessing information and communication technology and the access tools used and then classified into three, namely easy, moderate and difficult. Based on the research results, fishermen who work for gill net fishing gear in Karangsong Village have the criteria for easy access to information and communication technology with easy criteria in each family with a percentage of 3% and sufficient in each of 29 families with a rate of 97%.

### **3.2.9 Indicators of the Education Quality of Family Members**

The quality of family education is one indicator of the level of welfare assessment seen from families who can read and write and families who complete basic education—then classified into three, namely good, sufficient, and less. Based on the research results, fishermen who work for gill net fishing gear in Karangsong Village have family education quality criteria with good criteria in each of 27 families with a percentage of 90% and sufficient in each of 3 families with a rate of 10%.

### **3.2.10 Indicators of Security from Evil Disturbance**

The sense of security from the disturbance of crime is one indicator of the assessment of the level of welfare. They were then classified into three: safe, moderately safe, and unsafe. All criminal acts in terms of body, soul, property, honor, and others are threatened with imprisonment and confinement [4]. Based on the research results, fishermen who work with gill net fishing gear in Karangsong Village have never experienced a crime or are categorized as safe from criminal interference.

Table 2 shows the recapitulation of welfare indicators for gill net fishing gear workers in Karangsong Village, which are included in the high welfare group with an average welfare level score of 2.76. This is based on calculations in the ten welfare indicators according to the 2015 Central Statistics Agency.

**Table 2. Recapitulation of Welfare Indicators for Gill Net Fishing Equipment Workers in Karangsong Village**

<b>No</b>	<b>Indicator</b>	<b>Average Score</b>
1.	Household Income	0.733
2.	Household Expenses	0.658
3.	Condition of Residence	0.293
4.	Residential Facilities	0.115
5.	Health of Family Members	0.300
6.	Ease of Getting Health Facilities From Medical Personnel	0.125
7.	Ease of Entering Children to Education Level	0.118
8.	Ease of Accessing Information and Communication Technology	0.041
9.	Quality of Family Education	0.290
10.	A Sense of Security From Evil Interference	0.090
<b>Total</b>		<b>2,764</b>

Source: Processed Results of Primary Data

## **4. CONCLUSION**

Based on the results of research and discussions that have been carried out regarding the Analysis of Welfare Levels of Fishermen Workers of Gill Net Fishing Equipment in Karangsong Village, Indramayu Regency, it can be concluded that:

1. The income of labor fishermen comes from wages from the fishery catch-sharing system and other occupations, with an average total income of IDR 5.086.667 per month. Meanwhile, total expenditures came from food and non-food spending, with an average of IDR 3.792.667 per month.
2. Labor fishermen in Karangsong Village, Indramayu Regency, belong to the high welfare level with a score of 2.76. Labor fishermen classified in high welfare were 27 respondents, while labor fishermen classified in moderate welfare were three respondents.

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