
**FISHERMAN SOCIAL NETWORK IN TANAKEKE ISLAND TAKALAR
REGENCY SOUTH SULAWESI PROVINCE**

Wahyuningsih¹, Muhammad Arhim², Agus Purwanto³
Agribusiness Departement, Faculty of Agriculture, Cokroaminoto Palopo University
Research and Forest Development Institute Manado
(wahyuningsih_sosek05@yahoo.co.id)¹, (aimds2cin@gmail.com)²,
(lazioman@gmail.com)³

Abstract

Ecosystem damage leading to ecological changes in coastal and marine areas has direct implications for society in that region. Response is the first step of an adaptation strategy by society that is resulted from understanding via the impact of ecological changes that occurred. This study was conducted to find out how fishermen adopt strategy through ecological changes in coastal and marine areas that located in Tanakeke Island Takalar Regency South Sulawesi Province using social network approach as an option of adaptation strategy. The result showed that there are some of adaptation strategies, but social networks is by far the most effective adaptation strategy for Tanakeke Island fishermen households due to the fact that there is a strong interaction among fishermen in that community. Kinship, cooperation, and mutual trust can be used as a basic to perform social networks in Tanakeke Island fishermen community. Moreover, there is still relatively high emotional ties among Tanakeke Island fishermen based on the principle of kinship, brotherhood, and neighbourhood values for giving opportunity to build and utilize social network functions. The forms of social networks in Tanakeke Island fishermen community are kinship horizontal network (bonding), mixture of friendship and neighbourhood horizontal network (bridging), and vertical network between patron and client (linking). The usage of these social networks as an adaptation strategy to ecological changes in Kepulauan Tanakeke coastal and marine areas are to anticipate family hardship or economic pressure in order to maintain the survival of Tanakeke island fishermen.

Keywords: *environmental adaptation, social networks, ocean fishermen, ecological condition*

Introduction

Coastal areas of Indonesia has a different variety of ecosystems. Indonesia's rich ecosystems make it known to worldwide as a country that has the potential coastal areas. Population growth and the rapid development in coastal areas, resulting in increases ecological pressure to the ecosystem of coastal and marine resources that would threaten the existence of ecosystems and marine ,coastal resources, and small islands around it (Khasanah 2008 in Ayunita and Hapsari, 2012) , Destruction of the ecosystem resulting in ecological changes in a coastal and marine areas has direct implications against communities around it. Communities which will contribute directly to strive for damage to coastal ecosystems by increasing their awareness and capacity (Suryanti, 2010). Zein (2010) explains that communities is a party to have direct experience of the impact caused by changes in the environment so understanding possessed a basic for the reduction of the risk of negative impact. The response was the early steps of an adaptation strategy by community generated through an understanding of the impact of ecological changes that occur.

Ecological changes that disrupt marine ecosystems can certainly aggravate the economic life of the fishermen who depend on fishing marine life. Dahuri (2003) states

that human needs are increasing, while the natural carrying capacity is limited so it cause potential damage to natural resources becoming increasingly large. This concerning situation consider to the condition of coastal fishermans communities in general in different regions that marked by poverty, socio-cultural backwardness, the low quality of human resources and organizational capacity of communities (Kusnadi, 2007 in Patriana, 2011). In coping with change, adaptation is a process where an individual seeks to maximize the opportunity in his life, it can end up with something that is expected or not expected. Man in adaptation does not modify anatomically but more directed at changing behavior and culture in response to the surrounding environment. Humans adaptation is essentially derived from the need and desire to hold a harmony between themselves and the surrounding environment. Besides humans affect the environment and human being influenced by the environment. Humans on certain conditions being forced to adapt its life to meet their needs with the limitations that exist in the surrounding environment (Hilmanto 2010 in Hutapea, 2013).

Catastrophies in coastal resources that occur mainly caused by the parties which interested in the natural resources (Susanto, 2009). The fishermans communities as actors who have physical proximity, territorial, and emotionally to coastal resources are the main actors which are interesting to study in connection with adaptation to the fourth strategy of coastal resources such as ecological changes. Adaptation strategies of fisherman is seen as related to the ability of the people response to ecological change which is very important to know, because the adaptation strategy undertaken by fishermen enable fishermen to set of resources to specific issues such as fluctuating catches and declining fishery resources. Thus need an adaptation strategy that can be applied to coastal communities to deal with a variety of ecological changes that occur. This adaptation strategies must not only beneficial to save the fishing economy but also maintain marine and coastal ecosystems through a pattern of sustainable use (Lekatompessy,2013).

Based on the description above, the researchers intend to restrict the formulation of the above problem of how adaptation strategies in coastal communities, especially fishermens in Tanakeke islands to ecological changes in the region by using the social network approach in maintaining the viability (survival strategy)?

Research Methodology

The research method used in this study was a mixed research method with concurrent strategy. Qualitative methods used to answer about adaptation strategies of fishermans with a social network approach and quantitative methods used to obtain supporting data. In more qualitative methods explore how adaptation strategies was created by collecting information on the social networking of community of fishermen and biophysical environment data. In quantitative methods, information was collected on socio-cultural aspects include the choice of a livelihood as a cultural heritage, knowledge on matters relating to the cultural heritage as a fisherman, the number of family members who carry on the cultural heritage as a fisherman, experience as fishermen and others. On the socio-economic aspects include the amount of income, how each family head improve the family economy, family involvement in improving the economy of the family, the number of social relationships among fishermens in improving the economy of the family, and others. The size of the samples taken as many as 90 families of the inhabitants of the islands Tanakeke the main livelihood as ocean fishermen . Analysis of the mix between the two methods was used descriptive analysis.

Results and Discussion

Tanakeke Islands with an area of about 37 Km² located on 119°14' 22 "to 119°20' 29" East longitude and 5°26' 43 "to 5°32' 34" South latitude. Tanakeke Islands consist of two villages namely Maccinibaji Village and Mattirobaji Village. Maccinibaji Village has an area of 8.95 Km², consisted of 10 hamlets, namely: (1) Tompo Tanah, (2) Ujung Tanah, (3) Cambaya, (4) Bangkotinggia, (5) Balangdatu Luar, (6), Balangdatu (7) Bungung Lompoa, (8), Balang Loe (9) Camaba Loe, and (10) Dande Dandere. While Mattirobaji Village consists of 8 hamlets, namely: (1) Rewataya as the Centre of the village, (2) Kalukuang, (3) Lantangpeo, (4) Labbutallua, (5) Bauluang, (6) Guntungan, (7) Satangnga and (8) Dayang-Dayangan, where only Rewataya, Lantangpeo, Labbutallua and Kalukuang which majority of the people are ocean fishermen.

a. Social networking

Social networking is the only adaptation strategies that are most effective for the main and traditional fisherman households in the region of Tanakeke Islands to overcome the economic obstacles resulting from ecological changes that occur, in an effort to meet the needs of daily life compared to other strategies (diversification of employment, empowerment of family members, diversification catching tool, and add the distance of the fish catching region's) which still has its limitations. The limitations in question is more on the problem of the lack of knowledge of fishermen due to the low level of education that fishermen have, the limitation of money to serve as the capital, and low skills of fishermen's wife to support the family economy of the fishermen, so not all the fisherman's wife may seek additional jobs. Social networks are considered as the most important adaptation strategy due to the condition of kinship in the Tanakeke Islands fishermen still quite close like having family kinship, kinship from their fellow ethnic, having mutual trust and good cooperation which can be used as a basic for conducting social network in an environment of Tanakeke Islands fishermen. The relationship of cooperation in the form of provide help, information exchange in expanding access to economic resources, and patron client is a strategy that can be reached by Tanakeke Islands fishermen households to cope with economic obstacles. Choices as a supporting system in the environment of these Tanakeke Islands fishermen is a form of cooperation among fishermen by relying on strong kinship, cooperating on the basis of a sense of mutual trust. In addition to difficulties of obtaining additional income sources causing traditional fisherman family members utilizing the socio-economic functions of social networks which have to cope with various life issues. The difficulty and uncertainty of obtaining income related to the circumstances and season of the fish catching (activities on the Ocean), pressing the life of traditional fisherman. If additional activities to earn a living is not enough to cope daily necessities or no employment and earning obtained then the fishermen will turn on the system supporting embedded in their environment (Kusnadi, 2000).

In the life of the Tanakeke Islands fisherman communities that relatives, neighbors and friends is the primary groups that become the elements that formed an informal partnership in coastal communities. But facing of insecurity and scarcity of economic resources they will naturally turn to their relatives for assistance as a priority social network they choose. For households of fishermen in the coastal areas and the Islands of Tanakeke, relatives and neighbors was the primary groups which very dominant in forming social networks to overcome the daily economic life. The establishment of a social network for households of fishermen is the easiest strategy chosen and performed to achieve access to economic resources needed.

Friends and relatives factors as elements of forming social networks in the community beyond the boundaries and geographical regions. This is a feature of flexibility in social networking to facilitate and expand the access to economic resources which available wherever its existence. Based on the example of the case of household social networks of one of the informants, it proved that regardless of fisherman wife's relatives residing in other areas but they get involved giving assistance to the informant's family when facing difficulties meeting the needs of daily living. Basically, the relationship of reciprocity in social networks not hampered by territorial boundaries. Various obstacles that exist will be addressed creatively by households of fishermen in order to facilitate their access to existing resources. Strategies for dealing with the problems of the economy of the family difficulties in fulfilling the needs of the living, usually the fishermen borrow money from neighbors or relatives. As social creatures, fishermen also need help from other parties in order to resolve the problem of their lives. This is reflected in the existence of social networks in the fisherman communities, borrowing money to a neighbor or relative is the alternative if there are urgent needs. This was revealed from the explanation of one of research informants. Social networks can be considered as a communication network if in it flows of information from one party to the other party so that Exchange of information occurs. An individual can send the message to more people as compared with the number of people that he knew. It is the people who do the direct relationship with him (primary network zone), because each person that is directly related to the message giver has the potential to deliver the message to many people again. According to Ramsøy (1968:112), the concept of ' friends ' and ' friendship ' or ' companionship ' refers to a relationship between two or more people with a relationship that is voluntary, and takes place in a relatively long time. Values that are included in the friendship was the closeness, solidarity, absence of hidden intentions, reciprocity, and irrespective of distinctions-distinctions age, gender and social class. This is where the importance of the strategy of creating, developing, and maintaining social relationships to form a social networking as part of a strategy of adaptation. This social network function makes it easy for any member to gain access to the economic resources available in the environment. A social network whose members have the same socio-economic capabilities (horizontal) usually takes the form of providing help activity. Instead, a social network whose members are quite varied (vertical), the pattern of the patron-client-shaped (Kusnadi, 1997). Social relations in both social networks can be either exchange or reciprocal borrowing of economic resources, such as money, goods, and services. In a society that has limited resources, this network is very important.

b. Form of Social Networking Tanakeke Islands Fishermen

a) Horizontal Chain (Bonding and Bridging)

The horizontal social network is formed based on socio economic status which relatively same among individuals involved in it. Usually they have a resources exchanged with same relative worth. In this case the Tanakeke Islands fishermen formed a collaboration of social relationships with neighbors, friends and relatives who are generally social economic status levels are relatively the same. The level of same economic status is seen by fishermen because of having the same job as a fisherman, describe as a relatively small income, just sufficient daily needs and sometimes insufficient due to erratic incomes especially during off season.

b) A Network Of Kinship/Fraternity (Bonding)

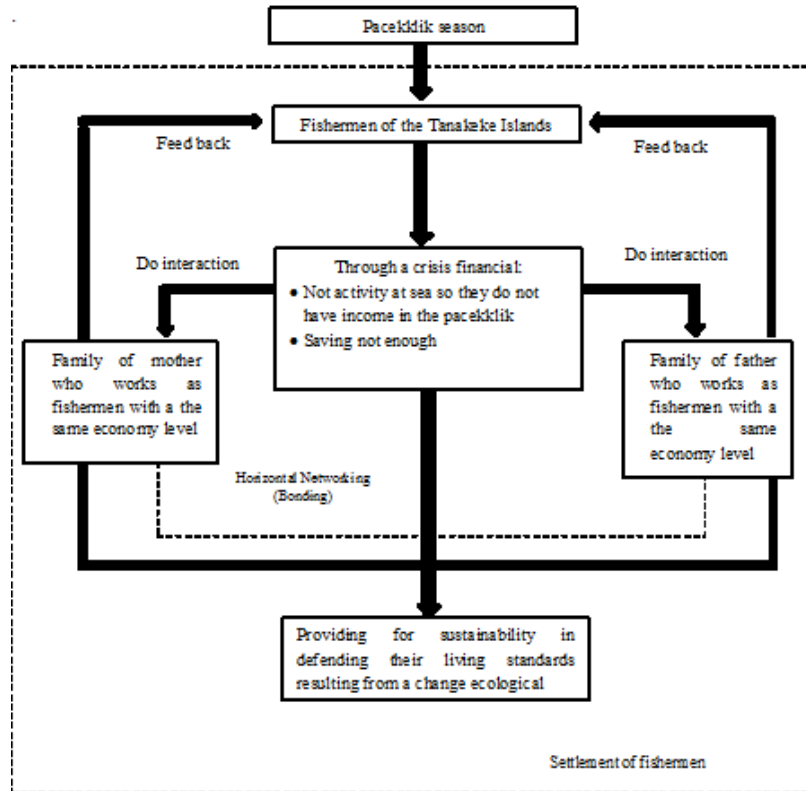
Social networking between fishermen that formed because of kinship/fraternity is a priority taken by the fishermen of the Islands Tanakeke in handling social and economic status. Tanakeke Islands fishermen who lived in the settlement of fishermen are hereditary so it has a strong kinship level. So from some informants they chose to relate

to/relatives when experiencing a crisis situation that is selected by the fishermen of the Islands Tanakeke became one of the fisherman's strategy in tackling the social problems as well as economic consequences of ecological changes in the region of the coast and Sea Islands of Tanakeke.

Relationships that occur in an environment of Tanakeke Islands fishermen is to involve the relationship of fraternal kinship of either the husband or the wife of fisherman. The relationship of fraternity become the primary choice for fishermen on the due will be more loyal to each other, it also because of mutual trust. So the terms of borrowed money repayment will be more flexible.

This bonding network patterns that look at the condition of fraternity in the level of economy that are one level (the same) and still be in one area, which is in the area of the settlements of the Islands Tanakeke. This network would be formed when the condition of the economy is declining due to dwindling fish catches or at the time of the season of wind (off season) with absolutely no income derived because it is not possible to do activities in sea. The relationship that will be connected between relatives is the brother of the wife/husband who has the same job as the fisherman with the same socioeconomic status (not higher). This relationship occurs in reciprocity (valid in 2 directions) as long as the condition of the fisherman economy is still in a condition that is not yet stable (off season continues).

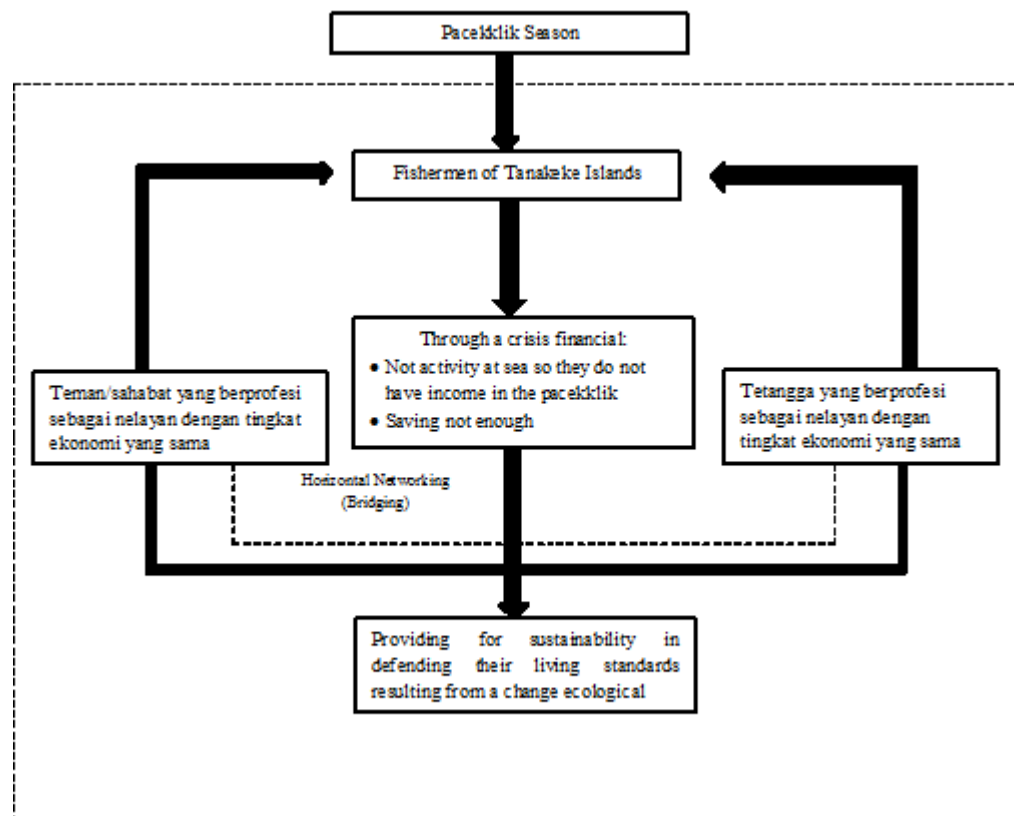
In addition to the economic problems of fishermen in the summer wind, a strong social network is formed in terms of sharing information of fellow fishermen, when they fishing or when not fishing. The intended information i.e. information related about the things that support them in making a living as fishermen at sea, such as information about a new location with more fish stock



Picture 1. Horizontal Networking
Source: Analysis Result (2015)

c) **The Network Mix Friendship/friendship and neighbors (Bridging)**

In addressing the problems faced by the fishermen of the Islands Tanakeke in off season, definitely in need of help from others. In this issue, there is also the informant in a crisis situation are likely to ask for help from other people (not relatives/relative) outside the settlement of fishermen in Tanakeke Islands. The main reason tend to choose connect with others outside of the fisherman settlement was avoiding negative possibilities that arise in case of a dispute which relates to the other problem could be that can eventually cause a rift family relationships. In addition to the above, the reason is because of the feeling of not wanting to overload the social economic circumstances of families in relatively the same time. Not involving the family situation based on the idea that better borrowed to others a clear calculation than to relatives where the element of feelings get involved.



Picture 2. Horizontal Networking (Bridging)

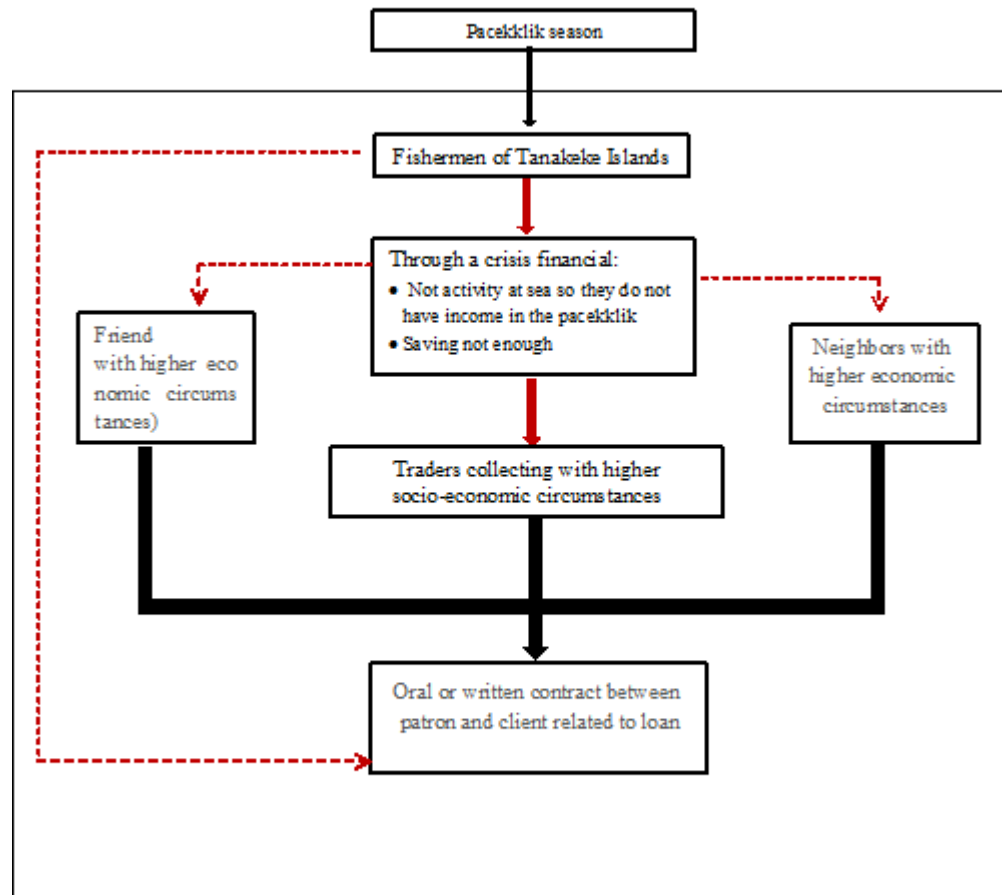
Source: Analysis Result (2015)

This bridging network patterns that look at the condition of friendship, friendship and neighbors in economic circumstances that one level (the same) and still be in one area, which is in the area of the settlements of the Islands Tanakeke as well as from outside the area of the settlements. This network would be formed when the condition of the economy is declining due to dwindling fish catches or at the time of the season of wind (off season) with absolutely no income derived because it is not possible to do

activities to sea. The relationship that will be made is the relationship between friends or friend or neighbor who has the same job as the fisherman with the same socioeconomic status (not higher). The relationship occurred by reciprocity (valid 2-way) for the condition of the fishing economy is still in a condition that is not yet stable (panceklik season continues). As it is said Legg (1983), in the face of insecurity and scarcity of economic resources people will turn to their relatives (relatives) to asked for help, in addition to neighbors and friends. In a crisis situation is the situation where a person or family he was great pressure that cannot be resolved on your own, so it requires additional assistance from other parties. Naturally someone will ask for the help of neighbors, relatives both near and far. From several informants appear to prefer the aid of neighbors in advance at once considered companions who are still living in the same neighborhood of fishermen in Tanakeke Islands.

d) Vertical Chain (Linking)

The use of vertical social networks in Tanakeke Islands fisherman environment are more likely to be used by the informant when facing crisis situations during prolonged off season. They will rely on the fish merchant middleman to help resolve crisis situations in order to sustain the survival of their family. Middleman is the position of the patrons are very helpful in providing a loan for the purposes of the family during the off season . This is done by the informant when they required money in relatively large nominal. The Agreement agreed between the fisherman with the middleman is they can pay lending in the form of money or fish catches which are resolved by means of installment within the period agreed upon between fishermen and iddleman. For informants could not expect help from family or neighbors who come from socio-economic status and relatively the same, then they switch harness pattern of vertical social networks based on the families who are able to serve as a source of socio-economic assistance. Neighbors, friends or relatives who are considered capable in economically becomes the object of their expectation to be able to help in time of trouble. Where members of a vertical social network consists of a large variety of different socioeconomic status in either liability or a resource that is exchanged

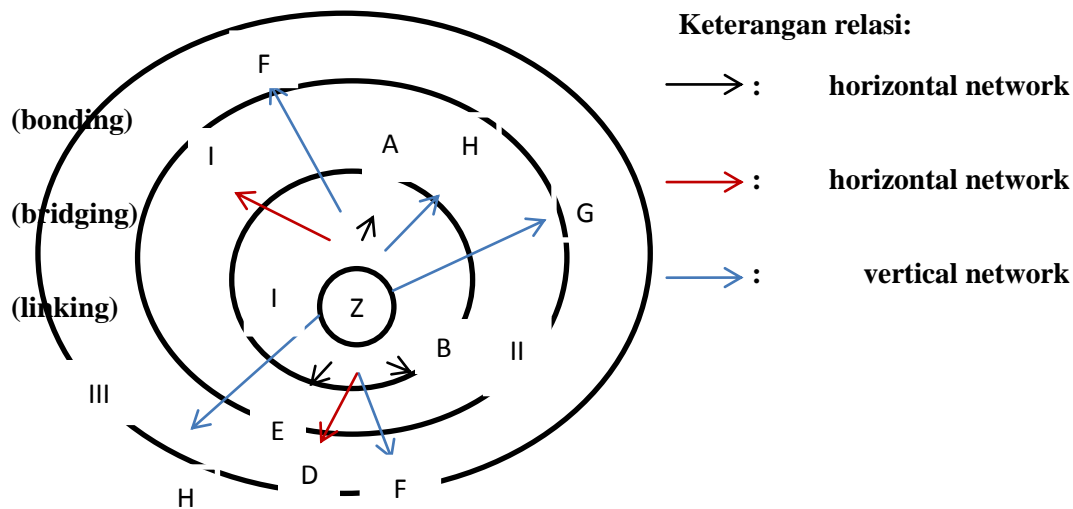


Picture 3. Vertical Networking
Source: Analysis Result (2015)

From the pattern illustrated in Figure 3, described that fisherman economic conditions while being disturbed, caused by off season, formed in the adaptation strategy is to capitalize on the relationship of kinship fraternity/wife or husband, friend/companion and neighbor with socioeconomic status who are on one level. Both being in the same environment and outside environmental settlements (horizontal relationship bonding and bridging). But not all fisherman chose to take advantage of the relationship that are on the same line (socio-economic status and ethnicity). There are some fishermen who prefer to utilize relationships with parties that having different characters in this case is to have the status of a higher socioeconomic and ethnic different (vertical relationships/linking), arguing that the fishermen know their character and confidently can take advantage of the influence, power or resources. On the one hand the client in this case is a fisherman, provide relief services to patrons as a reply or according to agreements that have been agreed upon and based on mutual trust. In an environment of Tanakeke Islands fisherman communities, the position of patron could be on the traders gatherers who may be a friend, a neighbor or a friend, instead of three.

The formation of vertical social networks on this research tends to be more manifested into form relationship patterns of clients. Client-patron relationship essentially according to Scott (1976), is a relationship between two people/parties involving

relationships instrumentalia, where someone has a position of higher socioeconomic (patron), have the influence and power or resources owned and used to deliver protection and advantage to someone of lower social economic status (client). On the one hand the client will provide relief services to patrons as a reply. In the life of fisherman communities, the usual position of the patrons are on skipper/traders collecting while the client is on the fisherman and traditional fishing labor. In the context of overcoming obstacles or meet the needs of the economy (daily needs) in the middle of the socio-economic pressures or scarcity of resources, the social network is a strategy of adaptation that is karitatif (give compassion/caring) that predominantly serve only as custodian of the survival of the household subsistence fishermen. In other words, social networks helps fishermen maintain the household life, not improving the quality of life or social welfare. Of the three forms of social networks formed by fishermen then social networking pattern can be described as a whole (Bonding, Bridging and Linking) is as follows:



Picture 4: Social Fishermen Networking of Tanakeke Islands
Source: Analysis Result (2015)

Description:

- Circle I: Network in the settlement of fishermen area in Tanakeke Islands
- Circle II: Network out of the settlement of fishermen area in the Tanakeke islands, a village
- Circle III: Networks out of the settlement of fishermen area in the Tanakeke Islands , other village

Actor Description

- Z: Tanakeke Islands Fishermen
- A: Relatives/relative's wife, the same profession, the same socioeconomic status and ethnic

- B: Relatives/relative's husband, the same profession, the same socioeconomic status and ethnic
- C: Relatives, the same profession, the same socioeconomic status and ethnic
- D: Friends, the same profession, the same socioeconomic status and ethnic
- E: neighbors, the same profession, the same socioeconomic status and ethnic
- F: Relatives, different professions, a higher socioeconomic status (patron), same or different ethnic
- G: Friends, different professions, a higher socioeconomic status and same or different ethnic
- H: Traders collecting economic, higher social status, same or different ethnic

From the pattern illustrated in Figure 4, the fisherman explained that when economic conditions are disturbed caused by off season, the adaptation strategy is formed by utilizing the relationship of kinship fraternity/wife or husband, friend/companion and neighbor with socioeconomic status who are on one level. Both are in the same neighborhood and outside the environment of the settlement (the horizontal relationship bonding and bridging). But not all fishermen chose to take advantage of the relationship that are on the same line (socio-economic status and ethnicity). There are some fishermen who prefer to utilize relationships with parties having different characters in this case is to have the status of a higher socioeconomic and ethnic different (vertical relationships/linking), arguing that the fishermen know their character and confidently can take advantage of the influence, power or resources. On the one hand the client in this case is a fisherman, provide relief services to patrons as a reply or according to agreements that have been agreed upon and based on mutual trust. In an environment of Tanakeke Islands fisherman communities, the position of patron could be on the traders gatherers who may be a friend, a neighbor or a friend, instead of three.

Conclusion

Based on the results of studies and analysis of the issues raised in this study, the conclusion that can be formulated is there are some adaptation strategies that are found, but the social network is the the most effective adaptation strategies for traditional fisherman households in the region due to the condition of the Tanakeke Islands of kinship in the environs of Tanakeke Islands fishermen still quite close like having family kinship, kinship from their fellow ethnic , cooperation and having mutual trust which can be used as a basis for conducting social network in an environment of Tanakeke Islands fishermen. Besides, it is still relatively growing emotional attachment in the fisherman communities of the Islands Tanakeke based on the values of kinship, friendship and neighborhood gives you a chance in the formation and utilization of social networking functions. On the study also found that in an environment of Tanakeke Islands fisherman communities there is a form of social networking as a strategy of adaptation to ecological changes i.e. horizontal networks of kinship/relative (Bonding), horizontal networks mix friendship/best friends and neighbors (Bridging) and the vertical relationships between the network and the client pantron (Linking). Horizontal networks generally in socioeconomic status are relatively the same and vertical social networks is a form of social relations with socio-economic status is different and much higher. The second form of utilization of these social networks (horizontal and vertical) adaptation strategies selected as a result of ecological changes in the region of the coast and Sea Islands of Tanakeke to like the family obstales or economic pressure so that it could maintain the survival of fishermen in Tanakeke Islands.

Suggestions

Based on the results of studies and analysis of the issues raised in the study, then the advice that can be given are as follows:

- 1) The need for a policy of capital needed to support the strategy of adaptation pattern of double living/ diversification source of income, so that fishermen depend not only income from fish catching results only;
- 2) Efforts need to be made in developing forms of alternative livelihoods based on natural resource management which sustainable, not exploitative, providing high added value and in tune with the culture of the community.
- 3) Efforts need to be made with the anticipation of economic and socio-cultural approaches to prevent and eliminated potential of social insecurity in the society due to the decrease in revenue caused by ecological changes and the resulting of fisheries scarcity in the area;
- 4) The need to increase the capacity of the human resources, institutional capacity of local governments, fishermen, women and other institutions in order to manage and exploit natural resources in a sustainable way.

Bibliography

- Abdoellah, Oekan Anthropology S. 2012. Ecology: Concepts, Theory and Applications in the Context of Sustainable Development. AIPI Bandung, Central Research Commission LPPM Padjadjaran University in Bandung, and M63 Foundation. Bandung.
- Asih, Sri. Fishermen Bontang 2014. Adaptation Strategy Kuala.PSMIL Padjadjaran University. Duo
- Ayunita, Dian NND and Hapsari, Trisnani Dwi. 2012. Analysis of Perception and Public Participation in the Management of Coastal Marine Conservation Area (KKLD) Ujung Negro Batang. Faculty of Fisheries and Marine Sciences, University of Diponegoro. Semarang.
- Environment Agency (BLH) District Takalar. 2015. Regional Environmental Status (SLHD) District Takalar. The District Government Takalar
- Creswell, J.W. 2009. Research Design Approach Qualitative, Quantitative, and Mixed. Student Library. Yogyakarta.
- Dahuri, R. 2000. Strategy and Program Management of Coastal and Marine Resource Indonesia. Training Proceedings of ICZM. Repository Institut Pertanian Bogor. Bogor
- Darmawan, AH. 2007. Cultural Anthropology, Environmental Sociology and Political Ecology. Bogor Agricultural Institute.
- Hardoyo, S. 2011. Community Adaptation Strategies in the Face of Sea Water Flood tides in Pekalongan. Masters in Planning and Management of Coastal and Watershed (MPPDAS), Faculty of Geography, UGM. Yogyakarta.
- Hutapea, David Daniel. 2013. Fishermen Coastal Adaptation Strategy Sibolga to Environmental Change Coastal Sibolga, North Sumatra. University of Padjadjaran Bandung.
- Helmi, Alfian., Satria Arif. Fishermen 2012. Adaptation Strategy to Ecological Change. Department of Communication Science and Community Development, Faculty of Human Ecology. Bogor Agricultural Institute. Bogor.
- Iskandar, Johan. 2009. Human Ecology and Sustainable Development. Master of Environmental Sciences, University of Padjadjaran. Bandung.

- Kusnadi. 2000. Fishermen: Adaptation Strategies and Social Networks. Top Humanities Press. Bandung.
- Kusnadi. Fishermen 2002. Social Conflict: Poverty and seizure of Fisheries Resources. PT. LKIS Rainbow Literacy. Bandung.
- Kusnadi. 2006 Coastal Community empowerment philosophy. Top Humanities Press. Bandung.
- Kusnadi. Defending 2013. Fishermen. Graha Science. Yogyakarta.
- Lekatompessy, Hendri Stenli., Nessa, M. Natsir. Arief, Andi Adri. Fishermen Adaptation Strategy 2013. Small Island against Ecological Change. Hasanuddin University. Makassar
- Moeis, Sharif. 2008. Ecology of Coastal Community Adaptation South West Java An Analysis of Culture. UPI Bandung.
- Takalar regency. 2014 Coastal Zone Management Plan and Small Islands (RP-WP3K). The District Government Takalar South Sulawesi.
- Saharuddin. 2007. Anthropology ecology. In: Adiwibowo S, editor. Human Ecology. Faculty of Human Ecology Press. Bogor.
- Satria, A. 2007. Political Ecology. Adiwibowo S (ed.) 2007. Human Ecology. Bogor: Faculty of Human Ecology IPB.
- Satria, A. 2009a. Fisheries Globalization: Repositioning Indonesia. Bogor: IPB Press.
- Satria, A. 2009b. Coastal and for the People. Bogor: IPB Press.
- Sugiyono. 2014. Research Methods Combined (Mixed Methods). Alfabeta. Bandung.
- Yuliastry, Intan. 2013. Poverty and Adaptation Strategies sebuku Fishermen in South Kalimantan Kotabaru District. Bogor: Faculty of Human Ecology, Bogor Agricultural Universit