



SOCIAL NETWORK ANALYSIS IN THE COASTAL AREA IMPROVEMENT INITIATION PROGRAM

Ayu Novelisa^{1*}

¹ Department of Anthropology, Faculty of Social and Political Science, University of Indonesia, Jakarta, Indonesia.

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CORRESPONDENCE

*E-mail: novelisa.ayu@gmail.com

A B S T R A C T

The research location is in Bungin Village, Pantai Bakti Village, where the issue is related to the conditions of coastal areas and brings up the program initiation. The research method was carried out with qualitative methods through in-depth interviews and participant observant. This thesis shows that in responding to the initiating improvements program in coastal areas, coastal communities are often faced with the social dynamics of the community itself. The response gap of the actors is influenced by social relations namely, 1) relations based on patron-client, 2) relations based on blood relations, and 3) relations based on emotional relationships, and two economic motives, namely 1) economic motives based on personal gain, and 2) economic motives which are based on basic needs. This thesis also enriches the study of the response of the fishing community through the approach of actor and network analysis. This approach is more relevant in looking at the response to the initiation of improving coastal areas through forms of actions, relationships, roles and motives of actors who are part of coastal communities.

A. INTRODUCTION

The characteristics of coastal communities, especially artisanal fishermen, are quite vulnerable to various policies imposed by the government. The issue that is currently being discussed is related to the conditions and problems subject to ecology of coastal areas, where the coastal communities depend their lives on. At the local level, an environmental conservation movement emerges involving various parties to help change. However, the readiness of coastal communities in accepting changes and various interests related to the conservation movement will have an impact on the dynamic response and management of coastal areas.

At the community level, the implementation of a program relates to what Rogers (1983) introduced as the diffusion of innovation, the process through which an innovation is communicated to members of the social system through certain channels in a certain period. This theory has been widely used by academics and practitioners in looking at models of most behaviors and trends. Empirically this theory can show that there is a cultural consensus that plays

an important role in the process of diffusion of an innovation (Jagadish & Dwivedi, 2018).

Warren (2016) studied the resource management through the perspective of social capital where leadership roles and public participation are seen in the context of indigenous peoples. Furthermore, this study looked at issues related to the destruction of resources in Bali. Social capital often moves the community to carry out collective action on resource management. Warren also mentioned that several studies related to social capital forget the internal structure of the complexities of a community, and also do not see the interests of actors to benefit from access to these resources. Warren stated that discussions about the leadership and issues of communities that depend on coastal resources often have difficulties in mobilizing and building sustainable management regimes.

Warren and Visser (2016) also conducted a study of the role of local leaders and elites in resource management in Indonesia and their implications in debates on leadership, elite capture and good governance. Their case studies showed an analysis of the roles and positions of local leaders in overcoming critical issues of local resource management. Warren and Visser stated

that the same actors can show different types of agencies in various times and contexts. Collective identity and personal agency can also be a force of proof in the drama of community-based resource management.

Both studies show that the role and social relations of the actors in the research location affect the response to a coastal area improvement initiation program. On the other hand, the role of actors is also influenced by the complexity of livelihood patterns and trust in the actors that play a role. Matera's study (2016) showed that artisanal fishermen diversified their livelihood patterns and had distrust of local government in response to resource management programs in Providencia and Santa Catalina, Colombia. In this study, it was stated that understanding the complexity of social systems can help design good management strategies, including in building trust in local government in the program management. The thing that needs to be seen as well, according to Matera (2016) the possibility of distrust of the local government that is more than just a connection with fishing activities.

This study tries to provide an understanding of the condition of coastal communities in responding to the initiation program for the improvement of coastal areas with an actor approach. Daouda & Bryant (2016) shows that the relationship between actors at the local level becomes the basis in seeing the importance or not the importance of an innovation and whether or not the relationship has an effect on an innovation. To that end, an anthropological approach by looking at changes from the actor's perspective or in this theory focusing on early adopters can show the causes of the implementation gap of innovation. The actors' approach explains the forms of change from the actual conditions in coastal areas. Starting from a coastal area improvement program in Pantai Bakti Village, in Kampung Bungin to be exact, this study describe the actual conditions regarding the response to regional improvement programs through the actor approach.

B. METHOD

This study was a qualitative study using ethnographic methods through "participant observant", which is to understand the community through "immerse", by approaching themselves to their culture and following the process individually and psychologically (Wax & Wax, 1980). Data collected and analyzed were data related to the response of coastal communities to programs to improve coastal areas.

Analysis of the data obtained in the field also used social network analysis methods. Social network maps can bring out and identify individuals who are considered the most important in

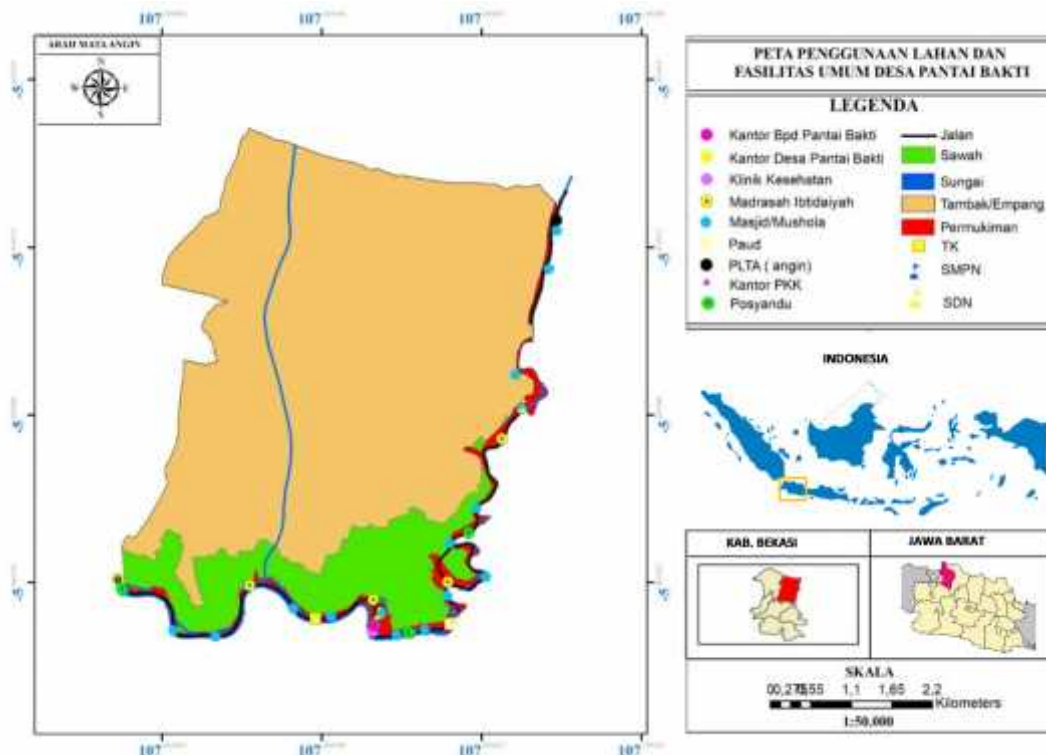
the social network through an understanding of the role of individuals in the social network (Prell, 2012). Analysis of social networks in this study referred to the degree of centrality as stated by Scott (2011) that is related to the concept of sociometry to identify individuals who act as "star" occupying a central position in social networks. I conducted an assessment of the degree of centrality category in this study based on observations and findings of field data. In this case, the assessment was based on the interpretation of the researcher in looking at the roles and relations of the actors related to the response to program initiation.

I did the fieldwork process for the initial or preliminary data collection in October 2016. I started this process by staying with the community from October to December 2016. During 2017 and 2018, I focused on this research and began to find actors who played a role in life in Pantai Bakti Village. I visited Kampung Bungin for 2-3 days every month to keep up-to-date information and maintain good relations with the actors. I obtained data about the process of implementing coastal area improvement programs every time I visited or communicated via tele-phone. In 2019, I began to stay again for 1 month in Kampung Bungin to enrich and reinforce the data previously obtained.

The data in this study were collected and the categorization of the results of the field notes obtained was carried out. Sources from the literature and related documents also collected to get an overview between the relations of local problems and the conditions of coastal communities. The entire data were analyzed by referring to the conceptual framework that had been written before to direct the focus of the research.

C. RESULT AND DISCUSSION

Kampung Bungin is within the administrative area of Pantai Bakti Village, located in the northernmost region of Bekasi Regency, West Java Province. The area of Pantai Bakti Village is 3,442 Ha, divided into 3 sub-villages with 6 Hamlets (RW) and 19 Neighborhoods (RT). Sub-Village 1 includes the area called Kampung Kedung Bokor, Kedung Cinde, and Jogol. Sub-Village 2 starts from Kampung Bendungan and Kampung Biyombong. Sub-Village 3 is Jogol, Selokan Mati, and Kampung Bungin. According to the community, there is no clear boundary regarding the division of territory based on these local terms. For example for Kampung Bungin and Jogol, at least RT 01 area to part of RT 03 is Kampung Bungin, while most of the RT 03 area is mostly known as Jogol region.



Source : Village Government Documentation and Processed by Author
 Fig. 1. Map of Location of Pantai Bakti Village

1. Abrasion and Change of Population Settlement

Pantai Bakti village has a coastal area located in Kampung Bungin. The atmosphere in Kampung Bungin until around the early 1990s was a crowded area. Lots of lodgings, people who trade, fish auctions, and other fishermen stop at the estuary which now have undergone abrasion. The crowded location at the estuary was also followed by “dombret”, a nightly entertainment featuring dangdut music and female singers. The existence of dombret was troubling the wives in Kampung Bungin. The jealousy made wives march and drove away the existence of dombret in the estuary in 1998. Since dombret no longer exists, crowds have diminished in the estuary, because entertainment for the fishermen who return or stop after fishing has disappeared.

Abrasion causes a real physical change for the people of Kampung Bungin. As far as 2 km from the highest limit of sea water, currently the land area has been lost due to abrasion. This condition leads to disappearance of houses and ponds by the sea. According to Mak Tin and Kori, one of the married couples who live in muara, every year when the east wind, about 25-30 meters of land from the highest tide of sea water is lost.

After 2010, many changes took place in Muara Bungin. During this period, there were no more auction activities in Muara Bungin. Fish auctions was closed, dombret was stopped, and the surrounding stalls also closed. This condition is exacerbated by abrasion which continues to expand from year to year. Some residents’ buildings have been victims of abrasion. Some of them began to move from the end of the estuary, towards the land. The displacement causes the settlement in Kampung Bungin to look denser at present time than before.

2. Coastal Area Improvement Programs

Abrasion occurred in Kampung Bungin led to the emergence of several good programs initiated by outside parties and from the community itself. At least, the programs in Kampung Bungin can be categorized into three major groups. These three programs mostly involve the same actors but with different degrees of centrality. In addition, the three categories of programs are not a stand-alone program, but consist of several activities in it which are eventual or only done once. The three programs are the Bungin Ecotourism program, the mangrove planting social activities, and the construction of abrasion prevention infrastructure.

The Bungin Ecotourism Program began with the Bungin Techno Village activity which was a program of the Community Service Team from the Faculty of Engineering, University of

Indonesia (FTUI). The initiation of this activity is as community empowerment in the development of renewable energy which is transforming wind energy into electricity by making windmills. The activity of developing renewable energy was accompanied by a team of students from FTUI and guided by a lecturer from FTUI. Starting from the development activities, the mangrove planting program emerged as an effort to prevent the abrasion from getting worse. The program then formed a non-formal social environment team consisting of Bahar, Bedu, Rahmat, Kori, and Beni.

The mangrove planting program is a continuation of the spirit of improving the estuary from the community. This mangrove planting program was driven by Bahar, who had been trusted as the neighborhood head, so that he was formally able to invite his people to take part. This mangrove planting program began after the completion of the construction of the windmill from the Bungin Techno Village activity. Bahar and environmental social groups began to try making mangrove nurseries which could later be synergized with the planned mangrove planting activities coming from outside parties.

Some corporate social responsibility (CSR)¹ activities have also been in Kampung Bungin since 2017 - 2018, such as CSR activities from a joint industry in Jababeka and a mangrove planting program from Pertamina. In addition, there are also several groups of students who participate in activities to plant mangroves in the estuary of Kampung Bungin. Kampung Bungin begins to carry out infrastructure development especially in terms of constructing village roads and sub-village roads with one of the actors who played a significant role was Salam. This construction is done in reference to the Rencana Pembangunan Jangka Menengah Desa (The Village Medium Term Development Plan/ RPJMDes)² which has also allocated village funds to improve infrastructure in the village. In addition to road repairs, one of the things included in the allocation of village funds in the RPJMDes is improvement in the estuary area. The RPJMDes states that there are plans for the construction of sheet piles as far as 2 Km in Muara Bungin. The construction of the sheet was started in January 2019 as far as 100 meters by utilizing the remaining village funds in 2018. The development of the village is also felt by the

people of Kampung Bungin as a continuation of their efforts to build breakwater independently at the end of 2016.

3. Analysis of Actor Networks in Pantai Bakti Village

Improvement of the coastal area of Pantai Bakti Village in practice focused on the people of Kampung Bungin and was affected by the relations of the actors who pay attention to the conditions of the estuary. The actors involved included Bahar, Bedu, Beni, Rahmat, and Kori. In addition, the social movement to overcome abrasion was also influenced by Mr. Hamid, whose characters to initiate a movement based on coastal areas was more independent and did not depend on the government or special assistance. The actors also related to actors categorized as FTUI Team. Actors from the FTUI Team cannot be personally identified because members in the team often experience changes, so that the relations and roles of actors in this presentation are within the scope of actors under the identity of FTUI Team. And finally, other actors who play roles are actors from government groups, such as Suwarta, Salam, and Jiman.

The four network models in Figure 2 illustrate the relationship between actors in terms of sentiments or related emotions, interests, formal influences, and informal influences. Each actor in each type of network has an interest or relation that is different from other actors. Some actors have high levels of sentiment, formal and informal influences, and interests. This is especially evident in Bahar as an actor who got arrows on every type of network. Table 1 shows a detailed summary of the assessment of the social network of actors based on the number of arrows that point to the actor from the network in Figure 2.

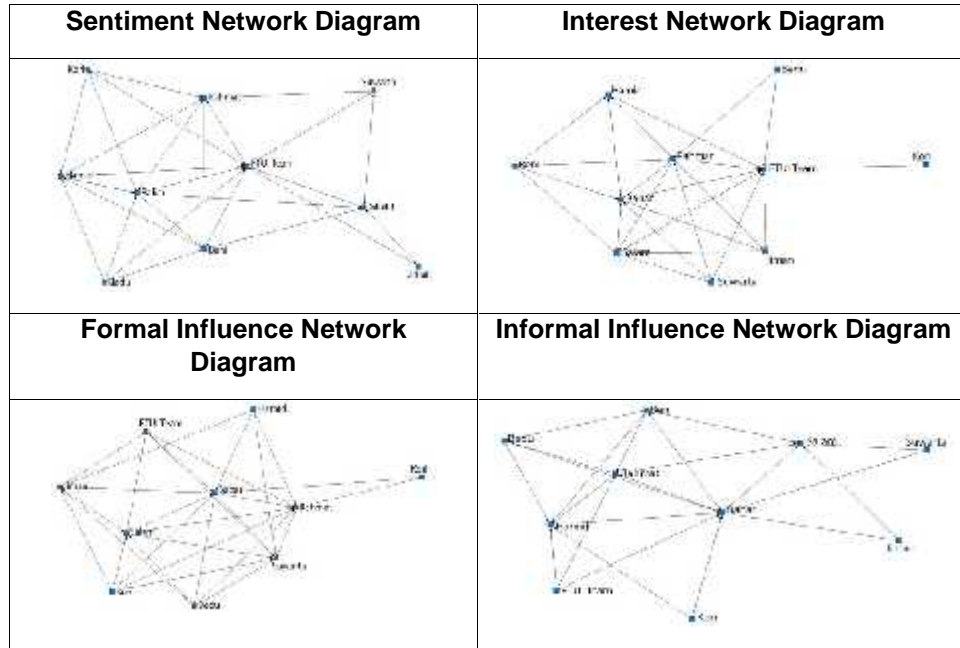
Figure 2 and Table 1 show that each actor had different strengths in each network. Hamid, for example, was quite high in informal influences, but did not appear to be a formal influence where Hamid was indeed not involved in village governance. In addition, the FTUI Team had a greater role in terms of sentiment in the community and the interest towards the implementation of Bungin Techno Village program. Based on the assessment of social networks in the table, it can be seen that the actor who had a considerable role in the coastal area improvement program was Bahar.

The relationships between the actors shown in life in Kampung Bungin also showed a positive relationship. However, the negative relationship actually arose from the actors who are from social environmental groups, such as Bahar, Rahmat, and Suwarta as the headman who served in 2012 to 2017. In addition, a negative relationship was also seen between the FTUI Team and Suwarta because the communication and coordination carried out often did not work

¹ Social responsibility to the surrounding environment carried out by a company in the form of various activities, for example related to environmental improvement, building public facilities, improving the welfare of the community, as well as providing financial assistance for the welfare of the surrounding community.

² RPJMDes is a 6-year development plan, according to the range of powers of a village head for a period of power that contains the vision and mission of the village head and what he/she will do while leading his/her village. Fulfillment of the preparation of RPJMDes in accordance with government regulation in Article 79 of Law No. 6 about Villages in 2014

well with the activities carried out by the FTUI Team.



Source: Collected and analyzed by author
 Fig. 2. Social Network Diagram of Actors in Responding to Coastal Area Improvement Programs in Kampung Bungin

Table 1. Assessment of Social Networks of Actors in Responding to Coastal Area Improvement Programs in Kampung Bungin

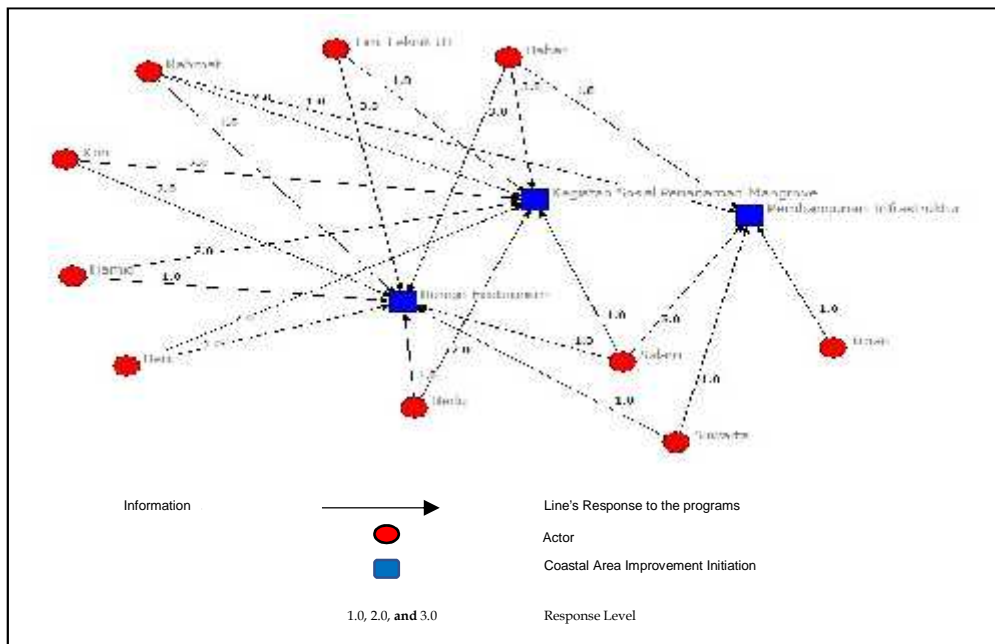
Actors	Sentiment	Formal Influence	Informal Influence	Interests
Bahar	7	7	9	6
Bedu	2	0	0	0
Beni	5	0	3	0
Rahmat	4	7	4	4
Kori	1	0	0	0
Suwarta	3	7	0	3
Jiman	2	6	0	3
Salam	5	6	5	6
Hamid	6	0	6	4
FTUI Team	9	0	0	8

Source: Collected and analyzed by author

4. Response of Actors to the Program

The response to each program is also shown differently by the actors who play a role. The diagram in Figure 3 illustrates the response of actors to the program. The arrow lines in Figure 3 show the direction of the actor's response to the type of program followed by the level of response from the actors. Based on studies conducted in Kampung Bungin, responses from the actors are categorized into three levels, namely levels 1, 2, and 3. The three levels of response are seen based on the involvement and influence of the

actors on the program. Level 1 is a response in the form of giving attention and interest to initiation. Level 2 is a response that shows that involvement is active enough to carry out initiation. Level 3 shows that the response is not only interested and involved, but also influences others about the program being carried out. The number of arrows that lead to program initiation shows the increasing number of actors in Kampung Bungin who have a response to existing programs.



Source: Collected and analyzed by author
 Fig. 3. Response Diagram of Actors to Coastal Area Improvement Initiation Program

Based on these diagrams in Figure 3, activities that many actors respond to are activities in the Bungin Ecotourism program and Mangrove Planting Social Activities. Both programs received many responses because the implementation process involved the community more. Both of these initiatives are different from the initiation of the construction of estuary repair infrastructure which focuses more on the role of government and government policies in carrying out its programs. The person who is most considered to have the idea of always being involved in the program is Bahar.

Ermayanti, et al (2016) in their study stated that the inhibiting factors of community participation in a program can be influenced by limited funds, the level of community awareness, poor understanding of the community, and busyness of the community. Zamzami (2017) also reinforced the need for an understanding of a program to strengthen groups so as not to profit only. Based on this literature, I found that for Kampung Bungin fishermen in general, the attention to improving estuary is not a matter of too much concern. Fishermen often respond with complaints but not followed by awareness to participate in the initiation of improvements to the coastal area. Fishermen are more passive in these social activities, even though they experience difficulties when they go home to sea when the estuary is aground and it could make them have to spend the night on the boat.

The response gap of the actors is also influenced by the relations and motives of each actor. The social relations which mainly affect the actors with livelihoods as fishermen are patron-client-based relationships that appear in the relationship between *pelele* and fishermen. Several studies of patron-clients in coastal

communities have been carried out and show that bond debt with patrons is something that cannot be separated from the lives of fishermen. Atmadjaja (2017) mentioned that there are three patterns of relationships found from the results of the study, namely: 1) very close and profitable relations, 2) relationships that are not only in the form of money, but are like brothers or family, and 3) relations can be broken and moved to another patron if the loan the initial patron was paid off. This patron-client relationship is also the reason for being able to carry out social strategies by owing to patrons (Widodo, 2009) when experiencing economic problems, so the debt becomes a bond between them (Muhartono & Nurlaili, 2018).

Bahar as an actor who played a lot of roles in the three programs in Kampung Bungin, showed that his social relations with *pelele* were important because it was related to the sustainability of his fishing activities. Likewise with fishermen in general, they can actually be more indifferent to respond to programs to initiate improvements in coastal areas. Fishermen in Kampung Bungin maintain a good relationship with patrons/*pelele*. Broken working relations will affect the social life of the community.

Analysis of the program response to initiation of estuary improvement in Kampung Bungin also shows the influence of emotional interactions between actors (Bericat, 2016) in their social life. Assistance made and actions to improve estuary refer to respectful relationships and feelings of wanting to help influential actors. One of them is the reluctance that arises towards Bahar that is stronger than the feelings of other actors to want to be involved spontaneously in the estuary improvement activities.

The gap in response to the initiation program for improving coastal areas in Kampung Bungin was also influenced by two kinds of economic motives from the Kampung Bungin community. First was economic motives based on the need for personal gain and another motive was economic motives which are based on basic needs. Both of these motives certainly influenced the way the actors responded to the program's initiation and sustainability.

Matera (2016) mentions that programs introduced by the government are often unsuccessful due to the lack of local trust in the running of the program. In his study the reasons for this distrust have not yet been explained. However, reading the conditions in Kampung Bungin community illustrates that distrust of the local government can be caused by concerns related to honesty in finance. In addition, distrust arises due to negative stereotypes about leaders who seem to only be concerned with personal gain.

Other economic motives that also affect the actors are economic motives that are based on basic needs. For actors who depend their lives from fishing, such as Bahar and Rahmat, the interest in finding fish sometimes has to shift their activities related to improving the estuary. The estuary improvement activities require considerable time and attention. However, the daily needs of households may not be covered from the estuary improvement activities. Sometimes, these activities will incur their own costs for just being suave. By the pressures of economic needs, the actors become more realistic about the results in the form of money. The economic conditions of each of these actors play the role of shifting their ecological awareness.

5. Theoretical Implications of the Study Results

Kee (2017) states that the previous innovation diffusion study approach is mostly done with a survey methodology approach where the data is only obtained from the adopters and focus on one innovation in a span of time, then the traditional innovation diffusion study method needs to be improved. One approach that can be developed is to conduct a study of diffusion through a qualitative approach so that it can provide an explanation based on empirical studies that occur and can open new research directions in diffusion studies in the 21st century (Kee, 2017).

In addition, this theory was also developed to see the diffusion of innovation towards the development of scientific communication networks (Zhang & Vorobeychik, 2019). Some other studies also show that the process of social learning can influence the diffusion of information and increase the ability of adopters or actors. However, the communication approach needs to look more at a qualitative perspective with actors

and social networks as an analysis of the changes that occur.

Through this study, the actor approach and social network analysis indicate that there are dynamic social conditions that occur that affect the response to the program. Analysis of social networks shows that there are actors who have roles outside, rather than their functions in the structure of society. For example, Bahar as adopter became an actor in Kampung Bungin who was able to formally and informally influence the community. Through Bahar's perspective as an actor, there are other perspectives that need to be considered when looking at changes in a society. Based on the analysis of social networks, the romanticism of the condition of the community that emerges with a structure-function approach becomes invisible. The dynamics and roles of actors in the context of complex coastal communities look even stronger. The Kampung Bungin with a variety of regional improvement initiatives shows the actual conditions through the actor's approach and the analysis of social networks formed between these actors. The response to a program and analysis of the forms of actions, relations, roles and motives of actors can explain the dynamics of the conditions in Kampung Bungin.

This also implies that change is a necessity and has no limitations, especially in heterogeneous communities. When looking through the eyes of romanticism, the actor's role cannot be specifically seen when the program is running. For this reason, the actor's approach helps to see deeper changes by making an interpretive approach to the role and involvement of actors in the community, so that the changes that occur can be explained more concretely. In addition, the initiation of improving coastal areas also shows the form of interaction between actors in each problem that exists not at the level of the social layer that is artisanal, official, and strict; so that the analysis of responses to initiation is more appropriate when taking an approach to actors and analyzing social networks that occur between actors and actors, then between actors and programs. This approach then provides an understanding of how the process of diffusion of innovation occurs in a community based on empirical conditions.

D. CONCLUSION

Differences in responses that arise from social relations and economic motives basically need to look at the capacity and capability of each actor involved. The actions of the actors will depend on the social context occurred. Kampung Bungin has a complex community structure when looking at the social relations that the actors have. This has led to an ecological awareness dilemma, where actors have not fully been able to carry out an

understanding of the importance of improving coastal conditions due to other factors that make the ecological awareness of each actor invincible.

Kampung Bungin, with various initiatives to improve the area, is an actual condition, and the analysis of responses to coastal area improvement initiatives becomes stronger when done through an actor approach. The actor's response can also be seen as the result of an explanation of the human, object, and concept that is formed, and can explain the dynamics of the response through analysis of the forms of action, relations, roles and motives of the actor.

The actor's approach in looking at the empirical conditions of the Pantai Bakti community in responding to the initiation of improvement made becomes important, when looking at the complexity of coastal communities. The role of

the actor in this study completes a more dynamic analysis of how the diffusion of innovation occurs in a community. Through the analysis of actors and social networks, it can be analyzed the causes of gaps in response to innovation or program.

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