

# Adaptation and Forms of Social Capital of Coastal Communities in Environmental Preservation

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**Abstract.** This article aims to provide an overview of social capital *bonding* that can be a force to obtain an adaptive capacity of coastal communities in environmental conservation. The strength of this adaptive capacity becomes resilience and flexibility in coastal communities. It can mobilize resources owned by coastal communities and modify institutions. This research takes place at locus in Tambak Lorok village, North Semarang Subdistrict, Semarang City. This research uses a qualitative approach with a case study method. The data collection techniques used are observation and in-depth interviews. Regarding environmental protection, the community must increase the awareness of the importance of environmental preservation for their survival and manifest environmental concerns. The type of social capital tied to the existence of social interaction between community members and the norm for bonding social capital raises adaptive capacities namely cooperation togetherness and expertise in mobilizing collective resources in coastal communities. Resilience and flexibility in maintaining environmental preservation in coastal communities is a form of adaptive capacity that must be carried out continuously.

*Keywords:* Coastal Communities, Environmental Conservation, Social Capital

## Introduction

Natural resources in the coastal area of Tambak Lorok village can be developed if the surrounding communities can prevent the environment. Generally known that the universe has diverse and harmonious properties (Wienarto, 2008). Therefore, caring for and taking care of nature must be done to maintain harmony and balance. The purpose of natural resources here is not only for humans but also for all living things. Thus, humans should preserve the environment so that it remains harmonious and balanced.

Humans become one of the determining factors in efforts to preserve the environment while having roles and responsibilities to empower environmental wealth for the survival of the ecosystem (Harahap, 2015). In reality, fulfilling the great desire to meet life satisfaction is a trigger for humans to master nature which tends to cause damage due to greedy attitudes concerning their own needs without thinking about survival. Humans have desire to change nature according to their

needs (Siahaan, 2017).

Tambak Lorok is one of the largest coastal areas in the city of Semarang, located on the banks of the Banger river, Tanjung Mas, North Semarang District, Semarang City. Recently, most of the Tambak Lorok community, whose livelihood is from fishing, often face various problems such as unhealthy environmental conditions. Crowded housings on narrow streets added to the colour of cloudy green seawater and rubbish floats above the surface of the water. According to WHO (World Health Organization), the environment is something that relates to all external physical and chemical factors to a person (WHO, 2014). All factors include the determination and control of these environmental factors have the potential to harm the environmental health. Targets to reach are the prevention of disease and the presence of a healthy environment (Suyono, 2018).

Community awareness efforts to always protect the environment also require

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cooperation in the networks of norms and social values that coastal communities must have and create conditions for coastal communities to interact between spaces. Such expertise will be an important capital for the sustainability of the environment of *Kampung Bahari*. This form of capital is called social capital. Social capital is the community expertise to work together to achieve common goals in a group or organization (Coleman, 2009).

According to P. Whiteley, three main elements create social capital, namely trust, networks, and norms of society (Whiteley, 2015). Networks facilitate communication and interaction through a sense of trust and strengthen cooperation among communities (Peluso, Afiff, & Rachman, 2008). The sense of trust tend to lead to strong social networks but instead, it is fading as the results of the lack of network and communication with each other so that the community can not be controlled, especially in the effort to increase the environmental awareness of coastal communities (Kementrian Lingkungan Hidup Republik Indonesia/ Ministry of Environment and Forestry Republic of Indonesia, 1997).

Naturally, factors that influence environmental quality are related to human behaviour patterns which tend to damage the ecological balance in nature. As a result, when nature restores its balance, it causes environmental damage. Humans interact directly with the environment (Tumanggor, 2010). Human behaviour that concerns for the importance of protecting the environment life is certainly very decisive in creating clean, comfortable and safe environmental conditions. People can use anything that comes from the environment with the aim that they will maintain the environment after taking its benefits (Safrihsyah, 2014). Notoadmojo concluded that human behaviour is all human activities both directly and indirectly observed (Notoadmojo, 2007).

Environmental problems will continue to be a concern because of the various results of technological advances, especially in the industrial world. If the advances are not balanced with various rules related to the environment, they have the potential to destroy life. Environmental pollution can slowly kill people and other living creatures. The lack of knowledge and awareness of the community in caring for the environment can result in fishermen and traders not being able to maintain the environment and damage it

instead (Primyastanto, Dewi, & Susilo, 2010).

On the other side, it is stated that social capital affects public housing environment which results in the quality of social capital (Yuliasuti & Saraswati, 2014). The environmental quality in Banyumanik public housing which is included in the good assessment of high trust among citizens is an aspect of good social capital (Nasution, Rustiadi, Juanda, & Hadi, 2014). Research conducted by Nasution et al. showed that aggregate social capital influences on welfare status positively and significantly in building households.

Previous research shows that environmental preservation in the community can develop life on the coast. Participation and cooperation in the form of social capital can be developed in marine fishing villages in Tambak Lorok. Results of other studies stated the importance of public housing as social capital. This article will explain the social actions of coastal communities in preserving the environment and developing the *Kampung Bahari*. The previous research explained that in maintaining the environment, the community needs awareness of knowledge and action of interaction, namely participation in developing social capital ownership and cooperation as collective community behaviour.

This article will also analyze how, why and in what conditions collective action can arise in coastal communities. This article describes the collective actions of coastal communities as environmental preservation. The high responses of collective action in solving environmental problems in coastal communities do not suddenly arise, and whether coastal communities have weak or strong social capital can be seen from their participation and cooperation.

Social capital bonding is social capital that pays attention to collaborative work. It enables a network of collaboration between members in a dynamic community. Living in a social group means adjusting social capital bonding that is present in the community. According to (Anderson & Australasia, 2010), adaptation is a mechanism of self-adjustment, meaning that the community has social-ecological, social system capabilities to always be ready to face and respond to changes from internal and external factors.

Creating changes and development of environmental preservation in the southern coastal areas of the social capital of coastal

Tambak Lorok communities is needed to trigger the awareness of healthy living. Some environmental preservations which play an important role in the health of coastal communities are properly disposing of garbage in place to maintain cleanliness around the coast and using technology in fishing. Such problems become the concern of researchers in Tambak Lorok Village, North Semarang Subdistrict, Semarang City. The location is locus, a category of seedy coastal areas so that the utilization of the environment should be followed by the awareness to preserve the environment. This article will explain the adjustment carried out by coastal communities; what response emerge to environmental conservation and what are the forms of social capital of coastal communities have?

### Research Methodology

This research uses a descriptive qualitative approach with primary data collection techniques of *in-depth interviews*. The researchers also use data from observations and documentation. Data collected using those techniques show the picture of collective actions of coastal communities. To answer how collective actions arise in coastal communities, the researcher's interview five informants suit to the criteria of informants owned by coastal communities in Tambak Lorok and ask about environmental conservation around the coast.

The researchers also interview elements of the village government/community leaders, coastal residents and fishermen who live daily in the sea. They understand the social conditions and the results of environmental conservation in coastal communities that use participation and cooperation among coastal residents by using observations. Apart from that, the researcher also used commenting techniques to examine the result of environmental preservation and documents in the village office relating to environmental preservation in the coastal area which is conducted at the village of Tambak Lorok, North Semarang, Semarang City.

### Results and Discussion

#### Bonding Capacity in Tambak Lorok as a Reinforcement of Solidarity

Tambak Lorok people are known as coastal communities who earn their living as fishermen. According to BPS data, the largest number of fishermen existed in Tanjung Mas,

North Semarang with 2.345 fishermen (Badan Pusat Statistik, 2013). Tambak Lorok has the potential to become slum areas, which are referred to as fishing settlements (Stewart et al., 2010).

The environmental condition at Tambak Lorok is very concerning where the surrounding settlements are filled with garbage booths of organic and inorganic. The road infrastructure is also inadequate with potholes here and there which will be flooded when heavy rain and rob hit the road. Fishermen houses that are attached to the roadside are filled with rubbish because people often littering in their dense environments. This area can be considered a slum environment of having more than 500 people per hectare that does not meet reasonable social-economic conditions and technical health requirements since there are several very dense houses and people who live under the standard of living (Jamaludin, 2015).

However, over time, the local government issued a new littering regulation since it has a detrimental impact to the community. The policy gets good response from the community where people obey the regulation by disposing of garbage outside the area or taken by dustment. According to Sari;

"Littering has been prohibited since 2017. If it get caught, there will be penalties/ fines where a subject get a fine of 5 million. Garbage should be disposed in the trash and then it will be transported by dustmen to dump to proper place" (Interview with residents of the coastal Tambak Lorok Semarang City, 2019).

The environment of Tambak Lorok community can be classified into a residential environment with road infrastructure and the condition of the layout of the house building. A continuous culture is part of the component that influences the life of the community to carry out daily activities. Melville J. Herskovits and Bronislaw Malinowski explained that everything in society is determined by the culture owned by the community itself. Culture is a complex arrangement and contains the knowledge of moral arts of the customs and other abilities possessed by the community (Malinowsky, Wolff, Gündisch, Berg, & Becker, 2011).

Based on the data above, by knowing the environmental conditions of the coastal communities of Tambak Lorok, awareness is needed to protect the environment. Tambak

Lorok has impacted the communities in different ways where people do different things based on the awareness of the importance of maintaining environmental health. Some people are not aware of the importance of maintaining the environment, which has become a habit and culture that has happened continuously. According to Ani:

“Residents who are aware of protecting the environment are those who have high economic level. While residents who have low economic level are busy working to meet their daily needs and do not have time to clean the home and environment” (Interview with the wife of the chairmen Indonesian fishing community association, 2019).

Behavioural patterns that have continuously become habits are another form of culture. The patterns of behaviour that exist in society explicitly or implicitly can be certain characteristics of the group as culture (Poerwanto, 2010). It relates to the element of social capital that the behaviour pattern is included in social norms that are part of the rules that can be obeyed by all members of the community. These social norms are one of the non-formal norm indicators that can be seen from the individual’s behaviour. Even though the community has made a regulation regarding the prohibition of littering but the large community has not fully complied with the regulation. This is evidenced by the fact that there is still a pattern of littering. According to Nuralim:

“The habit of residents to dispose of garbage in vacant land because trash storage shed is full and it takes several days to be taken by the dustmen. This happens because they see no other way rather than dispose of garbage on vacant land owned by residents” (Interview with the head of RT at Tambak Lorok, Semarang City).

The rules that have been made into a collective agreement in Tambak Lorok related to environmental conservation involve many community groups. The participation of coastal communities in maintaining their environment is very high in addition to cooperation and reminding each other (Marshall et al., 2010). The process of environmental maintenance in Tambak Lorok, among others, are the environmental conservation program and *Kampung Bahari* development program. Both became the foundation of coastal Tambak Lorok communities in collaborating with external parties. However, it should be noted that the presence of the two programs is a

form of the legitimacy of formal institutions.

The form of participation and cooperation between coastal communities that has been carried out is a form of social interaction that has a positive impact on the preservation of the environment and development of Marine village. The attitude of mutual trust and cooperation formed into a series of norms of Tambak Lorok coastal communities. Then comes the idea, interaction, attention which developed into the preservation and development of *Kampung Bahari* (Haridison, 2013). Thus the condition of the new participant community is formed by the norms and values agreed upon to maintain certain structures with the preservation and development of *Kampung Bahari* in Tambak Lorok. These norms and values guide the Tambak Lorok coastal community in caring for and preserving their environment. The existing social capital within the coastal community has become a force in the process of building *Kampung Bahari*.

### Measuring Social Capital in Coastal Communities

Social capital is a resource that can be seen as an investment to obtain new resources. Social capital can also be interpreted as group solidarity since social capital is an implication of the potential struggle and cultural capital in the community (Effendi, 2016). According to Putnam (Putnam, 1993), social capital is owned by the community as a basis for the creation of social integration and prosperity, which can be seen in the figure 1.

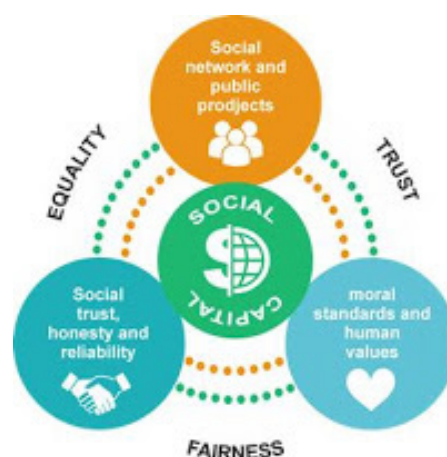


Figure 1. Three Pillars in Building Social Capital  
Social capital puts more emphasis on group potential and the patterns of relationships between individuals in one core group (Syahra, 2003). Social capital lies in the ability of a community in one group to work

and working together. Building a network to achieve common goals in increasing people's trust requires affiliation in various communities. Community groups involved in increasing the trust of people who have a bad experience in rules violation over individual transactions by increasing the reciprocity norm of communication and cooperation that benefits the community in the future (R. D. Putnam, 1994).

According to Lazega and Burt, social capital is the ability of the community to associate among citizens who become strengths not only in economic aspects but also in other social aspects (Lazega & Burt, 1995). Another dimension of social capital is the typology of social capital. There are two forms of capital that *bonding* and *bridging* (Patulny & Lind Haase Svendsen, 2007). Social bonding in the sense that social capital pays attention to cooperation and enables a network of collaboration between members in a homogeneous community group and including the typology of social capital *bonding*, such as Tambak Lorok coastal communities which have homogeneous community characteristics.

Putnam (1993) states that the typology of social capital *bonding* in the community is a feature of the sacred society, which is a society that has a totalitarian, *hierarchical* view and tends to be closed by certain bodies because the structure of society was dominated. People's daily interactions are determined by norms and values that benefit certain groups. While social capital *bridging* is the search for answers to the problems faced by the people in which this type of social capital is complete than that of social capital *bonding* (Leonard, 2004). Social capital is very useful in economic development because it involves members of various groups.

Bridging social capital breaking also means that it can contribute to the development by interacting with other groups. According to Coleman, the characteristics of people who tend to make outgoing networks will have an impact on the groups themselves (Coleman, 2009), meaning the social bonds emerge as a reaction to the various characteristics of the group.

Adaptation capacity is the ability of a system to deal with exposure (Armitage, 2005). According to Smit and Wandel (2006), adaptive capacity was defined as resilience and flexibility of social system strength (Smit & Wandel, 2006). Pelling and High (2005)

said that the process of developing adaptive capacity can be determined through the use of potential (Pelling & High, 2005). Adaptive capacity shows the government's reactive efforts to respond to climate change through network collaboration and information.

Collective actions that exist in coastal communities of Tambak Lorok are intended to respond to conditions outside coastal communities and then seek adaptability. In this article, the social capital of coastal Tambak Lorok communities is the force used to bring collective action in the community which can be said that the capacity of coastal communities in responding to problems outside the social capital they have. Strong social capital can increase solidarity among people.

Cooperation and participation is an effort to respond in the form of their adaptive capacity. These efforts cannot be separated from resources and modification of existing institutional systems in the community. Whether the resilience and flexibility of coastal communities in preserving the environment are not strong compared to their adaptability. There is a need for cooperation between the community and the government in efforts to protect the ecosystems that exist around coastal communities. Thus, the process of protecting and preserving the environment is a shared responsibility.

### **Bonding Capacity as a Former of Resilient Power and Flexibility of Coastal Communities Tambak Lorok**

Environmental conservation and development of the marine area in Tambak Lorok focus on providing infrastructure to dispose of garbage regularly. The development of *Kampung Bahari* is the answer to the problem. There is a development program that aims high to make more advanced villages as the potential of the coastal communities. In the development process, the community of *Kampung Bahari* gave different responses of those who agree and did not agree, but the response did not heed the development process of *Kampung Bahari* because it became economic resources for residents. According to Supriyatno:

"I was very happy and agreed to build the *Kampung Bahari* because there were many changes in road access, it was widened neatly and rarely affected by flooding due to rob which was very useful for economic income from the visitors of the shipbuilding which also involving residents to do voluntary work for the smooth

development of the *Kampung Bahari* so that the result we enjoy together" (Interview with Tambak Lorok fishermen, 2019).

What the coastal communities do shows that there is an adaptive effort and ability to respond to the development of *Kampung Bahari*; it is simple but the spirit of cooperation by coastal communities can facilitate the development process. While optimizing the use of resources or potential, what the surrounding community has is part of the process of developing adaptive capacity (Pelling & High, 2005). Coastal communities with adaptive capacity, before and after the existence of *Kampung Bahari* (Bahari village), have maximized the potential of their environment so that in the process of building a marine village in the coastal communities of Tambak Lorok, they can adapt to their environment.

Collaboration between the coastal communities of Tambak Lorok in the development of *Kampung Bahari* get benefits from the cooperation carried out by coastal communities which demonstrates the ability to adapt in interactions and share ideas between residents that arising from the adaptive power in coastal communities Tambak Lorok village with the ability to show resilience and flexibility. Tambak Lorok communities are able to utilize cooperation for the smooth development of *Kampung Bahari* through simple adaptation and use existing social capital to continue developing. With the strong social capital owned by the Tambak Lorok coastal community, it can be seen that the process of building the village of Bahari is proceeding following shared expectations. Mutual trust and foster a sense of caring for environmental preservation become positive capital.

Coastal communities were directly involved in the development process of the *Kampung Bahari*. The community help each other out and working together in the ongoing development and coordinating with the local RT/RW for the smooth development of the community that seemed to show a network and interaction between residents and local village officials who collaborate in the development of *Kampung Bahari*. As said by Faizah:

"I am happy to build *Kampung Bahari* tourism in the hope of creating cleaner environmental conditions that are healthier and neater and of course can increase income to meet the family needs in the development process including casual residents and cooperation" (Interview with residents of Tambak Lorok, 2019).

Collaboration between coastal communities of Tambak Lorok in the development of *Kampung Bahari* develops social capital *bonding*. Interaction and norms agreed upon by coastal communities of Tambak Lorok reflecting the social capital of cooperative *bonding*. Trust built along with macros is a form of social capital owned by the community during *Kampung Bahari* development process by creating adaptive capacity.

Adaptive capacity raises a new form of regulation to guarantee the continuation of the development process of the *Kampung Bahari*. The process of developing adaptive capacity can be done by modifying existing institutions (Pelling & High, 2005) in coastal communities in Tambak Lorok. Tambak Lorok coastal community is well aware that the construction of the Bahari village is a form of government concern for the coastal environment. The actions taken by the Tambak Lorok coastal community created comfort in the development process.

Coastal communities appear normal in the act of using ways to innovate in creating new norms and rules. Maintaining the comfort of each other is a structural modification in the table at the level of norms and values in coastal communities Tambak Lorok. Communities around the coastal and other people who are prohibited from moving or damaging the ongoing development *Kampung Bahari* which is done by the community in safeguarding the development *Kampung Bahari* is a form of adaptive capacity. The knowledge owned by coastal communities are adaptive capacity, defense mechanisms, and overcoming problems in the process of developing *Kampung Bahari* and using their adaptive capacity.

Maintenance and preservation of the environment in the development process of the *Kampung Bahari* have the potential for adaptive capacity and the community to adapt to the new conditions in the area. Realizing the importance of environmental preservation and maintaining the development of *Kampung Bahari*, coastal and surrounding communities must be able to prevent and cause no damage. *Resilient* environment and flexibility owned by coastal Tambak Lorok communities is the power to protect fellow citizens of coastal communities and avoid conflicts. Awareness of the environmental preservation of the Tambak Lorok coastal community is a support for the Bahari village development process.

## Conclusions

The development process of *Kampung Bahari* and environmental preservation in Tambak Lorok became *Lokus* in this article and utilize the form of social capital *bonding*. A role in responding to situations outside coastal communities Tambak Lorok adaptation capacity in social capital is to mobilize human resources of coastal communities and modify norms and values. Thus, the collective ability of coastal communities is created called community resilience.

Development in Tambak Lorok has built strong relationships among citizens. Interaction in the form of collaboration between citizens in time and material forms interactions as part of the community's adaptive capacity development of marine villages. Environmental preservation in Tambak Lorok create good relationships between citizens as the result of trust cooperation and bonding norms in the community which is called social capital *bonding*. Adaptive capacity developed with the mobilization of coastal community resources. A community member who is trusted to preserve the environment is referred to as institutional modification.

The form of social capital such as trust in interaction and cooperation among community members become a positive value to respond collectively to the development of *Kampung Bahari* Tambak Lorok. Natural and human strength and modifying existing institutions in society is a process of resilience and flexibility that forms an adaptive society.

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