Social network analysis: Key actors of cooperation between Sama Bajo and land-dwellers in Wakatobi marine national park

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Abstract. The relationship between Sama Bajo's small-scale fishers and land-dwellers are unique and paradox. These ties embedded in the everyday economic and social life of Sama Bajo as an Indonesian iconic maritime tribe. This article will identify key actors between Sama Bajo and varied land-dwellers. We presume that the actors support cooperation and enhance the social resilience of Sama Bajo communities in marine preserve social context. The research was conducted from May until June 2019 in three Sama Bajo villages and land-dwellers islands in Wakatobi Regency. A social mapping, using UCINET 6.0, is offered to seek key actors in the different local social context of land-dwellers. Research findings found that key actors related to trading networks, social identity, and gender dimension. Later, the actors' social relation has contributed to the social resilience amongst three different Sama Bajo communities in Wakatobi Marine National Park.

1. Introduction
The relationship between Sama Bajo's small-scale fishers and land-dwellers are unique and paradox. These ties embedded in the everyday economic and social life of Sama Bajo as an Indonesian iconic maritime tribe. However, because their relation to sedentary life style, their life changes dramatically and vulnerable to stress and shock. Despite their frequent interaction with people with a more sophisticated material culture, many groups of maritime hunter-gatherers never felt the need to incorporate foreign cultural practices from land-based communities, such as agriculture, organised religion, more elaborate fishing techniques, and even advanced boat types. After all, they could easily move to locations with less competition from better organised fishermen [1].

This paper will focus examine an account of community by container to identified pivotal actors of cooperation between Sama Bajo and land-dwellers. We believe that type of land-dwellers will give different colour to social interaction particularly type of key actors who embedded with cooperation amongst three local social context of Sama Bajo in Wakatobi Marine National Park (WMNP). The major
objective of this study was to investigate key actors between Sama Bajo and varied land-dwellers as key of cooperation amongst three social contexts.

2. Materials and methods
We researched from May 2018 to July 2019 at three communities of the Sama Bajo and land-dwellers in WMNP. A total of 120 respondents were taken to draw the social network and find the cooperation actors between Sama Bajo and land-dwellers. We collected the social networking from 20 respondents of the Sama Bajo and 20 respondents of land-dwellers in Wangi-wangi island, Kaledupa island, and Tomia island. There were several criteria for selecting the respondents. Firstly, respondents were chosen by considering gender and social identity representatives as Sama Bajo and Bagai land-dwellers. Secondly, the respondent must interact with the Sama for the land-dwellers, whether for the land-dwellers to the Sama Bajo, at least one time in a month.

Using semi-structured interviews and questionnaires, we collected edge list data from 120 respondents. To determine the respondents, we used simple cluster random sampling. Two groups of subjects were interviewed, namely Sama Bajo community and Bagai land-dwellers. The first group were 60 respondents of Sama Bajo households in Mola village in Wangi-wangi island, Mantigola village in Kaledupa Island, and Lamanggau village in Tomia Island, 20 respondents respectively. Hereafter, 60 respondents were selected to represent Bagai land-dwellers from Wangi-wangi land-dwellers, Kaledupa land-dwellers, and Tomia land-dwellers. The subjects were chosen in their village, the basis of social status, and their connectedness to land-dwellers. Besides the survey, we have done in-depth interviews and observations to find affirmation for the research findings of the key actors of cooperation in the fieldwork.

Data management used Microsoft Excel 2019. Meanwhile, we used UCINET 6.0 program to analyze the data and produced sociograms of three social relations between Sama Bajo and Bagai land-dwellers communities. Social network analysis facilitates the determination of the communication patterns among users [2]. According to Scott [3], the contemporary Social Network Analysis (SNA) developed from three traditions led by sociometric analysts interested in small groups and group theory. For instance, Harvard researchers in the 1930s and 1940s, inspired by the work of French sociologists, Durkheim, and the British anthropologist Radcliffe-Brown who interested in relationships and the formation of exclusive groups. The research observed the groups such as the group Warner and Mayo, whose involvement in Hawthorne’s studies, at the Chicago electrical plant. The analysis was fundamental in SNA development by using sociograms to understand and represent the structure of the group. Furthermore, Manchester anthropologists, such as Barnes, Mitchell, Bott, and Gluckman, who were interested in community relations in tribal and village societies.

To strengthen the identification of pivotal actors of cooperation, we used betweenness measurement towards all egos or respondents in three local social contexts. The betweenness values amongst egos were determined by UCINET 6.0. Betweenness centrality is to measure one node undertaking ‘mediation’ role in a network. If one node locates in the only way that other nodes have to go through, such as communication, connection, transportation, or transaction. Then this node should be essential and very likely have a high betweenness centrality [4].

3. Result and discussion
This paper reviews the evidence for identifying the pivotal actors as the key to cooperation between the boat dwellers and land-dwellers amongst different social contexts. Part of the result and discussion has been divided into three parts. The first part deals with the case of Mantigola Sama Bajo on Kaledupa Island. It will go on to the case of Lamanggau Sama Bajo on Tomia Island. And the last part of the result and discussion will examine the case of Mola Sama Bajo in Wangi-wangi Island.

3.1. Social Network Analysis of Mantigola Sama Bajo
Mantigola is the oldest Sama Bajo village in Wakatobi. In the past, before rebellion of Kahar Muzakar in around 1958 [5], Mantigola was a symbol of Sama Bajo prosperity in the region of Buton Sultanate.
The Mantigola Bajo lived in harmonious relation with Kaledupa land-dwellers. Through trading, Mantigola Sama Bajo are producers of sea products and Kaledupa land-dwellers as the traders and sold the Mantigola Sama Bajo fish catch to other areas in Indonesia up to Malaysia and Singapore. Many of Kaledupa land-dwellers married with the Sama Bajo so that the relationship was stronger both of them.

However, the Kahar Muzakar rebellion destroyed the intimate, trustworthiness and trading relationship between Kaledupa land-dwellers and Mantigola Sama Bajo. According to Kaledupa perspective, the majority of Mantigola Sama Bajo were a part of marine military of Kahar Muzakar rebellion. The boat-dwellers in Mantigola, who are the expert on the sea, helped the rebellion to attack the Kaledupa land-dwellers in side of Indonesian government. Many of Kaledupa land-dwellers had been killed and were missing, until now there are no information about their burial place. Moreover, hatred of Kaledupa land-dwellers peaked when a head of district, La Ode Ukaasa, was killed by the rebellion. According to [5] a Mantigola’s rebellion important figure is La Hati, a Binongko man who marriage Mantigola women. After this attack and mourning period, Kaledupa land-dwellers chased away the Mantigola Sama Bajo for leaving their island. The group of refugees from Mantigola then sailed by dozens of soppe or traditional boat of Sama Bajo to Wangi-wangi island. Later, when their arrived in Wangi-wangi island they are welcomed by Mandati land-dwellers who supported the rebellion.

In Wangi-wangi, the Mantigola Sama Bajo refugees build a new village which is currently known as Mola village. For almost twenties years they lived together with Mandati land-dwellers. At that time, Mola Sama Bajo were positioned by the Mandati people as economic catalysator of Wangi-wangi Island. It was not only because the Sama Bajo as main producers of high value sea products from demersal fishing in several reef areas in Wakatobi up to Australian waters but also their high consumptive attitude was a pivotal source of business profit for Mandati land-dwellers who are mostly traders. [6] highlight that for at least a century, Indonesia Sama Bajo fishers from Mola have engaged in long-distance migration or in Sama Bajo terminology as “Lama” to a Pepela village in Rote island, province of Nusa Tenggara Timur mostly to catch shark or “ngiwang” and others mollusces in Northern Australian waters.

In contrast, for around 1960-1965, that time was known as Indonesian economic depression or in Sama Bajo terminology as “masa mati uang” or “dead money era,” most of Sama Bajo households were broke. Besides, they were difficult for subsistence living because monetary live of Mandati land-dwellers. Response to this situation, the majority of the Sama decided to find another place in Wakatobi islands or whether they went back to Kaledupa Island that is abundant in marine resources, especially in Kaledupa reefs. The small group of Sama Bajo refugees inhabited a Lamanggau village in Tomia Island, and also they are living together with Tomias’ demersal and pelagic fishers.

The majority of Sama Bajo refugees settled in Kaledupa. The Sama refugee groups divided themselves to inhabit two regions in the east and west part of Kaledupa island. In the east, the refugees build Sampela village or Sama Bahari village. Now, the Sama Sampela interacted mostly with Ambeu Kaledupa. Meanwhile, the refugees, who came to ex-Mantigola village, rebuild the Mantigola village. Presently, the Mantigola Sama Bajo more interact with Horuo Kaledupa land-dwellers.

Interestingly, there is another Sama Bajo village. The smallest Sama Bajo water village is Lo Hoa. Based on history, Lo Hoa was a place for a small group of Sama Bajo who lived in soppe. They rejected to build a water village-like old Mantigola. They decided to do that because they felt endangered with land-dwellers culture. They would go to the land if they exchanged their fishing catch to Kaledupa land-dwellers for water and staple food such as cassava and corn. Thanks for the wise decision of Sama Bajo Lo Hoa, because until now, they do not consider involving the Kahar Muzakar rebellion. The Lo Hoa Sama Bajo mostly interact and acculturate with Kaledupa land-dwellers who work as seaweed farmers in Langgee village, Sampu’a Tooge, and Darawa villages.

For Mantigola and Sampela Sama Bajo, since they returned to Kaledupa, they tried to rebuild Kaledups' trustworthiness. However, it is not easy for Sama. Wianti et al. [7] described that the Kaledupa land-dwellers treated the Sama Bajo Sampela with intimidation when they sold their fishing catch in the Sampoawatu market. Unfortunately, the next tragedy in October 2017, Horuo Kaledupa land-dwellers poisoned after ate Mantigolas' demersal fishing catch, decreasing their possibility to
improve Kaledupa land-dwellers’ trust. Wianti et al. [8] argues that Mantigola is the most vulnerable Sama Bajo communities after Wakatobi officially designated as a marine national park and tourism area. She showed that based on the side of human capital, Bajo fisher heads of households were a deficient formal education. This fact has consequences for Sama Bajo Mantigola households. They can’t expand their livelihoods other than capture fisheries activities. In terms of social capital, Bajo fishermen’s families are relatively more vulnerable when they related to Kaledupa land-dwellers. It is because the Kaledupa land-dwellers do not provide opportunities for their economic development in Mantigola.

Meanwhile, Wianti et al. [8] also points out, according to the physical capital, Sama Bajo Mantigola is low in commercial facilities such as the market as a catalyst for economic development for Sama Bajo Mantigola. These four capital conditions eventually result in vulnerability to financial capital. The Mantigola Sama Bajo have low income in the West wind season related to debt traps, consumptive attitudes, and less alternative income. The vulnerability can ultimately lead to illegal fishing practices that damage the environment due to the emergence of livelihood instability.

Identified actors who are keys to cooperation is essential to design social resilience intervention in every local social context of Sama Bajo communities. Figure 1 draws a social relation in terms of bonding capital and bridging capital between Mantigola boat-dwellers and Kaledupa land-dwellers. We use color such as the direction of the arrow, and ego shape to highlight the social identity, the way of interaction, and degree of interaction. Red color and circle show Sama Bajo, meanwhile green color and up triangle are a symbol of Kaledupa Bagai land-dwellers. The direction of narrow shows social interaction flows, whether out-links or in-links. Later, colors of line describe tie strength level; the pink line means 1, purple for 2, yellow as 3, and black color line for the highest score 4.

![Figure 1. Sociogram of Social Relation Between Mantigola Sama Bajo and Kaledupa Land-dwellers](image)

Overall, a sociogram of Sama Bajo Mantigola and Kaledupa land-dwellers describes the low of interactions of Sama Bajo to Kaledupa land-dwellers. According to directions of majority arrow of Kaledupa incline to out-link regarding the Mantigola Bajo ego. Even though there are many in-links from Sama Bajo Mantigola egos to an actor from Kaledupa, namely BTU as a kasoami seller, but the color of the pink line shows a low level of tie strength. BTU, as a star of Kaledupa land-dwellers, argues that Mantigola Sama Bajo is the most consumers for her kasoami and snack, every day, BTU comes to Mantigola to sell kasoami and varied cake. Kasoami it-self is a traditional typical food from Butonese.
The food is processed from cassava starch called *kaopi* which is steamed on a cone shape. To add flavor, Kaopi is mixed with grated coconut. Further, the consumers from Mantigola Sama Bajo seldom pay with cash and always use debt to get *kasoami* or other food from BTU. The debt will usually be paid with catch or money to the next day. Thereby, although BTU is a Kaledupa star, she doesn’t share the mutual information. This fact is proven by table 1. Interestingly, the tie strength of Kaledupa to *Sama* Bajo Mantigola interactions mostly high. It means that Kaledupa land-dwellers depend on Mantigola Sama Bajo not only as of the primary producer of fisheries resources but also as essential consumers for their food products such as Kasoami and coconut.

Regarding Figure 1, we also find the fact that Mantigola Sama Bajo has a high bounding relationship with each other, likewise the Kaledupa land-dwellers. Most of the direction of interactions amongst Sama Bajo Mantigola are two sides in-links and out-links.

### Table 1. Identity, Betweenness, Attributes, and Occupation of Key Actors in Kaledupa Island

| Identity (ID) | Betweenness | Attributes | Occupation |
|--------------|-------------|------------|------------|
|              | Social Identity** | Gender**  |            |
| AD           | 2           | 2          | 1          | Demersal small-scale fisher and *Kasoami* seller |
| ASN          | 18          | 2          | 2          | Trader |
| GYA          | 2           | 1          | 2          | Coordinator of small-scale fishers of Mantigola *Sama* Bajo |
| JWA          | 31          | 2          | 2          | Temporary teacher in elementary school in Mantigola and *Kasoami* seller |
| LTS          | 15          | 1          | 1          | Religion temporary teacher in junior high school in Mantigola, and Muslim religious expert in Mantigola and Horuo. |
| LIA          | 3           | 2          | 2          | Producer and seller for traditional bread, *Kasoami*, and coconut |
| LNA          | 2           | 2          | 2          | Producer and seller of *Kasoami* |
| NMA          | 14          | 2          | 2          | Producer and seller of *Kasoami* |
| NVA          | 22          | 1          | 2          | Punggawa Darat or Patron for majority of Sama Bajo Small-scale Fishers |
| RNI          | 12          | 2          | 2          | Coconut and *Kasoami* seller |
| RFI          | 19          | 2          | 2          | Farmer and *Kasoami* producer and seller |
| TAU          | 21          | 2          | 2          | Middleman of sea products |
| YDN          | 2           | 1          | 1          | Sama Bajo small-scale fisher and prospective village head of Mantigola |

Annotation:

* 1: *Sama* Bajo; 2 Kaledupa Land-dwellers.
** 1: Men; 2: Woman

As pointed earlier in the method, to find key actors of cooperation, this study uses betweenness measurement. Regarding table 1, we have shown that bridges are mostly from Kaledupa land-dwellers. They work for selling staple food, particularly *Kasoami*. From thirteen key actors of cooperation in Mantigola Sama Bajo, nine of bridges are from Kaledupa land-dwellers.

Later, Table 1 showed that the highest value of betweenness is JWA. She is Kaledupa women who work as not only as a teacher in junior high school in Mantigola but also as a *Kasoami* seller. Her husband is a handyman who works for Mantigola *Sama* Bajo to build their house. She has a value of
betweenness 31. Based on figure 1, it means that JWA has control for 31 nodes or egos. There are mostly Kaledupa land-dwellers.

Furthermore, NVA, who is a Mantigola woman and also as Punggawa, has a value of betweenness 22 or she has control for 22 nodes of Sama Bajo Mantigola. She has dozens of Sawi or small-scale fishers and coordinator in Mantigola. Moreover, NVA also bounds with the kinship relationship of Sama Bajo in Mantigola, Mola, and Lamanggau.

The most striking result to emerge from the data is the role of women in Sama Bajo Mantigola as pivotal negotiator actors. When fish poisoning happened in 2017, we found the critical fact that Mantigola Sama Bajo women were active negotiators and promoters for their fishing catch marketing. This tragedy hit the livelihood of Sama Bajo Mantigola for almost a month. Also, the Sama Bajo Women have succeeded in bringing back their trustworthiness to buy the Mantigola Bajo fishing catches. Strong evidence about women’s role was found by [9]. She states that scholars of gender studies recognize the significant role of rural women in food security. Quisumbing et al. [9], women play a vital, if not dominant, role in supplying all the three pillars of food security. These include the availability of food or adequate food production, economical access to food, and nutrition security.

3.2. Social Network Analysis of Lamanggau Sama Bajo

We are turning now to the evidence on social relations between Lamanggau Sama Bajo and Tomia land-dwellers. Hadara et al. [5] states that according to history, the Lamanggau Sama Bajo arrival for the first time in around 1947, for the beginning, they want to catch fish in Karang Tomia. They came to Tomia in a group of fishing catch, consist of seven members fishers, from Mola using Soppe and leading by Punggawa Laut called Langkala. After a fishing time, they landed at Tomia for selling their fishing catch. On the next arrival, the group of Mola Sama Bajo fishing stayed for a while in La Onso, who is a Tomia land-dwellers. From their beginnings in Tomia, the Mola Sama Bajo felt safety and comfort with Tomia land-dwellers who mostly work as a demersal fisherman. Besides that, the era of “mati uang” and tax pressure, which was too high from the Mandati people, encouraged Mola refugees to inhabit north coast Lamanggau. Until now, the Lamanggau Bajo living together with Tomia land-dwellers on the water village.

From Figure 2, which draws the social relation between Lamanggau Sama Bajo and Tomia land-dwellers, we can prove the social integration between two diver groups. Bridging social capital appears at out-links and in-links amongst respondents from Sama Bajo and land-dwellers.
In contrast to Mantigola's findings, Lamanggau boat-dwellers are active actors who interact with Tomia land-dwellers. There are several possible explanations for this research result. Firstly, based on history, the Lamanggau boat-dwellers have no past dark history like Mantigola. As we mentioned before, because of Tomia hospitality in Sama Bajo’s first time visiting the Tomia island, the Lamanggau Sama Bajo decided to move to Tomia island from Mola Village. Secondly, Tomia land-dwellers are mostly the demersal fishers; the Lamanggau Sama respondents argued that they have a positive consequence from their social relation from Tomia fishers such as diffusion knowledge and sharing skill for demersal fishing. Thirdly, they are living together in a semi-sedentary village with an intimate social connection in public areas not only do involve neighbourhood and marriage relationship but also daily business and fishing activities, especially in the market place and in Tomia reefs.

Further, reciprocal action between Tomia land-dwellers and Lamanggau boat-dwellers have hitherto reinforced their intimate relations. For instance, a Sama Bajo respondent argued that the Lamanggau Bajo gained knowledge about “intip-intip” fishing technics from Tomia land-dwellers and vice versa, the land-dwellers obtained techniques for fishing octopus from Lamanggau boat-dwellers. Meanwhile, if Tomia land-dwellers are experiencing difficulties for fishing trips such as boat engine damage, they will ask the Sama Bajo for help. Likewise, the land-dwellers’ wife intensively interacts with the Lamanggau Bajo women in the market. Sometimes they exchange food, or their husband's catches each other to fulfill their household diet. Another impressive result is that the wife both of Tomia land-dwellers and Lamanggau boat-dwellers do not even hesitate to borrow money from each other when they are facing financial difficulties. Later, both those young generations of land-dwellers and boat-dwellers also socialize each other in religion activity on a mosque and at public school.

### Table 2. Identity, Betweenness, Attributes, and Occupation of Key Actors in Tomia Island

| Identity (ID) | Betweenness | Attributes | Occupation |
|---------------|-------------|------------|------------|
| ALG           | 1           | 1          | Demersal small-scale fisher |
| ANT           | 11          | 1          | Fish Trader or Papalele |
| LRA           | 31          | 2          | Gleaning small-scale fishers |
| LJT           | 2           | 1          | Small-scale fisher |
| LME           | 59          | 1          | Fish trader or Papalele also as a fisherman. |
| LMA           | 18          | 1          | Small-scale fisher |
| MSD           | 6           | 2          | Small-scale fisher |
| NTI           | 23          | 1          | Octopus Fisher |
| NOA           | 80          | 1          | Punggawa or Patron for majority of Sama Bajo Small-scale Fishers in Lamanggau |
| NJA           | 40          | 1          | Small-scale fisher |
| SMO           | 22          | 1          | Small-scale fisher |
| TAU           | 21          | 2          | Small-scale fisher |
| TNT           | 22          | 1          | Small-scale fisher |

Annotation:
* 1: Sama Bajo; 2 Kaledupa Land-dwellers.
**1: Men; 2: Woman

Based on Figure 2 and Table 2, we identify bridges both Sama Bajo and Bagai land-dwellers. They are mostly fishers and middlemen. Interestingly, the bridges mainly from Lamanggau men boat-dwellers. We strongly assume that it is because the Tomia land-dwellers are skilled demersal fishermen. Respondents NJA, SMO, TAU, LMA are a skillful fisherman and be the famous people who are always contacted if other fishers experience difficulties. However, similarly to Mantigola case, the highest value of betweenness is NOA, the Punggawa woman. She has a betweenness value 80. It means that 80 nodes
are under her control. Also, Table 2 illustrates the man of fish trader LME, who has a value of betweenness 59, is a famous fish trader beside as fisher. Gibson et al. [10] noted that these days, Punggawa are usually wealthier traders and residents of local Sama Bajo villages. They provide a regular source of credit for their Sawi to cover household living costs and emergency expenses, especially during the west or east monsoon. In return, Sawi crews are obliged to sell their catch to Punggawa or their coordinator when the fishing season revives. As a framework and mechanism for social resilience in the face of uncertainty and the vagaries of maritime-based fortunes, the Punggawa–sawi relationship has proved its value over hundreds of years. But it comes at the cost of autonomy and the freedom to pursue alternatives economic choices that might offer more attractive returns.

3.3. Social Network Analysis of Mola Sama Bajo

Mola is the largest Sama Bajo village near the capital city of Wakatobi regency. It is a landmark of divers and modern Sama Bajo. We found from our research that Mola is a center of the economic and social movement of Sama Bajo in WMNP. Meanwhile, Mantigola and Lamanggau are the peripheries, which are significant contributions to the profit accumulation to the giant Punggawa in Mola. Adhuri and Visser, 2007; Fox, 2009; Fox et al., 2009 [6] describe that the influence of globalizing market system has, however, transformed the nature of competition being experienced by the Sama. While they have long exploited niches unavailable to other fishers due to their remote location or reliance on local knowledge, also improvements in technology and increasing demand have enabled other fishing societies to compete with the Sama in these niches.

![Figure 3. Sociogram of Social Relation between Mola Sama Bajo and Wanci Land-dwellers](image)

Interestingly, the Wangi-wangi land-dwellers are heterogenous. Three group ethnics have different tendencies of livelihood: (1) Mandati land-dwellers mostly are traders and farmers; (2) Lia land-dwellers are demersal fishers; and (3) Waha land-dwellers are pelagic fishers. On figure 3, the Mandati land-dwellers symbolized by green color and up triangle shape. The Lia land-dwellers illustrated by yellow color and up triangle shape. Lastly, the Waha land-dwellers depicted by tosca color and up triangle shape.
Table 3. Identity, Betweenness, Attributes, and Occupation of Key Actors in Wangi-wangi Island

| Identity (ID) | Betweenness | Attributes | Occupation         |
|---------------|-------------|------------|-------------------|
|               | Social Identity* | Gender**   |                   |
| AJD           | 10          | 1          | 1                 |
| AOA           | 2           | 2          | 2                 |
| KLG           | 41          | 1          | 1                 |

Annotation:
* 1: Sama Bajo; 2 Kaledupa Land-dwellers.
** 1: Men; 2: Woman

Based on Figure 3, it can be seen the limitedness of our research to illustrate the Mola Sama Bajo community. It is because the Mola village is quite extensive, and the respondents can’t describe complicated social networking. Several nodes are separated from each other and not connected to the Mola Sama Bajo and Wangi-wangi land-dwellers’s social networks. However, the sociogram shows that Wangi-wangi land-dwellers and Mola Sama Bajo interact with each other even the tie strength is not stronger than Lamanggau Sama Bajo. Mostly the social interaction between Mola Sama Bajo and Mandati land-dwellers is in the Mola central market. The Mandati low-level status bounds with the Mola through business activity in Mola market and debt relationship. The key actor AOA is the example of the actor from Mandati land-dwellers to Mola Sama Bajo in savings and loan business (Table 3). Meanwhile, the Lia and the Waha land-dwellers related to the Mola Sama Bajo through economic relations with the Punggawa in Mola, namely KLG, who has the highest value of betweenness 41 (Table 3). KLG has excellent connections not only inside the regency but also beyond to the national and global market connection.

4. Conclusion
Research findings found that key actors related to trading networks, social identity, and gender dimension. Referring to the research result, Punggawa is the main actor amongst three communities of boat-dwellers who are the bridge for internal and external linkages. The strong identity, prestige, together with their social obligation for their Sama Bajo communities, reinforce the Punggawa as the key actors of information and cooperation. Another interesting finding that women in a unique local social context of Kaledupa land-dwellers have become important actors through food trading and exchange. Moreover, the evidence presented on the result above clearly indicates that social identity as a fisher has become a bridge between boat-dwellers and land-dwellers. It is mainly for the land-dwellers who are also as a fisher like Tomia, Lia, and Waha land-dwellers. Later, these actors' social relation has contributed in social resilience amongst three different Sama Bajo communities in WMNP.

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Acknowledgements
We want to represent our sincere thanks to The Ministry of Technology and the Higher Education Republic of Indonesia for financial support in our fundamental research from 2018 until 2020.