

# Social Economic Conditions of Communities in The Post-Natural Disaster Relocation: Case of Permanent Residence of Tondo and Duyu Villages

Edhi Taqwa<sup>1</sup>, Muslimin<sup>2</sup>, Nudiatulhuda Mangun<sup>1</sup>, Elimawaty Rombe<sup>2</sup>, Maskuri Sutomo<sup>\*2</sup>

<sup>1</sup>*Department of Economics and Development Studies, Faculty of Economics and Business Tadulako University*

<sup>2</sup>*Department of Management Faculty of Economics and Business Tadulako University*

**Abstract:** The research aims to Analyze changes in socio-economic conditions experienced by residents in the Permanent Housing area (Huntap) Tondo and Huntap Duyu, Analyze socio-economic activities needed by Huntap residents, Knowing and analyzing which parties are dominant in the recovery of socio-economic conditions in the Huntap area. The data used in this study is in the form of primary data sourced from 60 respondents consisting of 30 respondents residing in the Huntap Tondo area and 30 respondents residing in the Huntap Duyu area. In addition to the 60 respondents in this study also conducted interviews with Community Leaders, village head, Entrepreneurs, Employees of Zhu Chi Buddhist Foundation, and the State Civil Apparatus located in the Huntap Tondo and Huntap Duyu areas which amounted to 9 respondents. Analytical methods used Descriptive analysis through qualitative and quantitative approaches used to explain the activities of people living in the Huntap area from social and economic aspects, and *Analytical Hierarchy Process (AHP)*, used to determine priority socio-economic activities and the dominant party in establishing social economic conditions in the Huntap region. The results showed that the disaster of September 28, 2018 has negatively impacted the social and economic conditions of affected communities living in the Huntap area characterized by deteriorating family member education, loss of some family members, increasing erratic types of work, decreased income, decreased quality of residence, and reduced property ownership. People affected by disasters living in the Huntap area still need the construction/arrangement of housing, living costs, and job opening, with priorities in order of need: job opening, cost of living assistance, followed by residential development. The parties who play the most role in the development/recovery of economic and social conditions in the Huntap region respectively are the government sector, private sector/entrepreneurs, and followed by Non Governmental Organization.

**Keywords:** Disaster Impact, Economic, Social, Government, Private Sector, Non Governmental Organization, Analytical Hierarchy Process

## I. INTRODUCTION

Palu city as the capital of Central Sulawesi Province experienced a natural disaster earthquake of 7.7 RS, Tsunami and Liquefaction on September 28, 2018. The incident had a huge impact, costing lives and very significant asset damage. Based on data released by the National Disaster Management Agency (BNPB, 2018), out of a total of 1.2 million people before the disaster, the death toll reached 2,132 people, lost 531 lives and 11,165 family heads (KK) had to

evacuate to 127 evacuation points, and 20,257 people were in dire need of shelter.

The phenomenon after the disaster is the displacement of the population. The Central Sulawesi Provincial Government through the REHAB-REKON Strategy has made several efforts in anticipation, including prioritizing the recovery of the settlement sector, through the construction of Temporary Housing (Huntara) and Permanent Occupancy (Huntap).

The determination of Huntap as a relocation area of affected communities through the Ministry of Public Works and Public Housing (PUPR) has been carried out with a location in Duyu Village of Tatanga Subdistrict while Non-Governmental Institutions through Zhu Chi Buddhist Foundation are located in Tondo Village. Currently the community has inhabited the Huntap with the construction of "Risha" (simple healthy instant home) in hopes of helping people live in habitable dwellings after the disaster..

People living in Huntap are those Who are not allowed to return to live in their place of origin, they come from various affected places with different backgrounds and social and economic strata. It needs adjustment in all aspects because the process of change is inevitable.

The process of change itself can be experienced by everyone, both at the individual level (*micro*), groups in society (*meso*) and society as a broad group unity (*macro*) and can occur naturally or in a planned manner.

Social changes that occur suddenly usually cause the vulnerability of conflict triggered by a state of change that is too sudden colored by symptoms where the old behavioral order is no longer used as a guideline, while the new behavioral order is still confused.

The series of events that occur can be visualized in the form of studies through research to facilitate our understanding, about the disaster. Research title "Social Economic Conditions of Communities in The Post-Natural Disaster Relocation: Case of Permanent Residence of Tondo and Duyu Villages". Exploratory research is the study of tracing, especially in the stabilization of concepts that will be used in a wider scope of research with a greater conceptual reach (Yusuf: 2017).

## II. LITERATURE REVIEW

### *Exploratory Studies*

The Great Dictionary of Indonesian defines the notion of study as scientific research, while exploration is field exploration with the aim of acquiring more knowledge. According to Arikunto (2010) exploratory studies are research that seeks to explore the causes or initial things that affect the occurrence of something and explore new knowledge to find out a problem. Many opinions are thus concluded that exploratory studies are scientific research conducted in the field with the aim of acquiring more knowledge and then obtaining an in-depth picture and explanation of an event or phenomenon that occurred.

### *Socio-economic status of the community*

Soekanto (2012) states that status is the place or position of a person in a social group. Position will give birth to a difference in rights and obligations so as to make humans walk in accordance with their respective grooves in accordance with the ability and effort made. There are two kinds of status according to Soekanto, namely: 1) *Ascribed Status*, which describes the position of a person in society without regard to spiritual differences and abilities, obtained by birth, for example the position of a nobleman's child is noble as well. 2) *Achieved Status* is a position achieved by a person with deliberate efforts, open to anyone, depending on their respective abilities in pursuing and achieving their goals. Gunawan (2017) stated that the socio-economic condition of the family is a condition of the family economy consisting of education, income and the number of family members.

### *Natural Disasters; Earthquakes, Tsunamis and Liquefaction*

Natural disasters are disasters caused by natural symptoms that are very natural and common on earth. The magnitude of potential losses also depends on the form of danger itself, ranging from fires, earthquakes, floods and tsunamis that threaten individual buildings, to events that have the potential to end human civilization.

One of the natural disasters is an earthquake which is interpreted as an event of shaking the earth due to the sudden release of energy in the earth, characterized by the breaking of the rock layer in the Earth's crust. So, Emily and Platt, S. (2014), states that the impact of earthquakes in general can be classified: 1) the impact on physical infrastructure, 2) the impact on the social state of society, 3) the impact on economic well-being, and 4) the impact on the land use environment.

Liquefaction is the melting of soil caused by earthquakes. When an earthquake occurs, the volume of the soil tends to shrink and result in an increase in pore water pressure so that the effective shear strength of the soil will decrease. Water-saturated sand will fill the space between particles so that the *interlocking* force between particles is lost (*Encyclopedia Britannica, Inc.* 2012).

Tsunami comes from the Japanese word meaning ocean wave-wave "tsu" means ocean, "nami" means wave-wave. Tsunami is a series of giant ocean waves that arise due to a shift in the seabed due to an earthquake (BNPB No.8 of 2011). The speed and altitude of a tsunami depend on the depth of the waters, in the deep waters remove this the tsunami is able to move at a speed of 500 to 1000 kilometers per hour while in shallow waters the speed slows to several tens of kilometers per hour. The impact of the tsunami depends on the speed and alertness of the community will be the disaster (news.detik.com).

### *Analytical Hierarchy Process (AHP)*

*Analytical Hierarchy Process* is a method of decision-making by breaking down a complex and unstructured problem into groups, and organizing it into a hierarchy. Hierarchy method was introduced by Thomas Saaty, professor at the Wharton School, University of Pennsylvania, in 1971 and 1975. The advantages of this AHP method, among others: 1) Flexible in the sense of being able to cover all problems with various goals and criteria. Different objectives can be included in one level and one hierarchy and hierarchy itself is very flexible and sensitive to change, 2) Using quantitative and qualitative methods. Assessment is not only based on absolute numbers, but also relative (using scale), 3) Using primary data, so as not to face the problem of data availability, 4) Calculation is not too complicated.

### *Empirical Review*

The impact study of natural disasters on socio-economic conditions done a lot. The following research has been carried out related to impact of natural disasters on socio-economic conditions of the community.

Asy'ari, Qaiyim (2018), the results of the study showed that Pamekasan Regency which is vulnerable to disasters, has an impact on the socio-economic conditions of the community. Handling the social impact of disasters in Pamekasan Regency is carried out in 3 stages: **The First Stage** provides temporary assistance (provision of food, clothing, medicine and safe shelters for affected residents, **The Second Stage** encourages disaster victims to be introduced to the entrepreneurial economy sector, such as handicraft activities, bag making, clothing, laundry, and fish meatballs, **The Third Stage** realizes an entrepreneurship-based economy. *Sustainable*, in addition to the introduction of entrepreneurship as a diversification of work to cover economic burdens and loss of livelihoods, it is necessary to provide assistance for the economic sustainability of the community.

Fahlia, et al (2019), the results of the study showed, there was a significant influence on the economy before and after the earthquake in Mapin Rea Village. In the initial phase of the earthquake all respondents experienced considerable income disruptions, even respondents who worked as farmers as much as 74% experienced income disruptions.

Hapsoro, W.A., Buchori, I. (2015), based on the results of social and economic vulnerability identification studies conducted, of the 6 villages found in the coastal areas of Pekalongan City there are 1 (one) village with low vulnerability, 4 (four) villages with moderate vulnerability, and 1 (one) village with high vulnerability. Based on this study it can be known that the potential of the region, local wisdom, homeland, place of residence and economic level of the community are some of the strong reasons for the community to choose to coexist with the risk of flood disasters.

Isnaini, Dian (2019), the results of the study showed that the tsunami disaster in Aceh Regency has impacted almost 70% infrastructure damage and for the development of infrastructure that has been destroyed, relatively large funds are needed.

Muttalib, A., Mashur (2019), the results of research showed that after the earthquake in North Lombok Regency that the socio-economic conditions of the community experienced total paralysis, both in terms of production, distribution and consumption, so that most people survive by relying on help from several sources. Related to the post-earthquake recovery strategy in North Lombok Regency is carried out in several ways as follows: Post-disaster Assistance, Human Resource Development (HR), Development of capabilities in capital and Institutional Development of The People's Economy.

Rudianto, I. et al (2016), conducted a study on Socio-Economic Vulnerability to Exposure to Flood and Rob Disasters in Coastal Rural Demak Regency. The results showed that as many as 33 villages or about 42 percent of the 78 villages studied were classified as the most socio-economically vulnerable. Meanwhile, 45 other villages or about 58 percent are categorized as not so vulnerable. From the results of the research obtained, further efforts are needed to deal with the most vulnerable categorised communities in order to be more responsive to the impact of flood and rob disasters.

Wetebosy A.Y. S. (2001), Ecological and Socio-Economic Adaptation Strategy of Households victims of tsunami natural disasters *Resettlement* program participants in RW Angkasa Mulyono Amban Village Manokwari District Manokwari Regency. Results of study shows that most households victims of tsunami natural disasters in RW Angakasa Mulyono Ambon Village conduct ecological and socioeconomic adaptation strategies well, seen from the ability of every household to prepare a household waste dump with good handling behavior, able to obtain clean water sources for family living needs. There was no major change in the new residential area, but additional livelihoods generally experienced the shift.

Zein, C.A., et al (2014), Assessment of the Impact of Natural Disasters on Short-Term Regional Economic Growth (Case Study: West Sumatra Province After the 2009 Earthquake Disaster), Natural disasters that cause a number of

physical damage and fatalities in a region can actually increase regional economic growth within a certain period of time. West Sumatra Province experienced a fairly drastic economic decline in 2009 precisely in the fourth quarter, the next quarter after the earthquake disaster took place. However, this economic decline is only temporary because in the quarter after the disaster, the economy of West Sumatra Province actually increased quite rapidly.

### III. METHODOLOGY

The location of this research was determined deliberately in the Permanent Residence (Huntap) of Tondo Village and Duyu Village in Palu City. The population in the study was a community of disaster victims living in both Huntaps. The sample in this study was taken *in purposive sampling* which amounted to 60 respondents. In addition to the sample of 60 people in this study also conducted interviews with Community Leaders, village head, Entrepreneurs, Employees of Zhu Chi Buddhist Foundation, State Civil Apparatus located in huntap region which amounted to 9 respondents. The type of data used is primary data.

Analytical methods used: 1) Descriptive analysis, through qualitative and quantitative approaches used to explain the socio-economic conditions of people living in the Huntap region. 2) *Analytical Hierarchy Proses (AHP)*, used to determine priority socio-economic activities and the dominant party in establishing socioeconomic conditions in the Huntap region. The AHP method is done with stages: 1) Formulating goals, criteria, and alternatives, 2) Compiling a hierarchy. Given that in this study there are three criteria and three alternatives, the AHP hierarchy is indicated as in Figure 1, 3) Compiling a paired comparison matrix that shows the relative contribution or influence of each element to the above level of goals or criteria. Comparisons are made based on the choices of respondents by assessing the level of importance of one element compared to other elements. The paired comparison scoring scale is based on the explanation contained in Table 1.

Table 1. Paired Comparison Scale

Scale	Verbal definition	Information
1	Equal importance	Both variables have an equally important influence on the goal.
3	moderate importance	One choice is quite a little more important than the other.
5	essential/strong importance	One choice is more important than the other.
7	very strong importance	One choice is very more important than the other.
9	Absolutely more important	One choice is absolut more important than the other.
2,4,6,8	Value between	When in doubt in determining the scale, intermediate values can be used on slightly different choices of perception with other options.

Source: Saaty, 1993, 85-86

The next stage is to perform calculations based on data that has been obtained from the results of the interview. The first process is to fill in a paired comparison matrix table (Table 2) for aspects: residential construction (A<sub>1</sub>), cost of living assistance (A<sub>2</sub>), and job opening (A<sub>3</sub>).

Table 2. Paired Comparison Matrix

C	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>
A <sub>1</sub>	a <sub>11</sub>	a <sub>12</sub>	...
A <sub>2</sub>	a <sub>21</sub>	a <sub>22</sub>	...
A <sub>3</sub>	a <sub>31</sub>	a <sub>32</sub>	a <sub>33</sub>

Source: Saaty (1993: 84)

After filling out the matrix of comparison pairs for aspects: residential development (A<sub>1</sub>), cost of living assistance (A<sub>2</sub>), and job opening (A<sub>3</sub>). The next stage is to normalize the data, i.e. by dividing the value of each element in the matrix in pairs with the total value of each column. After calculating the normalization value then calculates the priority value of the criteria, with the following formula:

$$\text{Priority of Criteria} = \frac{\text{Total Number of Line alues}}{\text{Number of Criteria}}$$

After the priority matrix of criteria is completed, the next step tests the consistency of the respondent's answers. Consistency tests are conducted in the following order (Saaty: 1993: 91-93): a) Perform data entry calculations by performing calculations on priority sequence data with paired comparison matrix data, b) Assigning a max lambda value (λ maks). The max lambda value is obtained by performing calculations based on priority sequence data and entry data calculations, c) Determining consistency index. Consistency index is calculated using equations (1):

$$CI = (\lambda \text{ maks} - n) / (n-1) \dots\dots (1)$$

Information: CI = Consistency index

λ maks = lambda maks

n = number of criteria

By using the equation (1) it will be obtained the value of the consistency index. d) Consistency ratio. By basing the consistency index value that has been obtained and the random value of the consistency index (Table 3) it will be obtained the consistency ratio (CR) value. Contingency ratios are used to determine whether respondents' answers summarized in the ratio of pairs for aspects: residential development<sub>(A1)</sub>, cost of living assistance<sub>(A2)</sub>, and job opening<sub>(A3)</sub>, can be expressed consistently or not. If in the matrix of paired comparisons there are 3 (three) aspects that are compared then the random value of the index as stated in Table 3 is 0.58.

Table 3. Random Index Value

N	1	2	3	4	5	6	7	8	9	10
RI	0,0 0	0,0 0	0,5 8	0,9 0	1,1 2	1,2 4	1,3 2	1,4 1	1,4 5	1,4 9

Source: Marsono: 2014:11

By basing the consistency index value that has been described above and for the random index value n = 3 is 0.58, it will be obtained the consistency ratio (CR) value will be obtained. The CR value will be accepted if it has a value lower than 0.1 which means the consistency level of the respondent's answer is acceptable.

The calculation steps described above will be repeated to determine the consistency of respondents' answers on the determination of priorities of parties stakeholders who play the most role in the development/recovery of socio-economic conditions in the Huntap area.

#### IV. RESULTS AND DISCUSSIONS

##### *Changes in Socio-economic Conditions in the Huntap Region*

##### *The Impact of Disasters on Family Member Education*

The disaster of September 28, 2018 has impacted the level of educational participation of family members. Before the disaster, 60 respondents who sampled 65 percent of the study said all family members attended school, this number decreased to 61 percent after the disaster. Meanwhile, respondents who stated that all family members were not in school increased from 15 percent to 21 percent. From the explanation above indicates the disaster of September 28, 2018 has had an impact on the decrease in school participation and the increase in children who are not in school.

##### *The Impact of Disasters on the State of Family Members*

Further explain the impact of the disaster on the condition of family members. Of the 60 respondents who were sampled a 18.33 percent who said they had lost a family member in the event of the disaster. Meanwhile, 81.67 percent said they had not lost a family member. When compared between respondents who live in Huntap Tondo and Huntap Duyu, it shows that respondents who lost more family members live in Huntap Tondo compared to respondents who live in Huntap Duyu. A total of 7 respondents (23.33 percent) of the 30 respondents living in Huntap Tondo stated they had lost family members, while in Huntap Duyu as many as 4 respondents (13.33 percent).

##### *The Impact of Disasters on Work*

The next description is about the transformation of respondents' work as a result of the disaster of September 28, 2018. Before the disaster on September 28, 2018 out of a total of 60 respondents, who worked as traders as many as 28 respondents (46.67 percent), this number decreased to 23 people (38.33 percent) after the disaster. Meanwhile, respondents who promoted as workers increased from 3 people (5.00 percent) before the disaster to 5 people (8.33 percent) after the disaster. This transformation of the type of work of respondents shows that with the event of the disaster there has been a decrease in the number of respondents who work as traders, which is a job as a trader will usually bring relatively better income. Meanwhile, the number of workers who can be seen as having relatively low incomes is



increasing. The disaster also had an impact on the increasing number of respondents who had relatively uncertain jobs such as those who worked as security units (security guards), housewives, and honorees.

#### *The Impact of Disasters on Revenue*

The disaster of September 28, 2018 has had an impact on changes in respondents' income levels. Respondents with the lowest income level, those with monthly income up to Rp.2.99 million, increased from 47 people (78.33 percent) to 50 people (83.33 percent). Meanwhile, the number of respondents with higher monthly income, which has income between Rp.3 million to 5.99 million, decreased from 9 respondents (15.00 percent) to 7 people (11.67 percent). The decrease in the number of respondents also occurred in the higher income group, namely respondents with incomes of Rp.9 million to Rp.11.99 million, the number decreased from 2 respondents to no more one.

#### *The Impact of Disasters on Living Conditions*

The disaster on September 28, 2018 has had an impact on the condition of the respondent's residence. Of the 60 respondents living in huntap Tondo and huntap Duyu, all stated that they had been seriously affected related to their homes. Before the disaster, a total of 60 respondents, 24 people (40.00 percent) said their homes were very good, and as many as 36 people (60.00 percent) declared their homes good. Meanwhile, after the disaster, none of the respondents declared their home in excellent condition, and good.

After the September 28, 2018 disaster out of a total of 60 respondents, mostly that is 41 respondents (68.33 percent) said their homes had been lost, as many as 15 respondents (25.00 percent) stated their homes were destroyed/uninhabitable, and as many as 3 people (5.00 percent) declared their homes in very bad condition.

#### *Problems in huntap area*

The problem of meeting the needs of clean water is still a major problem felt by most residents living in both areas of Huntap. The existing water supply is felt to be far from enough to be able to meet the needs of residents. To meet the water needs some residents (mostly those who live in Huntap Tondo) still have to spend their own funds by buying water directly provided by water-snagged cars.

Another serious problem that arises in the Huntap area (especially in the Tondo Huntap) is the unaddressed garbage that appears to still be strewn at certain points in the Huntap area. This garbage problem arises because there are no permanent garbage shelters available. Therefore, serious and as soon as possible handling from related agencies by providing/building permanent landfills in several locations that are considered appropriate.

Another problem, especially in the Tondo Huntap, is the draining system of household wastewater that has not been handled properly. Wastewater (household waste) can not be

channeled/wasted outside the Huntap area, so household waste water is still pooling at certain points in the Huntap area which is certainly very disturbing the comfort of Huntap residents. Therefore, it is necessary to build an adequate drainage system so that household wastewater can flow wasted out of the Huntap area.

Another problem felt by huntap residents (especially residents who live in Tondo Huntap) is related to the physical condition of the building that is felt not too good and even gives rise to a sense of less security in some residents. Meanwhile, in the Duyu Huntap area environmental problems and road conditions in huntap settlements are felt to be still less neatly arranged.

#### *The Impact of Disasters on Property Ownership*

The disaster of September 28, 2018 has had an impact on the ownership of respondents' property. Of the 60 respondents who were a sample, of 44 respondents (73.33 percent) said they had lost land, as many as 7 respondents (11.67 percent) stated the amount of land remained (not reduced) and as many as 3 respondents (5.00 percent) stated their land was reduced. Respondents who stated their land had been lost more in Tondo Tondo (25 respondents) compared to respondents who were in Duyu Huntap as many as (19 respondents). Liquefaction events and changes in land status that no longer allow it to be used as a place to live, because it has been turned into a "red zone" has resulted in the loss of their property.

#### *Socio-Economic Development and the Role of Stakeholder in the Development of The Huntap Area*

##### *Hierarchical Structure Determining the Role of Stakeholder in Socio-Economic Development in the Huntap Area*

*Analytical hierarchy Process* is used to determine socio-economic activities and *priority stakeholder* in the development of socio-economic conditions in the Huntap region.

The results of the identification of socio-economic activities and actors that are expected to play an important role in the development of socio-economic conditions in the Huntap area are: for the socio-economic activities needed, namely the residential development, cost of living assistance, and the job opening. Meanwhile, actors who are expected to play a role in the development of socioeconomic conditions are the Government, Entrepreneurs/Private Sector, and Non-Governmental Institutions (NGOs).

After determining the required socio-economic activities and actors who are expected to play a role in the development of socio-economic conditions then compiled a hierarchy to determine socio-economic activities and actors who are priorities with the following arrangements:

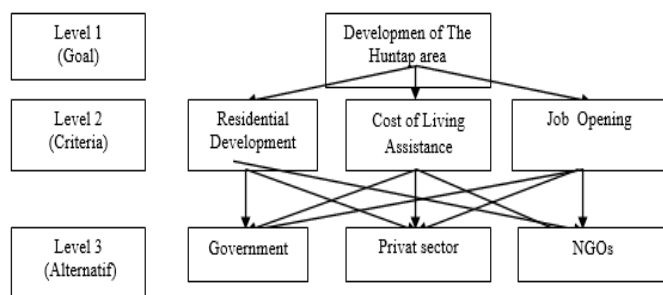


Figure 1. Relationships of Goals, Criteria, and Alternatives in Research Models

### *Test consistency and priority of socio-economic activities in the Huntap area*

To determine the priority of socio-economic activities in the development of the Huntap area, the first process is to fill out a paired comparison matrix table based on Appendix 1 data, then continued by normalizing the data so that the sequence of criteria for socioeconomic activities in huntap development is obtained with the following values: Residential Development (0.09), Cost of Living Assistance (0.24), and Job Opening (0.67).

To determine whether the respondent's answer about socio-economic development priorities in the development of the Huntap area is consistent or not, the next stage is calculated **consistency ratio** with stages: **First**, doing the Entry Calculation, which is done by basing on matrix data comparing pairs of socio-economic development with socio-economic development priorities so that data entry results are obtained for each criteria as follows: residential development of 0.26; cost of living assistance of 0.73; and job openings of 2.01. **Second** Establishing the value of Lambda maks ( $\lambda$  maks), obtained by performing calculations based on data on the order of social economic development priorities and calculation of data entry so that the value (database) is obtained for the calculation of the max lambda on each of the following criteria: residential development of 2.89; cost of living assistance of 2.99; and job openings of 3.00.

Based on the results of the database addition of 8.93 (2.89 + 2.99 + 3.00) then the calculation of the value of lambda maks with formula,  $\text{Lambda maks } (\lambda \text{ maks}) = \frac{\text{Total Database Value } \lambda \text{ max}}{\text{Number of Criteria}}$ , so obtained results:  $\text{Lambda maks } (\lambda \text{ max}) = 2.98$  (8.93/3). **Third**, the Consistency Index, which is calculated using the equation (1), so that the consistency index value (CI) =  $\frac{(2.98-3)}{(3-1)} = -0.01$ . **Fourth** Consistency Ratio. By basing the consistency index value and for the random value of the consistency index  $n = 3$  is 0.58, (Table 3) then obtained a Consistency Ratio (CR) value of -0.02 (-0.01/0.58). With a consistency ratio (CR value of -0.02 which is lower than 0.1, the consistency level of respondents' answers in determining the priority of socio-economic activities in Huntap development is acceptable, with the order/priority value of each criterion is: Residential Development (0.09), Cost of Living Assistance (0.24), and Job Opening (0.67).

After the determination of priority criteria in the development of the Huntap area is completed, the next stage is to determine alternative priorities (priorities of parties who play a role in socio-economic development in the Huntap area) based on the three criteria above (residential development, cost of living assistance, and job opening). The steps taken are the same as in determining the priority criteria for the development of the Huntap area above, with alternatives: Government, Employers/Private Sector, and Non-Governmental Organizations (NGOs).

### *Test consistency and priority of socio-economic development actors in the Huntap area*

#### *Residential Development Criteria*

In determining the priority of stakeholders in socio-economic development, the calculation process begins by basing on the criteria of residential development.

To test the consistency of respondents' answers and determine the priority of stakeholders on aspects of residential development, the first process is to fill out a paired comparison matrix based on Appendix 2 data, then continued by normalizing the data so that the sequence of stakeholders in the socio-economic development of the Huntap area is obtained in the following aspects of residential development: Government (0.09), Private Sector (0.11), and NGOs (0.27).

To determine whether the respondents' answers about the order of socio-economic development actors from aspects of residential development in the Huntap area are consistent or not, the next stage is calculated **consistency ratio**. Calculation of Consistency Ratio in this aspect is done through stages such as in determining the sequence of criteria that have been done above, namely by the sequence of stages: **First**, doing the entry calculation, **Second**, setting the value of lambda max ( $\lambda$  max), **Third**, calculating the consistency index, and **Fourth**, calculating the consistency ratio. After the calculation is obtained each for 1) Entry calculations: Government (2.03) Entrepreneurs (0.33), and NGOs (0.82); 2) A max lambda value ( $\lambda$  max) of 3.03 based on a government database (3.09), employers (3.00), and NGOs (3.00); 3) Consistency Index of 0.02; and 4) Consistency ratio of 0.03.

With a consistency ratio (CR) value of 0.03 which is lower than 0.1, the consistency level of respondents' answers about the order of priority of socio-economic development actors in the Huntap area on the aspect of residential development is acceptable, with the order/priority value of each alternative is: Government (0.09), Private Sector (0.11), NGO (0.27).

In the construction of residences in the Huntap area in addition to the government sector, NGOs are also expected to have a greater role. NGOs can contribute to the construction of houses, provide infrastructure, and make wells for the provision of clean water. NGOs are also able to work on various other basic needs for huntap citizens, in a faster way than the government itself which has a bureaucratic process

that is usually more complicated. In addition to being able to work/prepare various basic needs for huntap citizens, NGO institutions can also be used as intermediaries for communication between the community and the government. Information from the public to the government covers the problems that are still faced by the people of Huntap. Meanwhile, communication from the government to the citizens of Huntap related to plans and projects from the government.

*Cost of Living Assistance Criteria*

After the determination of alternative priorities from the aspect of residential development is completed, the next stage is to conduct a consistency test and determine *the priority of the stakeholder* on the cost of living assistance aspect.

Through the same calculation process as in the consistency test and determination of stakeholder priorities on the aspect of residential development, the values obtained in the aspect of cost of living assistance which in the calculation process are based on Appendix 3 are as follows: 1) The priority order of socio-economic development actors is: Government (0.63), Private Sector (0.11), and NGOs (0.26). 2) Entry calculation: Government (1.94) Employers (0.32), and NGOs (0.79); 3) A max lambda value ( $\lambda$  max) of 3.03 based on government databases (3.07), employers (3.01), and NGOs (3.03); 4) Consistency Index of 0.02; and 4) Consistency ratio of 0.03.

With a consistency ratio (CR) of 0.03 which is lower than 0.1, the consistency level of respondents' answers about the order of priority of socio-economic development actors in the Huntap area on the aspect of cost of living assistance is acceptable, with the order/priority value of each alternative is: Government (0.63), Private Sector (0.11), NGO (0.26).

NGOs have also had a real role in cost of living assistance in the Huntap area. Especially in the Huntap Duyu area, the NGO "Islamic Relief" Agency has provided assistance in the form of basic needs that is needed by Huntap residents. NGOs receive a lot of funding from individuals, institutions, and governments to be channeled to communities in need.

*Job Opening Criteria*

The next stage will be a consistency test and stakeholder prioritization determination on the aspect of job opening.

Through the same calculation process as in the consistency test and stakeholder priority determination on the aspect of cost of living assistance, the values obtained in the aspect of job opening which in the calculation process are based on Appendix 4 are as follows: 1) The priority order of socio-economic development actors is: Government (0.63), Private Sector (0.26), and NGOs (0.11). 2) Entry calculation: Government (1.94) Employers (0.79), and NGOs (0.32); 3) A

max lambda value ( $\lambda$  max) of 3.03 based on government databases (3.07), employers (3.03), and NGOs (3.01); 4) Consistency Index of 0.02; and 4) Consistency ratio of 0.03.

With a consistency ratio (CR) of 0.03 which is lower than 0.1, the consistency rate of respondents' answers about the priority order of socio-economic development actors in the Huntap region on the aspect of job opening is acceptable, with the order/priority value of each alternative is: Government (0.63), Private Sector (0.26), NGO (0.11).

The government in this case is the local government together with the private sector and NGOs have an important role to increase employment in the Huntap area. Local Governments as power holders and stakeholders need to cooperate with the private sector and NGO institutions that aim to create new jobs in the Huntap area. The government prepared funds to address socio-economic problems in the Huntap area. Meanwhile, the private sector and NGO institutions can take a role in the guidance and training activities of small business and also the development of basic infrastructure in the Huntap area.

*Determination of Stakeholder Priorities in the Development of Socio-Economic Conditions in the Huntap Area*

The next stage will be determined by the order of *priority stakeholder* (government, private sector, and NGOs) in the development of socio-economic conditions in the Huntap region, which is based on data on criteria for residential development, cost of living assistance, and job opening.

By basing on the data mentioned above, namely: 1) Priority socio-economic development criteria), 2) Alternative priorities on aspects of residential development, 3) Alternative priorities on aspects of cost of living assistance), and 4) Alternative priorities on aspects of job opening, then the next stage is modified Figure 1 by displaying the value on each criterion, alternative priorities on aspects of residential development, alternative priorities on the cost of living assistance aspect, alternative priorities on aspects of job opening, and the relationship between alternatives and criteria so that figure 2 is obtained as follows:

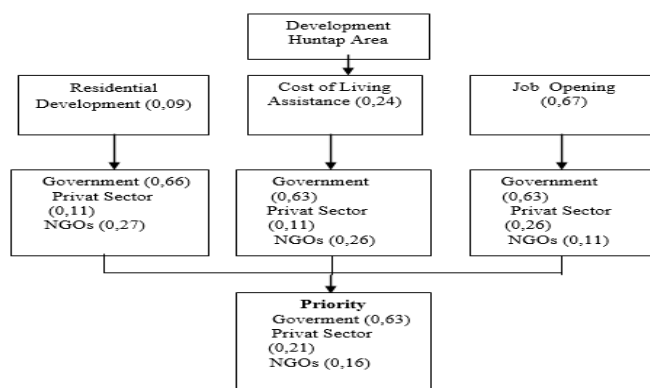


Figure 2. Values Of Each Criterion, Alternative, and the Relationship of Criteria with Alternatives

By multiplying (through a matrix approach) between the values of each *stakeholder* with the value of each criterion as stated in Figure 2, the weight value of each *stakeholder* in socio-economic development in the Huntap area with the order: 1) Government (0.63), private sector (0.21), and NGO (0.16). Thus it can be concluded that *the stakeholder* that plays the most role in the development of socio-economic conditions in the Huntap area is the Government Sector, followed by the Private Sector, and NGOs.

The government sector plays a dominant role in the development/recovery of socio-economic conditions of citizens who live in the Huntap area. Based on Figure 2 of the three criteria in the development/recovery of socio-economic conditions, the criteria for job opening occupies a top priority compared to the other two priorities. In this aspect of job opening, the government sector is also a priority when compared to the other two actors.

This is in line with the role of the government in the expansion of employment opportunities, namely: 1) as a regulator that prepares regulatory tools related to the expansion of employment opportunities, 2) as a dynamic that directs intensively by providing guidance to the community, 3) as a facilitator that provides facilities that support in the expansion of employment, and 4) as a motivator that provides counseling (Mutawadia: 2016).

In opening up employment opportunities and wider business opportunities in the Tondo Huntap and Duyu Huntap areas in addition to needed initiatives from the government sector, support is also needed from the business sector.

The role of government remains important in expanding employment opportunities, but without help from the private sector the government will not be able to open many job opportunities. The support of the business sector will accelerate the expansion of employment opportunities and business opportunities that will ultimately have an impact on increasing people's incomes. Private sector support can be in the form of training and development of Micro Small and Medium Enterprises in the Huntap area on capital aspects, product design, and building and expanding market networks.

## V. CONCLUSION

Based on the results of research and discussions that have been explained in the previous section, the following conclusions can be formulated: 1) The disaster of September 28, 2018 has negatively impacted the social and economic conditions of affected communities living in the Huntap area marked by deteriorating family member education, loss of some family members, increasing erratic types of work, decreased income, decreased quality of residence, and reduced property ownership. 2) People affected by disasters living in the Huntap area still need the residential development, the cost of living assistance, and the job opening, with priorities in order of need are: the job opening, then cost of living assistance, followed by the residential development. 3) Based on the three criteria above (residential development, cost of

living assistance, and the job opening) then the parties who are considered to play the most role in the development of economic and social conditions in the Huntap area respectively are the government sector, private sector/employers, and NGOs.

Based on the conclusions that have been formulated, the suggestions in this study are: 1) Disaster affected residents living in Huntap Tondo and Huntap Duyu need to be given assistance in the form of business capital to build new businesses so that jobs will create jobs and generate income, 2) As a facilitator in the creation of job opportunities, the government needs to provide facilities that support the creation of new job opportunities in the Huntap area. 3) In the framework of the development of more organized social and economic conditions in the Huntap area, an increasingly active role is needed, especially from entrepreneurs and non-governmental organizations (NGOs).

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Appendix 1. Transformation of interview data into pairwise comparison about weight gaining criteria

Criterion	Respondents									
	1	2	3	4	5	6	7	8	9	Mood
Residential Development - Cost of Living Assistance	A 3 ←	E 3 →	E 3 →	E 3 →	B 5 ←	A 3 ←	E 3 →	C 7 ←	A 3 ←	E 3 →
Cost of Living Assistance - Job Opening	E 3 →	E 3 →	E 3 →	C 7 ←	E 3 →	E 3 →	F 5 →	H 9 →	C 7 ←	E 3 →
Residential Development – Job Opening	A 3 ←	G 7 →	A 3 →	G 7 →	E 3 →	E 3 →	G 7 →	D 9 ←	C 7 ←	G 7 →

Appendix 2. Transformation of interview data into pairwise comparison about the determination of alternative weights on aspects of residential development

Institution	Respondents									
	1	2	3	4	5	6	7	8	9	Mood
Government – Privat Sector	A 3 ←	E 3 →	B 5 ←	D 9 ←	E 3 →	B 5 ←	B 5 ←	D 9 ←	B 5 ←	B 5 ←
Private sector - NGO	E 3 →	A 3 ←	E 3 →	F 5 →	A 3 ←	E 3 →	E 3 →	H 9 →	F 5 →	E 3 →
Government-NGO	E 3 →	A 3 ←	A 3 ←	D 9 ←	A 3 ←	A 3 ←	A 3 ←	D 9 ←	D 9 ←	A 3 ←

Appendix 3. Transformation of interview data into pairwise comparison on the determination of alternative weights on the aspect of cost of living assistance

Institution	Respondents									
	1	2	3	4	5	6	7	8	9	Mood
Government - Privat Sector	A 3←	B 5 ←	B 5 ←	D 9 ←	B 5 ←	A 3←	C 7 ←	B 5 ←	D 9 ←	B 5 ←
Private sector - NGO	E 3→	E 3 →	E 3 →	D 9 ←	E 3 →	A 3←	E 3 ←	D 9 ←	D 9 ←	E 3 →
Government-NGO	E 3→	A 3 ←	A 3 ←	C 7 ←	A 3 ←	A 3←	H 9 →	H 9 →	H 9 →	A 3 ←

Appendix 4. Transformation of interview data into pairwise comparison about determining alternataif weights on aspects of job opening

Institution	Respondents									
	1	2	3	4	5	6	7	8	9	Mood
Government - Privat Sector	A 3 ←	E 3 →	A 3←	B 5 ←	E 3 →	A 3←	A 3 ←	D 9 ←	D 9 ←	A 3 ←
Private sector - NGO	A3←	A 3 ←	H 9→	B 5 →	A 3 ←	A 3←	F 5 →	D 9 ←	D 9 ←	A 3 ←
Government-NGO	B5 ←	E 3 →	B 5 ←	B 5 ←	E 3 →	B 5←	H 9 →	H 9 →	H 9 →	B 5 ←