# The Influence of Human Resources, Technological, Socio-Economic, and Institutional Aspects on the Welfare of Coastal Communities in Pangkep Regency

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## ABSTRACT

*The human resource factor is one of the classic problems in the management (development) of the fisheries sector. Human resources are indeed the main key in development in all fields, including development in the fisheries sector. Development of human resources is a must for achieving optimal and sustainable utilization of fisheries resources. The aims of this research are 1) to analyze the factors that are indicators (reflective) of aspects of human resources, technology, socio-economy, institutions and the welfare of coastal communities in Pangkep Regency, 2) to analyze the influence of human resources (HR), technology, socio-economic factors, and institutions for the welfare of coastal communities in Pangkep Regency.The research approach used is a quantitative approach, with the type of research used being survey research. The research was carried out for 1 year, from June 2021 to June 2022. The research location was in the coastal area of Pangkep Regency, South Sulawesi Province. The type of data used and collected to answer the research objectives is primary data sourced from respondents who are from coastal communities in the Pangkep Regency area and secondary data sourced from agencies/offices or other institutions that have data related to the research being conducted. Primary data collection techniques were carried out by interviewing and filling out questionnaires. Meanwhile, secondary data was collected using literature search techniques (desk study) at related agencies/institutions. The data analysis method used in this study is descriptive statistical analysis and inferential analysis using the SEM (Structural Equation Modeling) analysis approach. The variables tested in this study consist of latent variables, including; 1) human resource aspects, 2) technological aspects, 3) socio-economic aspects, 4) institutional aspects and 5) social welfare aspects. While the observed variables or variables that are measured directly are as many as 20 variables, including; Education, Knowledge, Experience, Age, High Tech, Environmentally Friendly, Selective, User Friendly, Culture, Employment, Health, Wages, Governance, Participation, Capacity, Communication, Income, Infrastructure, Contribution, Production. These variables are then arranged in a series of questions with a closed questionnaire model with a Likert scale approach of 1 to 7, namely; 1=Strongly disagree, 2=Disagree, 3=Slightly disagree, 4=Undecided, 5=Somewhat agree, 6=Agree, 7=Strongly agree. The number of respondents in the study was 150 people who were capture fisheries fishermen spread across the coastal areas of Pangkep Regency. The sampling technique used is purposive sampling. Data analysis carried out in this study included; 1) Instrument test (validity and reliability test), 2) Evaluation of the measurement model (outer model), namely; Convergent validity, Discriminant validity, AVE, Composite Reliability and Cronbach's Alpha, 3) Evaluation of the structural model (inner model), namely; Multicollinearity Analysis, Coefficient of Determination (R2), Predictive Relevance (Q2), Effect Size (f2), and Path Coefficient (T-Statistics), 4) Model Fit, namely; Standardized Root Mean Square Residual (SRMR), Unweighted Least Squares Discrepancy (d_ULS), Geodesic Discrepancy (d_G), Chi-Square, and Normed Fit Index (NFI). The research results obtained; 1) Human resource factors (HR), socio-economic factors and institutional factors have a significant effect on the welfare of coastal communities in Pangkep Regency, 2) The role of institutional factors as intervening variables has a significant effect on human resources (HR) on the welfare of coastal communities in Pangkep Regency, and socio-economic factors on the welfare of coastal communities in Pangkep Regency, 3) Technological factors have no significant effect on the welfare of coastal communities in Pangkep Regency, either directly or indirectly through institutional factors, and 4) Technological factors have a significant effect on the welfare of coastal communities in Pangkep Regency when making the factor of human resources (HR) as an intervening factor. One of the findings (novelty) of this study is that technological factors do not significantly affect institutional and community welfare. However, by associating technological aspects with aspects of human resources, it is obtained that technological aspects have a real effect on institutions and people's welfare. This proves that no matter how sophisticated the equipment used in fishing activities is, if it is not supported by reliable human resources, then it is meaningless. For this reason, the aspect of human resources is a key aspect in managing fishery resources in Indonesia and South Sulawesi in particular.*

# I.    PRELIMINARY

Development of human resources (HR) is one of the priorities of the Ministry of Maritime Affairs and Fisheries for 2020-2025, in addition to community welfare and increasing the GDP of the fisheries sector. The issue of human resources is one of the strategic issues in the marine and fisheries sector (Stobutzki et al., 2006). The human resource factor is one of the classic problems in the management (development) of the fisheries sector. Human resources are indeed the main key to development in all fields, including development in the fisheries sector. The development of human resources is a must for achieving optimal and sustainable utilization of fisheries resources. One of the most prominent factors with not optimal development in the fisheries sector is the low quality and quantity of human resources. The research results of Humane et al., (2017) found that indicators of improving education and training, coastal community education is still deficient where the average coastal community with primary school graduation, for this reason, is common community understanding of fisheries and marine and how to preserve the sea so that it does not habitat destruction and ecosystem damage occurred and in terms of training it is also still low because the training provided by the government is not evenly distributed. The low quality and quantity of human resources in the fisheries sector can also be seen in the fisheries sector's contribution to the National GDP. BPS data for 2020 recorded the gross domestic product (GDP) value of the fisheries sector in the second quarter of IDR 188 trillion or only around 2.83% of the value of the National GDP. On the other hand, fishery products provide around 54% of all animal protein consumed by the public. In addition, the fisheries sector is also one of the biggest contributors to job creation, both directly and indirectly. For this reason, capacity building both in terms of quality and quantity is very important. The development of human resources broadly is the whole process of coaching to improve the quality and standard of human life in a country (Awaloedin, 1993). Meanwhile, the meaning of human resource development specifically is an increase in education and training or efforts to increase knowledge and skills as an endless process, especially self-development. According to Hasibun (2003) that the quality of human resources consists of two aspects, namely physical and non-physical aspects concerning the ability to work, think and other skills. , such as local wisdom and culture (customs) they have. In addition to the human resource factor, the technological factor is also a limiting factor in fisheries development. According to Dahuri (2009) that to improve the standard of living of fishermen and increase fishery production, it is influenced by factors of working capital, the technology used, working hours, and so on. Technology in the field of fisheries is increasing, being able to save time, and increase profit/revenue (Akangbe, 2015). Furthermore Radarwati et al., (2010) that one of the important factors in the management of capture fisheries is the technological factor. The same thing was stated by Rizwan et al., (2011) that the fishing technology factor greatly influences the catch (production), this is influenced by the size of the ship, the engine power of the ship, the length of the net, and the height of the net. The results of Mukhtar's research (2008) also obtained factors that influence production on purse seiners at the Kendari Ocean Fishing Port, including seven variables namely; ship size (GT), engine power (PK), fuel oil consumption (L), net length (m), net depth (m), number of crew (people) and number of lights (unit). Meanwhile, another study conducted by Kusiani (2013) found that the production factors of purse seines in Gorontalo Regency that affect fish catches by fishermen are the length of purse seines, including; variable ship size (GT), boat engine power (HP), purse seine net length (m), purse seine net height (m), number of crew (people), fuel oil (litres), number of lights (unit), amount of ice (blocks), fresh water (litres), supplies (rupiah).

Other factors that also influence development in the fisheries sector are socio-economic and institutional. According to Riefsa (2014) that the utilization of fisheries and marine resources plays an important role in efforts to improve the welfare of coastal communities, especially fishermen. The benefits obtained include the provision of necessities, increased income, employment opportunities, foreign exchange earnings, and regional development. The level of community well-being is generally only seen from purely physical factors, such as; natural resources, capital (capital), and human resources, and only a few see welfare in the context of social capital and community institutions (Sakata, 2004). The results of research by Kusumayanti et al., (2018) found that social capital has a real influence on people's welfare income. This means that by increasing the quality of social capital, the level of income and welfare of fishing communities tends to increase. One of the factors causing the low contribution and still low absorption of labour in the fisheries sector is due to the low quality and quantity of production produced by fishermen/cultivators caused by accessibility, inadequate infrastructure, and still low human resources (HR). On the other hand, the procedural factor for business licensing services which is considered difficult/complicated is the main cause of the lack of investment in the fisheries sector, making it difficult for the industry to revive (Mariza et al., 2016). Human resources are the main key to development in all fields, including development in the fisheries sector. For this reason, the development

of fisheries' human resources is a necessity for achieving optimal utilization of fisheries resources. According to Yelliza et al., (2009) that there are various obstacles currently being faced, such as; the utilization of marine and fishery resources is not yet optimal due to the low quality and quantity of human resources and Indonesian fishery education institutions that do not meet international standards. Until now, the condition of marine and fisheries human resources in Indonesia is still low, so a strategy is needed in developing marine and fisheries human resources through various programs. The low level of human resources in the fisheries sector is also because culturally they are mostly traditional people with relatively very low socio-economic conditions and educational backgrounds. About 90% of them only have an elementary school education. On the other hand, generally, the knowledge and skills possessed by cultivating and fishing communities are what they receive and experience themselves (learning by doing). The low level of education and the lack of training and extension programs make it difficult to develop human resources in the fisheries sector.

In general, the socioeconomic conditions of coastal communities (cultivators/fishermen) are almost the same as fishermen in coastal areas throughout Indonesia. The life of fishermen and fish cultivators is generally still in patterns of poverty and economic uncertainty, due to the difficulties faced by fishermen and fish cultivators as well as their families (Kusnadi, 2000; Pretty, et. al., 2003; Widodo, 2011). Experts in resource economics see that poverty in coastal communities, especially fishermen, is more due to socio-economic factors related to the characteristics of human resources and the technology used. One example is the fixity and rigidity of fishing assets, which is why fishermen, fish cultivators and coastal communities continue to struggle with poverty. As an effort to overcome problems in the development of the fisheries and marine sector, efforts are needed to encourage the factors that have hampered so far, such as; aspects of human resources, technological aspects, socio-economic aspects and institutional aspects. The hope is that if all of this is carried out, then the development of the fisheries sector will become the primary mover driving the economy, both at the community, regional/regional to state levels. For this reason, it is important to study in-depth and comprehensively the influence of economic driving factors, especially on coastal communities, such as; human resource factors, technological factors, socio-economic and cultural factors, as well as institutional factors, to improve the welfare of coastal communities.

## II.    RESEARCH METHOD

**Approach and Type of Research**

The research approach used is quantitative. This approach explains in detail the influence of aspects of human resources (HR), technology, social economy, and institutions on the welfare of coastal communities in Pangkep Regency. The research was conducted with a quantitative approach. According to (Sugiyono, 2018) that quantitative research is a type of research whose specifications are systematic, planned, and structured from the start to the creation of the research design. It is further stated that quantitative research is research that requires the use of numbers (numeric), starting from data collection, and analysis, to presenting results/output. The type of research used in this study is survey research using a variety of findings approaches in testing theories, justifying theories or supporting existing theories.

**Types and Sources of Data**

Types of data in this study are primary data sourced from respondents who are from coastal communities in the Pangkep Regency area. Primary data is data from measurements, observations and interview data obtained directly from the object of research. This is as stated by Nazir (2003) that primary data is data obtained directly from the field/research object, either in the form of measurements, observations or interviews. It is further stated that primary data is generally obtained directly from the object of research, such as measurement data, observations or interviews with respondents.

**Data Collection Techniques Data**

collection techniques in this study used a questionnaire. Questions in the questionnaire were measured using a Likert scale, which is a scale used to measure attitudes, opinions, and perceptions of a person or group of people about the phenomenon of observation (Sugiyono, 2003). Answers from respondents were scored using a Likert scale as follows: score/value 1 to 7, namely; 1=Strongly disagree, 2=Disagree, 3=Slightly disagree, 4=Undecided, 5=Somewhat agree, 6=Agree, 7=Strongly agree. Data collection methods are techniques or ways to obtain or collect the data needed in research analysis. The data collection method used is closely related to the type and source of the data. According to Sugiyono (2015), data collection methods are techniques or methods used to collect data for further processing or analysis of the data obtained to answer research objectives. Data collection methods used in this study include; a) desk study, b) survey (interview) and c) field observation. Following is a detailed description of the method of data collection which was carried out based on the research objectives and the type of data. The survey method was carried out to obtain information directly from the community, in which this activity conducted interviews with a community in the South Kelumpang District

several people using a simple random sampling method. According to Sugiyono (2018) that the survey method is a data or information collection technique that is carried out by asking several questions to respondents or interviewing them. According to Ferdinand (2016), interviews are a method of collecting data by way of unilateral questioning which is carried out systematically and is based on research objectives. The interviews developed in this research are unstructured. Unstructured interviews are free interviews, where researchers do not use certain (specific) guidelines in conducting interviews, but interviews are conducted by providing important points related to what they want to know and then developing similar to ordinary conversations. It was further stated that in unstructured interviews, the things to be asked had not been determined in detail.

**Data Analysis Method**
The Datathe analysis method used in this study is descriptive statistical analysis and inferential analysis using the SEM (Structural Equation Modeling) analysis approach.

## III. RESULTS AND DISCUSSION

Test Instruments
Test instruments are intended to determine and ensure that the instruments used are valid and reliable as instruments in research. The instrument test includes two things namely; 1) validity test, and 2) reliability test.

**Validity**
Test The validity test is intended to determine whether a tool/instrument used for data collection is declared good enough/valid. In this case, it is a series of questions asked and compiled in a closed questionnaire. Instruments that are declared valid will produce data that is also valid. The decision criterion for validity is based on the results of the Pearson (Product Moment) correlation analysis, where a correlation is made between the indicator score and the total indicator score, to obtain an r-count value which is then compared to the r-table value at a significance level of 0.05 or the level of confidence 95%. This is following Yusuf & Daris (2018) that an indicator is considered valid if it has a significant correlation with the total score at the specified level of confidence. Following are the results of the validity test analysis of a series of questions for the 5 main variables tested namely; Human resources (HR), technology, social economy, institutions and community welfare. The validity test is carried out based on latent variables by testing the question items on each indicator (observed variable). The validity test on the human resource variable is carried out by testing several questions in each indicator, namely; education, experience, age and knowledge. The results of the validity test of several question items are presented as follows:

Table 4. Test the validity of the HR variable

| Question | $R_{count}$ (Pearson Correlation) | $R_{table}$ (df=150-2) | Validation Criteria |
|---|---|---|---|
| Pdk1 | .252** | 0.1603 | Valid |
| Pdk2 | .339** | 0.1603 | Valid |
| Pdk3 | .809** | 0.1603 | Valid |
| Pdk4 | .857** | 0.1603 | Valid |
| Call1 | . 617** | 0.1603 | Valid |
| Pgh2 | .544** | 0.1603 | Valid |
| Pgh3 | .741** | 0.1603 | Valid |
| Pgh4 | .738** | 0.1603 | Valid |
| Pgh1 | .344** | 0.1603 | Valid |
| Pgh2 .353 | ** | 0.1603 | Valid |
| Pgh3 | .467** | 0.1603 | Valid |
| Pgh4 | .533 ** | 0.1603 | Valid |
| UMR1 | .649** | 0.1603 | Valid |
| UMR24 .241 | ** | 0.1603 | Valid |
| UMR3 | .800** | 0.1603 | Valid |
| UMR41 | .477** | 0.1603 | Valid |

Validity test results for the HR variable, which includes the 4 observed variables, namely; a) education, b) knowledge, c) experience and d) age, it was found that all the instruments used were valid. This can be seen from the value of the Pearson correlation coefficient which is the r-count value, all of which are greater than the r-table value at df = 150-2 (148) or at the 95% confidence level, with the amount of data n = 150 (r-table = 0.1603 ). Then a validity test was carried out for the technology variable and the following results were obtained:

Table 5. Validity test for the technology variable

| Question | R count (Pearson Correlation) | R table (df=150-2) | Validation Criteria |
|---|---|---|---|
| Hgt1 | .839** | 0.1603 | Valid |
| Hgt2 | .167** | 0.1603 | Valid |
| Hgt3 | .826** | 0.1603 | Valid |
| Hgt4 | .396** | 0.1603 | Valid |
| Rml1 | .758** | 0.1603 | Valid |
| Rml2 | .871** | 0.1603 | Valid |
| Rml3 | .791** | 0.1603 | Valid |
| Rml4 | .496** | 0.1603 | Valid |
| Slt1 | .609** | 0.1603 | Valid |
| Slt2 | .716** | 0.1603 | Valid |
| Slt3 | .447** | 0.1603 | Valid |
| Slt4 | .893** | 0.1603 | Valid |
| Ufr1 | .557** | 0.1603 | Valid |
| Ufr2 | .435** | 0.1603 | Valid |
| Ufr3 | .622** | 0.1603 | Valid |
| Ufr4 | .612** | 0.1603 | Valid |

The validity test results for the technology variable, which included the 4 observed variables, namely; a) high tech, b) selectivity of fishing gear, c) environmentally friendly or non-destructive in nature, and d) user friendly or ease of operation, it is found that all instruments used are classified as valid. This can be seen from the value of the Pearson correlation coefficient, which is a total r-count value that is greater than the r-table value at df = 0.05 or the 95% confidence level, with a total of n = 150 data (r-table = 0.1603). The validity test of socioeconomic variables was carried out on several questions based on 4 (four) reflective indicators, namely; culture, health, jobs and wages. The results of the validity test are presented as follows:

Table 6. Test the validity of the socio-economic variable.

| Question | Value r count (Pearson Correlation) | R table (df=150-2) | Validation Criteria |
|---|---|---|---|
| Cul1 | .658** | 0.1603 | Valid |
| Cul2 | .677** | 0.1603 | Valid |
| Cul3 | .721** | 0.1603 | Valid |
| Cul4 | .686** | 0.1603 | Valid |
| Pkj1 | .787* * | 0.1603 | Valid |
| Pkj2 | .701** | 0.1603 | Valid |
| Pkj3 | .444** | 0.1603 | Valid |
| Pkj4 | .743** | 0.1603 | Valid |
| Uph1 | .754** | 0.1603 | Valid |
| Uph2 .773 | ** | 0.1603 | Valid |
| Uph3 | .634** | 0.1603 | Valid |
| Uph4 | .851** | 0.1603 | Valid |
| Ksh1 .906 | ** | 0.1603 | Valid |
| Ksh2 | .892** | 0.1603 | Valid |
| Ksh3 | .920** | 0.1603 | Valid |
| Ksh4 | .867** | 0.1603 | Valid |

The results of the validity test for the health variable, which includes the 4 observed variables, namely; a) community culture, b) public health, c) type of work and d) wages received, it was found that all of the instruments used were classified as valid. This can be seen from the value of the Pearson correlation coefficient, which is a total r-count value that is greater than the r-table value at df = 0.05 or a 95% confidence level, with a total of n = 150 data (r-table = 0.1603). The institutional variable validity test is based on several questions/statements on several reflective indicators, namely; capacity, participation, communication and governance. The results of the analysis of the validity test are presented as follows:

Table 6. Test the validity of the socio-economic variable.

| Question | Value r count (Pearson Correlation) | R table (df=150-2) | Validation Criteria |
|---|---|---|---|
| Cul1 | .658** | 0.1603 | Valid |
| Cul2 | .677** | 0.1603 | Valid |
| Cul3 | .721** | 0.1603 | Valid |
| Cul4 | .686** | 0.1603 | Valid |
| Pkj1 | .787* * | 0.1603 | Valid |
| Pkj2 | .701** | 0.1603 | Valid |

| | | | |
|---|---|---|---|
| Pkj3 | .444** | 0.1603 | Valid |
| Pkj4 | .743** | 0.1603 | Valid |
| Uph1 | .754** | 0.1603 | Valid |
| Uph2 .773 | ** | 0.1603 | Valid |
| Uph3 | .634** | 0.1603 | Valid |
| Uph4 | .851** | 0.1603 | Valid |
| Ksh1 .906 | ** | 0.1603 | Valid |
| Ksh2 | .892** | 0.1603 | Valid |
| Ksh3 | .920** | 0.1603 | Valid |
| Ksh4 | .867** | 0.1603 | Valid |

The results of the validity test for the health variable, which includes the 4 observed variables, namely; a) community culture, b) public health, c) type of work and d) wages received, it was found that all of the instruments used were classified as valid. This can be seen from the value of the Pearson correlation coefficient, which is a total r-count value that is greater than the r-table value at df = 0.05 or a 95% confidence level, with a total of n = 150 data (r-table = 0.1603). The institutional variable validity test is based on several questions/statements on several reflective indicators, namely; capacity, participation, communication and governance. The results of the analysis of the validity test are presented as follows:

Table 7. Test the validity of institutional variables.

| Question | R$_{count}$ (Pearson Correlation) | R$_{table}$ (df=150-2) | Validation Criteria |
|---|---|---|---|
| Kps1 | .768** | 0.1603 | Valid |
| Kps2 | .909** | 0.1603 | Valid |
| Kps3 | .891** | 0.1603 | Valid |
| Kps4 | .895** | 0.1603 | Valid |
| Prt1 | .792** | 0.1603 | Valid |
| Prt2 | .930** | 0.1603 | Valid |
| Prt3 | .924** | 0.1603 | Valid |
| Prt4 | .868** | 0.1603 | Valid |
| Kmk1 | .846** | 0.1603 | Valid |
| Kmk2 | .616** | 0.1603 | Valid |
| Kmk3 | .771** | 0.1603 | Valid |
| Kmk4 | .781** | 0.1603 | Valid |
| Ttk1 | .710** | 0.1603 | Valid |
| Ttk2 | ** | 0.1603 | Valid |
| Ttk3 | .812748** | 0.1603 | Valid |
| Ttk4 | .648** | 0.1603 | Valid |

The results of the validity test for institutional variables, which include the 4 observed variables, namely; a) institutional capacity, b) level of participation, c) communication model, and d) institutional governance, it was found that all of the instruments used were classified as valid. This can be seen from the value of the Pearson correlation coefficient, which is a total r-count value that is greater than the r-table value at df = 0.05 or the 95% confidence level, with a total of n = 150 data (r-table = 0.1603). Testing the validity of the community welfare variable is based on several questions and or statements on several reflective indicators, including; production, contribution, income and infrastructure. The results of the validity test are presented as follows:

Table 8. Test the validity of the welfare variable.

| Question | Value of r$_{count}$ (Pearson Correlation) | R$_{table}$ (df=150-2) | Validation Criteria |
|---|---|---|---|
| Pro1 | .678** | 0.1603 | Valid |
| Pro2 | .801** | 0.1603 | Valid |
| Pro3 | .792** | 0.1603 | Valid |
| Pro4 | ** | 0.1603 | Valid |
| Ktr1 | .695** | 0.1603 | Valid |
| Ktr2 | .731** | 0.1603 | Valid |
| Ktr3 | .825** | 0.1603 | Valid |
| Ktr4 | .765** | 0.1603 | Valid |
| Pdp1 | .643** | 0.1603 | Valid |
| Pdp2 | .712** | 0.1603 | Valid |
| Pdp3 | .875** | 0.1603 | Valid |
| Pdp4 | .685** | 0.1603 | Valid |
| Inf1 | . 816** | 0.1603 | Valid |
| Inf2 | .713** | 0.1603 | Valid |

| Inf3 | .845** | 0.1603 | Valid |
|------|--------|--------|-------|
| Inf4 | .746** | 0.1603 | Valid |

The validity test results for the welfare variable, which includes the 4 observed variables, namely; a) production (fish catches), b) the contribution of the fisheries sector to GRDP or PAD, c) fishermen's income and d) infrastructure, it was found that all the instruments used were classified as valid. This can be seen from the value of the Pearson correlation coefficient, which is a total r-count value that is greater than the r-table value at df = 0.05 or the 95% confidence level, with a total of n = 150 data (r-table = 0.1603).

**Hypothesis A**
the hypothesis is a formulation of an initial research statement that has a relatively weak level of truth and must be tested using certain techniques. According to (Kerlinger, 1973) that the hypothesis is a statement of the alleged relationship between two or more variables. It is further stated that the alleged answer is a temporary truth, which will be tested for truth with data collected through research. Hypothesis testing is carried out to prove the hypothesis that was built at the beginning of the study.

Table 23. Hypothesis Testing

| Hypothesis | Testing |
|------------|---------|
| There is an influence of human resources (HR) on institutions | Significantly |
| There is an influence of technology on institutions | No Influence |
| There is a socio-economic influence on institutions | Significantly |
| There is an institutional influence on the welfare of coastal communities | Significantly Influenced |
| There is an influence of human resources (HR) on the welfare of coastal communities | Significantly Influenced |
| There is an influence of technology on the welfare of coastal communities | Not Influential |
| There is a socio-economic influence on the welfare of coastal communities | Significantly |
| There is an influence of human resources (HR) on the welfare of coastal communities through institutions | Significantly Influenced |
| There is an influence of technology on the welfare of coastal communities through institutions | Not Influential |
| There is a socio-economic influence on the welfare of coastal communities through Institutions with | Real Influence |

Based on the results of the hypothesis testing as in the table above, it is found that there are 3 (three) hypotheses that are not proven or have no real effect, namely; 1) technological aspects of institutions, 2) technological aspects of coastal community welfare, 3) and technological aspects of coastal community welfare through institutions. The three hypotheses describe that the technological aspect is an aspect that does not significantly affect the welfare of coastal communities, either directly or indirectly through institutions.However, after changing the model by making the aspect of human resources an intervening variable on the technological part, it is found that the technological aspect has a significant effect on the welfare aspects of coastal communities. Following are the results of statistical tests (t-statistics) resulting from the development of the human resource model.

Table 24. Statistical test (path coefficient)

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | T Statistics (\|O/STDEV\|) | P Values |
|---|---|---|---|---|---|
| **Institution -> Public welfare** | 0.555 | 0.553 | 0.071 | 7.781 | 0.000 |
| **Socio-Economy-> Institutional** | 0.541 | 0.488 | 0.160 | 3.389 | 0.001 |
| **Socio-Economy -> Public Welfare** | 0.224 | 0.212 | 0.094 | 2.373 | 0.018 |
| **Human Resources Institutional** | 0.255 | 0.246 | 0.097 | 2.620 | 0.009 |
| **Human Resources Public Welfare** | 0.141 | 0.132 | 0.064 | 2.187 | 0.029 |
| **Technology-> Institusional** | 0.030 | 0.096 | 0.172 | 0.174 | 0.862 |
| **Technology -> Public welfare** | 0.055 | 0.071 | 0.095 | 0.583 | 0.560 |
| **Socio-Economy -> Institution -> Public welfare** | 0.301 | 0.274 | 0.103 | 2.909 | 0.004 |
| **Human Resources -> Institution ->** | 0.142 | 0.138 | 0.061 | 2.320 | 0.021 |

| | | | | | |
|---|---|---|---|---|---|
| **Public welfare** | | | | | |
| **Technology -> Human Resources** | 0.674 | 0.681 | 0.062 | 10.801 | 0.000 |
| **Technology -> Human Resources -> Institutional** | 0.172 | 0.168 | 0.069 | 2.511 | 0.012 |
| **Technology -> Human Resources -> Public welfare** | 0.207 | 0.231 | 0.098 | 2.110 | 0.035 |

Based on the T-test values (t-statistics) as in the table above, it is found that the technological aspect has a significant effect on welfare through the aspect of human resources. This is understandable given that no matter how sophisticated the utilization technology (fishing) is owned, if it is not supported by adequate (capable) human resource factors, then it is certain that it will not be optimal.

## IV.    CONCLUSIONS AND RECOMMENDATIONS

**Conclusion**
1.      Human resource factors (HR), socio-economic factors and institutional factors have a significant effect on the welfare of coastal communities in Pangkep Regency.
2.      The role of institutional factors as intervening variables has a significant effect on human resources (HR) on the welfare of coastal communities in Pangkep Regency, and socio-economic factors on the welfare of coastal communities in Pangkep Regency.
3.      Technological factors do not significantly affect the welfare of coastal communities in Pangkep Regency, either directly or indirectly through institutional factors.
4.      Technological factors have a significant effect on the welfare of coastal communities in Pangkep Regency when the human resource factor (HR) is used as an intervening factor.

**Suggestion**
1.      The high influence of human resources (HR) on the welfare of coastal communities in Pangkep Regency, indicates that hard skill and soft skill factors (education, knowledge, and experience) need to be maintained, so that community welfare can be increased periodically.
2.      There is no direct or indirect effect of technological factors on the welfare of coastal communities, indicating that the main problem of coastal communities related to their welfare is the human resource factor, which is evident from the human resource factor being used as an intervening, which shows the real influence of technology on good welfare. directly or indirectly.

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