


Social Capital in the Patron-Client Dimension towards the Sustainability of Seaweed Cultivation Businesses in Rural Areas, South Sulawesi, Indonesia

Andi Adri Arief (corresponding author)

Fisheries Agribusiness, Department of Fisheries, Faculty of Marine and Fisheries Sciences, Hasanuddin University, Makassar, Indonesia.

adriarif@unhas.ac.id

 <https://orcid.org/0000-0003-2146-8377>

Harnita Agusanty

Aquaculture, Faculty of Agriculture, Muhammadiyah University of Makassar, Indonesia.

harnitaagusanty@unismuh.ac.id

Marlini Novianty

Business Administration, Makassar Indonesian Professional Education Institute Polytechnique, Makassar, Indonesia.

marlini@polteklp3imks.ac.id

Muh. Dalvi Mustapa

Fisheries Agribusiness, Department of Fisheries, Faculty of Marine and Fisheries Sciences, Hasanuddin University, Makassar, Indonesia.

dalvimustafa@gmail.com

Nadir Nadir

Agribusiness Department, Faculty of Agriculture, Muhammadiyah University of Makassar, Indonesia.

nadir@unismuh.ac.id

Publication Information:

Received 4 January 2024, Accepted 21 April 2024, Available online 25 August 2024  10.21463/jmic.2024.13.2.06

Abstract

The system of livelihoods in seaweed cultivation becomes the subject of study because of the factor of production, and the distribution of the output of production requires a strategy of merging between something material and non-material that involves interaction with various actors in society. The social capital awakened by the actors in the seaweed cultivation business through the patron-client dimension is an effort to ensure the sustainability of the business. The study aims to characterize the components of social capital that bind, bridge, and connect in the context of the relationship between actors in seaweed cultivation, including the important role of the combination of these three types of social capital in the sustainability of the seaweed cultivation business. The Research methods use qualitative descriptive approaches. Data is collected through semi-structured interviews and analyzed with open, axial, and selective encoding. The results show that actors in seaweed cultivation enterprises combine the social capital components of

bonding, bridging, and linking selectively, depending on the interests behind each interaction with different actors. Social bonding capital is owned by seaweed farmers in their interactions to gain access to financial capital (in the form of cash and loans). The patron-client relationship pattern is the most prominent of the reciprocity relationships, where the patron is the provider of corporate capital and the guarantor of subsistence is the cultivator. The social bridging and linking capital is owned in its interaction to gain access to social assistance and political support as well as networking. Mechanisms of sale of seaweed production are dominated by marketing networks using intermediary services (middlemen) through the concept of personalized exchange. In such market trading, the symptoms of “*boro*” (guarantees) are detected through subscription relationships between sellers and buyers characterized by regular personality contacts and through credit mechanisms known as “take now, pay later”. Therefore, social capital plays an important role in the sustainability of seaweed farming in the countryside. In a situation of economic or environmental change, social capital can help the farmer adapt and survive in his business and household life. We found that social capital plays an important role in the rural habitat system, where access to livelihoods depends on social relationships. Thus, support is needed to strengthen the capacity of social capital in societies because the configuration of the social capital elements can inherit the cognitive social capital, the social structural capital and the social relational capital necessary for the improved social, economic and cultural development of societies.

Keywords

Social capital Patron-client Cultivation business Seaweed

1. Introduction

Social capital is a social resource that can be seen as an investment of resources for the development of a community business (Kant & Vertinsky, 2022; Alemayehu et al., 2023). Therefore, social capital is believed to be one of the main components in driving togetherness, mobility of ideas, mutual trust, and mutual benefit to achieve joint business progress (Richmond & Casali, 2022). In the context of sociology, social values as a guide to behavior for members of society are strongly internalized through the role of social capital, where trust between fellow members of the community, society, and fellow members of business groups is a means of strengthening it. Meanwhile, at the level of collectivity awareness, social capital plays an important role in fostering actor cooperation in socio-economic networks (Solomon, 2023; Dias et al., 2023).

Among coastal communities, especially fishermen and cultivator communities, social capital can emerge through long-lasting and emotionally connected interactions (Sulistiyono & Rochwulaningsih, 2013; Jiao, 2016; Arief & Agusanty, 2016; Bott et al., 2020; Malherbe et al., 2020). The social processes that take place in the community illustrate the strength of social capital that is owned and maintained. Social capital can be seen in patterns of work relationships, social relationships, activities that are tied to traditions, and so on. This condition appears to be based on a strong kinship system, a value system through local wisdom, a religious system (religion and belief) and a work system (mechanisms and methods) for fulfilling their needs. In this way, a form of collectivity among fellow fishermen and cultivators can be built based on trust, reciprocity, and social networks, both in vertical and horizontal economic relations. A high element of trust between fellow fishermen and cultivators will have a significant impact on the sustainability of production businesses, especially when experiencing difficult situations or crises (Nath et al., 2021; de la Puente et al., 2022; Church et al., 2023). Reciprocity describes reciprocal relationships among individuals or groups in society, with the assumption that people who provide assistance or resources to others will expect reciprocity or a return of assistance in the future

(Kithiia, 2015; Cook et al., 2022; Perdana & Syah, 2023). Meanwhile, social networks refer to relationships between individuals or groups in society, which can be family, friendship, professional, or community relationships. Social networks create a framework that allows social interaction, the exchange of information, and access to different resources (Horng & Wu, 2020; Parlee et al., 2021; Roberts et al., 2022).

Claridge (2020); Dobbin & Smith (2021), suggests that the strength of social capital can be analyzed through three typologies that are manifested in social and production relations, namely relationships whose nature works as a binder, glue (bonding social capital), connector, bridging (bridging social capital), and hook, connection, and network (linking social capital). Bonding social capital refers to a type of social capital that bonds different social units with similar sociodemographic and socioeconomic status. Bridging social capital refers to social capital that ties social units with similar socio demographic backgrounds but differ in socioeconomic status. Finally, linking social capital represents another type of social capital that links social units with different sociodemographic and socioeconomic status. So that the power of social capital can function as a binding, adhesive, and connecting force that facilitates relationships and cooperation, which can realize individual and group hopes efficiently and effectively (Szreter & Woolcock, 2004; Klerkx & Proctor, 2013; Philip et al., 2022; Octasyilva et al., 2023).

On the use of Vosviewers, 10 clusters were found with keywords including, social capital, reciprocity, social network, social support, bonding social capital, bridging social capital, cultural capital, trust, and human capital. Vosviewer took an article reference from the ScienceDirect and Wiley applications using 500 files that link keywords related to social capital in the client-patron dimension of the sustainability of seaweed cultivation businesses. As for the results of the gap knowledge search using Vosviewer, they can be seen in Figure 1.

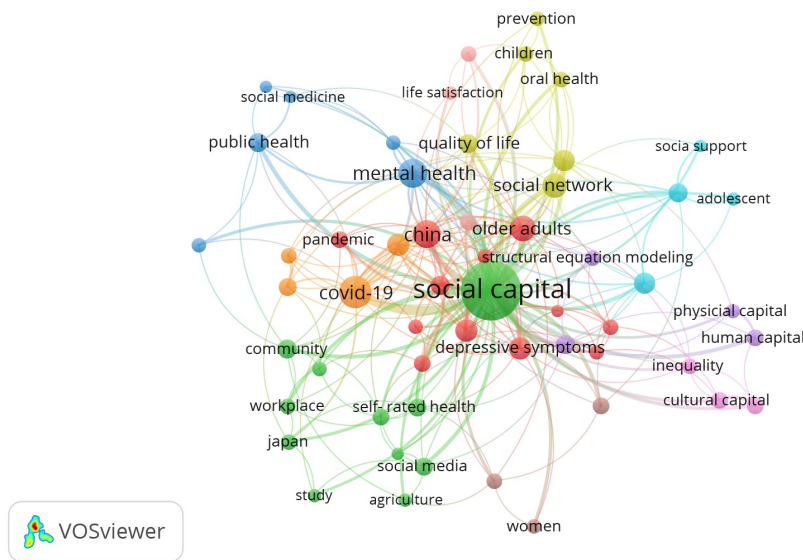


Fig 1. Vosviewer Identification and Analysis of Relevant and Related Research.
Source: *Analysis Using Vosviewer (2023)*

The visualization shown of social capital research linked to the patron-client dimension of the sustainability of seaweed cultivation businesses shows that there is still a lack of research that provides an opportunity to do research.

Various studies on social capital have been carried out on different components and scopes. However, the identification of the four elements that is integrated and gives rise to the capacity to achieve common goals in a coordinated way

within business institutions (*punggawa-sawi*), has not been the subject of much research. The four elements referred to are: 1. Mutual trust (Coleman, 1988; Putnam, 2000). The social capital of an order will be deposited when the cognition between individuals is embedded in believing in each other, instead of being deposited if the cognitive capacity of individuals is filled with mutual suspicion and strength and is betrayed. 2. Reciprocity relationship (Coleman, 1988; Putnam, 2000). There is a kind of convention of interaction that says that if someone has done good to us, then at least we will never do badly. This is what Perugini et al., (2003) called the norms of reciprocity. 3. Social values and norms. The social capital of an order will be deposited when the individual, group, and layer of the order respect and consider the importance of fellowship in the same way as the appreciation and interest of individuality, groups, and layers, as well as obedience to the norms for achieving and maintaining such common interests. This will give rise to a social obligation and expectation of equality for one over another. (Coleman, 1988). If these common values and norms are not respected and adhered to, then the capital of social order will crumble. 4. Organization/association and social networking (Putnam, 2000; Lin, 2002). Social networks are connectors between weak ties and extreme under-socialized individualities with strong ties and excessive collectivity (Granovetter, 2018). The social capital of an order will be deposited when the entity of the organization/association develops, as well as when individuals, groups, and open layers, inclusively, develop functional relations. On the contrary, when the organization or association is underdeveloped and when entities are closed exclusively and undergoing dysfunctional relations, then the social capital will be disposed of.

Thematically, these four elements become the object of social capital study in the patron-client dimension of the sustainability of seaweed cultivation businesses and related contributions. Many research topics arise from the four keywords spatially, some of which include research conducted by Liu et al., (2022) about Research on the Impact of Members' Social Capital within Agricultural Cooperatives on Their Adoption of Integrated Pest Management (IPM) in China.

However, most research focuses on social capital without looking at how client patronage is linked to social capital in seaweed farming. In line with this information, research is needed that provides information about how social capital in the patron-client dimension impacts the sustainability of seaweed cultivation businesses in South Sulawesi, Indonesia.

On the basis of this empirical data and information, the assumption is that the condition of coastal communities, especially seaweed cultivators as research objects, has its own characteristics in the dynamics of social capital, related to modes of production and the relations of production that are formed. Thus, this research aims to analyze the role of social capital in influencing the decisions of seaweed cultivators regarding cultivation practices, which can be a bonding force, connecting force, or network binding force towards the sustainability of seaweed cultivation businesses in Pitue Village, Ma'rang District, as a unit case.

2. Research Methods

2.1. Study Area

The study analyzes seaweed cultivators in South Sulawesi and their interactions with other actors during pre-production, production, and distribution processes. The seaweed cultivators studied come from the island's Pangkajene Regency in Pitue Village, Ma'rang District. Pangkajene Kepulauan Regency, which has the largest seaweed cultivator population in the province of South Sulawesi.

Pitue Village is one of 12 villages or subdistricts in Ma'rang District, Pangkajene Kepulauan Regency, with an area of approximately ± 565 ha and 4 hamlets, namely Pitue village, Sabange, Gusunge, and Jennae village. Pangkajene

Kepulauan Regency is one of the districts in South Sulawesi that has a long water area and coastline where the water area is wider than the land with a ratio of 1 to 17.

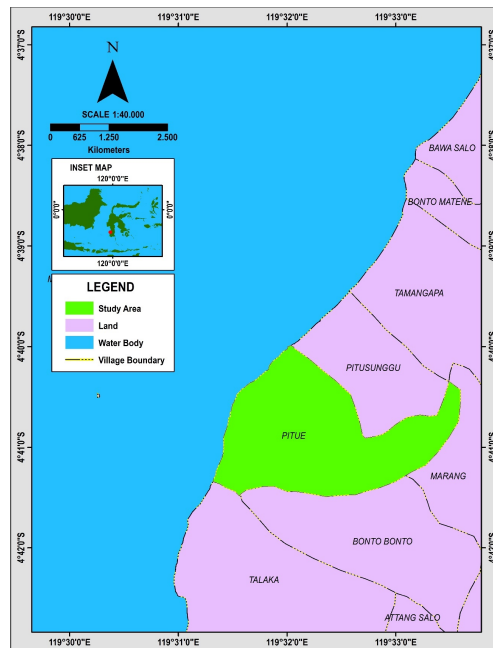


Fig 2. Map of the study area in Pitue Village, Ma'rang District, the island's Pangkajene Regency, Indonesia.

The population of the village of Pitue was 2,784, consisting of 1,375 males and 1,409 females. The population density is 653/km². Residents who live in vast areas of land will provide the possibility for the opening of agricultural land so that the population, in order to meet their needs, needs to do work as rice farmers and fish farmers. While the population that settles around the coast will choose the main job as a fisherman and cultivator of seaweed. The number of cultivators of seaweed is 165 KK. According to the statistics of the fisheries of Pangkajene Islands Regency in 2020, the average cultivator in this village has a total of 150 seaweed ropes. One cultivator uses water with a length of 150 m and a width of 50 m, so the area of seaweed cultivation land is less than 7.500 m²/unit, with an average production rate of 1.64 tons/year. The output of seaweed from 2014-2017 in Pangkajene Islands Regency has continued to increase, and in 2017, the production of Seaweed was 11.200 tons with a level of productivity of 7,01 kg/ha (Fisheries Department of Pangkajene Islands Regency, 2018).

2.2. Study methods

This research uses a qualitative approach with grounded theory methods and two considerations. First, the importance of a strong relationship between the researcher and the social world studied; and second, to construct theoretical concepts of empirical material, which are seen not only from the results of synthesis but also by showing procedural relationships (Denzin & Lincoln, 2011). This context aims to explain the procedural relationship in the social capital network when operating in the seaweed cultivation enterprise system.

The main sample of the research was the seaweed cultivators and other actors who interacted with them. The number of people interviewed is as follows: 15 seaweed cultivators, 7 *punggawa* (patrons), 4 *pappalele* (brokers), 5 *sawi* (clients), and 2 village government officials. The seaweed cultivators were selected through snowball sampling, while the other actors were deliberately selected on the basis of information from seaweed farmers about the actors who interacted

with them. These other actors were chosen because the concept of social capital and the system of seaweed business involve varied social relationships (Corbin & Strauss, 1990). The number of samples was determined by data saturation. Data is said to be saturated when researchers no longer discover new information in a series of interviews (Cofré-Bravo et al., 2019).

Data collection techniques include observation, open and structured interviews. In an open interview, the informant answers questions based on the speech flow, which then makes the questions more structured so that the data can be consistent with the purpose of the research. The informants can be interviewed repeatedly to complete the whole question. Before the interview goes on to the main topic, the researchers build a good relationship with the informant in order to create a comfortable atmosphere for the person interviewed. According to Maryudi & Fisher (2020), situation setting is important in an interview. The duration of the interview is 60 to 90 minutes. The recordings and interviews are written as transcripts.

Data is analyzed through three types of encoding: open, axial, and selective. According to Corbin & Strauss (1990), open coding is an interpretative process in which data is analytically broken down. Open encoding is done through careful reading of transcripts to identify sections related to the research question. These fragments are then labeled with related concepts. Axial encoding is a stage in which the output of open encodings is analyzed to produce categories. Axial encoding involves the removal, completion, and integration of open source into more comprehensive and meaningful code (Bertolozzi-Caredio et al., 2020). In this process, a category is linked to its sub-category to be tested, and then a correlation between categories is built. (Corbin & Strauss, 1990). In this study, we tested a sub-category by presenting quotes from interviews. Selective encoding is performed at the end of the encryption process using the output of axial encodings. At this stage, the results of axial encoding are structured based on concepts that answer research questions comprehensively and help explain important aspects of the phenomenon (Konecki, 2018). All categories are integrated into core categories and categories that require descriptions filled with descriptive details (Corbin & Strauss, 1990). For example, the category of “feedback” is extracted as an element of social capital in the sustainability of seaweed cultivation as part of the relationship between the actors involved.

After passing through three stages of coding, the conclusion of the analysis was drawn by comparing our findings with the findings of other studies on social capital and the social production enterprise system. Their findings and conclusions are relevant in clarifying, modifying, supporting, and enriching this research. An analysis of the research carried out a kind of triangulation that is able to improve the understanding of the process and results of this research (Cofré-Bravo et al., 2019).

Data validation. Assessment of the quality of qualitative research results is carried out by establishing criteria that comply with qualitative research standards (Imel et al., 2002), namely; 1. Facilitating peer debriefing of community leaders or scientists who know and directly identify the area of research with the aim of helping researchers remain “objective”, as well as discussing many “authentic” assumptions that arise during the study, 2. Conducting member checks on data, categories, interpretations and conclusions tested together with the informants (participants) involved since the start of the study. 3. Carry out data transferability, describe in detail and in depth (detailed and thick description) the background of community life, through analysis and provision of information sufficient to reflect the characteristics of the society studied. 4. Carry on data confirmability, through self-reflection by elaborating the theory of basic social capital during the research conducted with the aim of achieving credibility, or “trustworthiness” to the results of the research carried out.

3. Results and Discussion

3.1. Seaweed Cultivation Activities in Pitue Village

The seaweed cultivation method applied by farmers at the research location is the long line system because it is flexible in selecting locations, starting from a depth of 1 m to 15 m. Based on field observations, seaweed cultivation uses the long rope method in one block consisting of 6 stretches of rise rope with an area of 1 block 5 x 50 m (length of rise rope 50 m with distance between rise ropes 1 m). The tools used are as follows: 8 mm diameter polyethylene rope as 8 kg of rise rope; 10 mm diameter polyethylene rope as anchor rope and 4.5 kg main rope, depending on the depth of the cultivation location; 4 anchors, wooden stakes, or stone weights; main buoys approximately 6–8 pieces; 200 small floats in the form of polyethylene bottles (mineral water bottles and other drinks made from polyethylene); 3 kg raffia rope. Seaweed seeds measuring 100 g are tied to a rise rope at a distance of 25 cm and the length of the rise rope reaches 50–75 m, which is stretched over the main rope.

The seaweed seeds used by cultivators come from various sources, namely: assistance from the Pangkajene Islands Regency Maritime Affairs and Fisheries Service, purchased from fellow cultivators, seeded themselves by selecting the best harvests to be used as seeds, and purchased from seed providers through collecting traders. The cost of seeds depends on the number of stretches of seaweed managed by the farmer. Based on observations and information in the field, the cost of procuring seaweed seeds ranges from IDR 2,000,000 to IDR 5,000,000. To reduce the costs of purchasing seaweed seeds at the start of the business, farmers choose to buy seeds from collecting traders with a payment system made after harvest. According to field speakers, the principle that applies in the field is that where capital is obtained (including seeds), the production results are marketed. Based on interviews with the staff of the Pangkajene Islands Regency Fisheries Service, it was obtained that one of the obstacles still existing for seaweed cultivators in Pitue Village and Pangkajene Islands Regency as a whole is the lack of fertilizer to produce quality seed or seed that has been certified both nationally and internationally. The following is an illustration of the pattern of seaweed cultivation business activities in the village of Pitue (Figure 3).

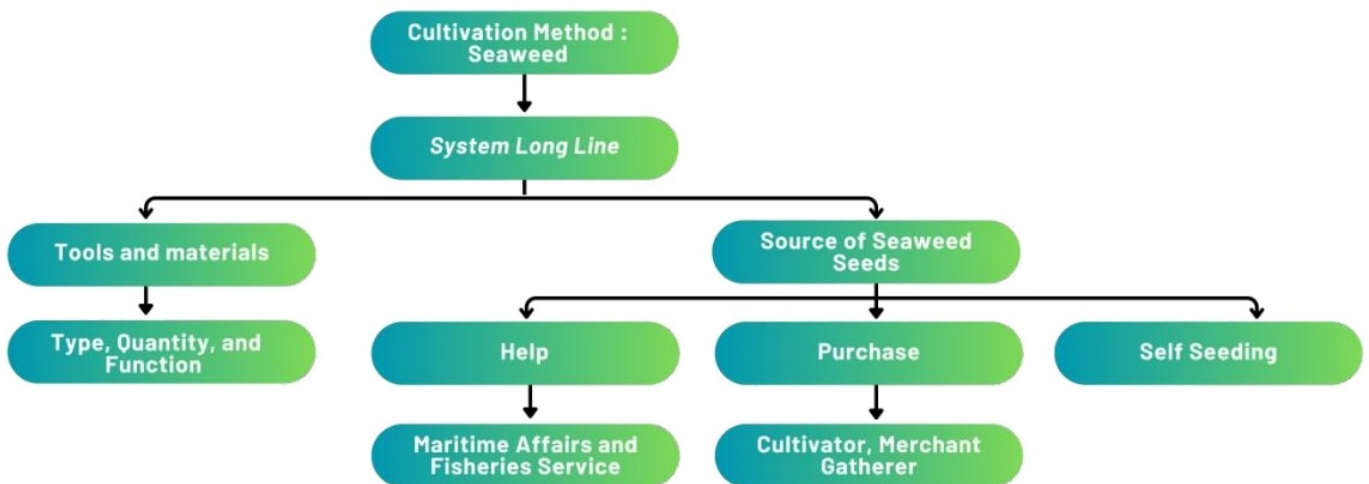


Fig 3. Illustration of the pattern of seaweed cultivation business activities in the village of Pitue.

3.2. Interacting actors, and implementation of operational social capital in the seaweed cultivation enterprise

Based on the findings of the research, this section describes the social capital components operating in seaweed cultivation, namely: bonding social capital, bridging social capital, and linking social capital (Chenhall et al., 2010), which are relevant to the social relationships between the actors involved in seaweed cultivation in the village of Pitue. (A summary of the description can be seen in Table 1.)

Table 1. Forms of social capital, interacting actors, and implementation of operational social capital in the seaweed cultivation enterprise

Forms of social capital	Actors	Operational implementation of social capital
Bonding	<i>Punggawa</i> (Patron)	Mutual trust: Patron providing business capital loans to seaweed cultivators without collateral Cooperation: Patrons and clients work together to run a seaweed cultivation business.
	<i>Pappalele</i> (Middleman)	Mutual trust: A middleman gave a business capital loan to a seaweed cultivator with the agreement that the seaweed yields should be sold to a middleman.
	<i>Sawi</i> (Client)	Cooperation: <i>Sawi</i> (the client) cooperates with the patron in conducting a seaweed cultivation business with an agreement for the results.
	Family	Mutual trust: to give loans to the seaweed cultivators as a family to help each other.
	Seaweed cultivator in the working group	Compliance to norms: The client (<i>sawi</i>) must report to the patron about the development of the seaweed cultivation that has been undertaken. Compliance with norms: The patron bears the risk of loss if the client's seaweed cultivation fails.
	Seaweed cultivator out of the working group	Compliance with norms: mutually protect seaweed cultivation areas. Inform each other about good seaweed cultivation areas and good seaweed seeds to cultivate.
Bridging	<i>Punggawa</i> (Patron)	Reciprocity: The patron provides economic and social assistance to the client's household in times of crisis. Reciprocity: The patron gives the client a seaweed rope to start his own business if the client has worked for him for 5 years.
	<i>Sawi</i> (Client)	Reciprocity: The client provides social and political support to the patron when he carries out customary activities and wishes to be the head of the village or a member of the parliament in his village.
	Family	Reciprocity: They helped each other in the opening of new fields for seaweed cultivation and in the harvest of seaweed cultivation.
Linking	<i>Punggawa</i> (Patron)	Networking: The patron connects with the seaweed dealer and the client.
	<i>Pappalele</i> (Middleman)	Networking: The middleman provides information about the price of seaweed to the client.
	<i>Sawi</i> (Client)	Networking: The client is assisted in the procurement of seaweed seedlings, well informed by the patron. Networking: The client finds out about the price of seaweed through information from a middleman.

The following is an illustration of the patterns of involvement of the actors in the sustainability of the activities of seaweed cultivation business (bonding), maintaining the local culture (bridging) and building networking (linking) in a coordinated way in the social capital elements of society (Figure 4).

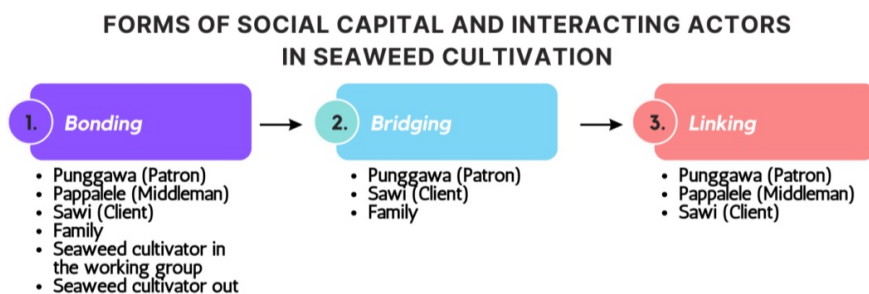


Fig 4. Illustration of the patterns of involvement of the actors in the sustainability of the activities of seaweed cultivation business (bonding), maintaining the local culture (bridging) and building networking (linking).

3.3. Analysis social capital and sustainability of seaweed cultivation business

The results of the analysis of social capital and sustainability of seaweed cultivation businesses in Pitue Village are explained as follows:

1) Mutual Trust Relationship

Based on the results of the research conducted, it was found that the availability of capital for seaweed cultivation businesses can be divided into two categories, namely: capital owners who lend money to seaweed cultivators who are termed *pappalele*; middlemen and capital owners who invest their money to buy production equipment and employ people as laborers (*sawi*) known as *punggawa*. The basic difference between the two capital owners mentioned above is the issue of risk. The risks borne by *pappalele* can almost be said to be non-existent because the relationship with the cultivator is only at the level of money owed, and all risks of production failure are completely borne by the cultivator. Meanwhile, in the context of *punggawa*, the risks are still shared with the workers or *sawi* they employ because they are located and bound in a structure based on production.

Based on the questionnaire distributed to the informants, information was obtained regarding the sources of production costs for community seaweed cultivation businesses in the village of Pitue (Figure 5).

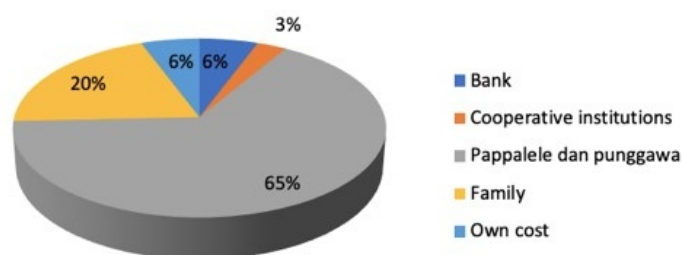


Fig 5. Source of production costs for seaweed cultivators.
(Data source: Processed Primary Data, 2023)

The results of the study presented in Figure 5 show that the source of financing for the procurement of production equipment is dominated by non-formal institutions, namely *pappalele* and *punggawa* (65%), while the frequency of access to production capital through formal institutions such as banks and cooperatives institutions is still relatively small, namely around 3% to 6%. Sources of financing from relatives or friends are 20%, and own costs are 6%. This data indicates that the construction of social networks formed in the provision of means of production tends to be dominant at the level of networks that are vertical (hierarchical; patron-client) compared to networks that are horizontal (friendship) or diagonal. Theoretically, the strength of local institutional phenomena in bridging community production activities, or the concept of exchange that occurs in seaweed cultivation activities can be explained through the perspective of "embeddedness" (Granovetter, 1985) that individual actions in making decisions are the result of the construction of the process of defining social reality and defining situations, as well as the adoption of technology (Datoon et al., 2023). This means that the decisions taken by the cultivating community are not only based on economic considerations but other dimensions such as social and cultural (Miñarro et al., 2016).

The following is information from the informant, JS (40 years old, seaweed cultivator):

It's not difficult to borrow from pappalele or from a punggawa, no collateral is required, just capital of trust is enough, especially the punggawa here are generally people who like to help, so we really maintain trust in the punggawa, there are general principles that apply here, not just for us, but also to that retainer: people are only trusted through their words/deeds, once they do or say something dishonest, they will not be trusted again until they die). If this is violated, the community will punish him by telling stories to his children and grandchildren about the actions he has committed, here the capital of trust is in effect.

This context shows that social capital (trust) can take the form of a social network or a group of people connected by feelings of sympathy, obligation, norms and exchange which then become institutionalized and provide special treatment to those formed by the network, to obtain production capital from the network formed locally (Steenbergen et al., 2017; Suyo et al., 2020; Pomeroy et al., 2020).

2) Reciprocity relationship and social values

The pattern of the *punggawa-sawi* relationship (patron-client) is the most prominent reciprocity in the seaweed cultivation business. The role of the *punggawa* as a provider of business capital and guarantor of the security of community subsistence, dynamizes production and social activities in the community at the research location. Therefore, the position and of a *punggawa* status is not only seen as important in production activities, but also respected in the social order as a local person who is considered capable of providing social security for his community. The means of control over a person's behavior in the community is a measure of good and bad based on the value system (culture) adopted by the community. The measure of good and bad refers to the rules that regulate "who gets what" through obtaining guarantees to fulfill minimum subsistence needs both from an economic and social perspective by creating mechanisms for generosity and assistance from rich villagers (who gives what) in the community (Khakzad & Griffith, 2016; Neilson, 2022).

The following is information from the informant, AB (51 years old, seaweed cultivator):

We don't know what would happen to us working here if there was no such thing as a punggawa, because everything always requires assistance only from the punggawa, starting from working capital to other social matters...being a punggawa, apart from having a lot of financial capital, also requires have a helpful nature.

This context shows that the *punggawa-sawi* institution in coastal communities is a traditional institution that will continue to exist well in today's modern world, with diverse business patterns with the introduction of developing technology. In their development, retainers are able to adapt in carrying out their roles and functions from "thick" social functions to being transformed into commercial/capitalist socio-economic roles and functions without abandoning their social characteristics, so that the characteristics that have been attached to them from the perspective of society as cultural protectors of their community, is still believed and reciprocated by the community through a form of obedience for clients (*sawi*) towards their patrons (*punggawa*) (Stacey et al., 2021). Although in many views from several researchers (ethics) with the same assumptions, they state that one of the causes of poverty in coastal communities cannot be overcome because of the existence of an exploitative production structure, and the community remains obedient and accepts the existing structure (patron- client), so that the pattern of poverty that occurs in coastal communities is more structural poverty (Kim, 2013; Malino et al., 2021; Adisel et al., 2023).

Nurdin & Grydehøj, (2014); Ferrol-Schulte et al., (2014); Miñarro et al., (2016); Adhawati, at al., (2017); Roberts et al., (2022) stated that the existence of the traditional *punggawa-sawi* institution still exists and is strengthened by coastal communities and small islands. This cannot be separated from classic problems. In reality, not all village community residents have equal access to the economic process, both in production and consumption, so that economic inequality occurs in coastal communities. The economic inequality that occurs connects or integrates two social layers, namely those who have access and business capital, and those who do not have access and business capital.

Based on the results of interviews with informants, obtained information on the investment costs required in the seaweed cultivation in Pitue Village, the equipment components and the costs mentioned are presented in Table 2.

Table 2. Types of Seaweed Business Investment in Pitue Village

No	Type of Investment	Quantity	Price (IDR)	Amount (IDR)
1	Boat (unit)	1	3,000,000	3,000,000
2	Main Rope (unit)	40	50,000	2,000,000
3	Little Rope (unit)	20	25,000	500,000
4	Buoy (Bottle) (unit)	6000	300	1,800,000
5	Seedlings (kg)	600	3,000	1,800,000
6	Tarp (unit)	4	250,000	1,000,000
	Total			10,100,000

Data source: Processed Primary Data, 2023.

Seaweed cultivating communities have established customary norms in their reciprocity, namely: “good news is given, bad news is hidden”. This context means that, if there is encouraging (good) news such as a harvest, the cultivator must inform his relatives about the time and place, if he wants help in this activity. On the other hand, his relatives also do the same thing when carrying out production harvest activities, so that production harvest activities are carried out in mutual cooperation among community members or cultivator communities.

Based on these limitations, it can be conceptualized that without a symmetrical relationship between groups or between individuals, reciprocity in society tends not to take place. Symmetrical relationships are social relationships, with each person placing themselves in the same position and role when the exchange process takes place. Haggis et al., (1986); Jiang et al., (2020); Nichols, (2021); Lindström et al., (2021) suggests that the norm of reciprocity is the central moral formula for behavior between individuals among fellow villagers. Moral principles are based on the idea that people should help those they have helped or at least do no harm. This principle means that a gift or service is received as a reciprocal obligation to reciprocate the gift or service with at least comparable value at a later date.

3) Social Networks

The social network approach in the seaweed marketing system sees the market as a structure of relationships between several market actors, such as companies, competitors, suppliers (partners), distributors, customers, buyers and so on. All of these actors form a complex network of relationships that not only involves financial capital (money), but also cultural capital and social capital. Markets are seen not only because of demand and supply, but because of the complexity of a network of market actors who use various kinds of socio-cultural energy, such as trust, clientization, kinship, tribe, region, alma mater and so on (Brzezinski, 2017; Suyo et al., 2020; Fuhse & Gondal, 2022; Jafari et al., 2022; Yin et al., 2022).

Marketing network levels are differentiated based on the number of organizational points involved in distributing goods or services to consumers (Gallagher et al., 2008). Traditionally, net marketing is generally presented as a performance of all businesses which includes the physical and economic flow of goods and services from cultivators to consumers.

Based on the research results, social networks in marketings system are explained in terms of two system mechanisms that occur, namely: production sales systems and production sharing system. The parties involved with seaweed cultivators are capital owners (*pappalele* and *punggawa*), collecting traders, transportation services and so on.

The sales mechanism for seaweed production in Pitue Village is dominated by a marketing network using intermediary services through the concept of personalized exchange which was born from small-scale trading. In markets trading, symptoms of "boro" (guarantee) were detected through subscription relationships, between sellers and buyers, which were characterized by regular personal contact, through a credit (borrowing) mechanism known as "take now, pay later". The *pappalele* or retainers, provide loans in advance to cultivators, not only for production activities but also for subsistence needs, and also for traditional ceremony costs. This context is similar or almost similar to what was researched by Szanton (1972) in the fishing community in the city of Estacia, Filipina (Polo, 1987):

Relationship is based on an ideal of mutual trust and carries clear cut norms and expectation regarding interaction. Buyer expect good prices, good quality, personal favors or services, and credit if possible or convenient... In exchange, a vendor expect customer to be a regular out-let for his goods and will condition his service to this regularity.

Thus, the subscription or guarantee (*boro*) relationship is an economic relationship, but the mechanism is more of a personal social relationship, so that the relationship that occurs is based on social values, such as the value of shame, strong communal ties, and institutionalized cultural norms in society (Fukuyama, 2001; Malherbe et al., 2020; D'agata et al., 2020).

The following is information from the informant, PD (38 years old, seaweed cultivator):

The poor cultivators here don't have a lot of cash capital, so what they have to look after carefully is trust capital because if we don't have that anymore, there's no point in us living in this village anymore.

The marketing role on a micro scale is carried out by the *pappalele* and *punggawa*, getting a share of the results at a discount up to the cultivator or *sawi* level of around IDR 1,000 from the prevailing price and as a profit for the *pappalele* or *punggawa*. For example, the price sold by *pappalele* or *punggawa* to traders is IDR 5,000 per kg, then the price conveyed to cultivators or *sawi* is IDR 4,000 per kg. Sociologically, in the context of communities where communal relations are still strong, including coastal communities, income without a role is considered something embarrassing and even diminishes self-esteem, and vice versa if the role is without income, it also contains a number of questions. However, marketings like this puts cultivators in an unfavorable situation, because everything regarding price is completely controlled or depends on the attitude of the collecting traders (Henríquez-Antipa & Cárcamo, 2019; Asri et al., 2021).

Theoretically, "surrender" for the "grassroots" can be explained through the thinking approach of "Economic Anthropology" experts such as James Romasset, Jere Behrman, John Mellor, that the economic behavior of peasant

communities is carried out based on the principle of "safety first" (avoiding risks; risks aversion). Conceptually, it is said that, with the pressure of poverty and the ecosystem, peasants are forced to develop economic principles of prioritizing life safety rather than expending energy to improve their fate. In living conditions that are full of threats, new farmer dare to innovate and invest in two possible conditions. First, if the security of his subsistence is maintained and he is truly sure that the investment will bring results. Second, when they feel that their subsistence ethics are under threat. The innovation referred to here includes involving oneself in the market economy and carrying out rebellion (conflict). Therefore, as long as the two things referred to are not in "shake" and what they are going through has actually been determined as "guarantee of their life" then all forms of "fatigue" or "surrender" actually become relations of production and distribution that are socially and culturally bound for them. patrons towards clients.

Regarding the production sharing system. According to Jean Baudrillard in his book *Pour une critique de l'économie politique du signe* in 1979 (Albert, 1993), There are four logics of exchange, namely the logic of use value, the logic of exchange value, the logic of giving and the logic of signs. The first two logics are economic logic, while the other two logics (sign logic and give logic) exist in a sociological perspective as interchangeable things. Thus, the mechanism for the profits sharing system of seaweed cultivation that occurs in this village, integrates these four logics.

Based on research results, the production sharing system in the seaweed cultivating community in Pitue Village generally applies a 50:50 sharing mechanism, meaning 50% of profits for capital owners and 50% of profits for cultivators. There are three mechanisms for production capital management models in seaweed cultivation businesses in this village, namely: (1) the role of production capital providers who are not involved in production activities and only provide investment and variable capital to cultivators, who are termed *pappalele* or middlemen (2) the role of providing production capital who are members of the working group which is termed a *punggawa*, (3) the role of capital management (production activities) which is played by seaweed cultivators or can also be termed *sawi*.

Profit sharing system between seaweed cultivators and *pappalele* (middlemen). As a capital provider, *pappalele* provides investment costs (stakes, ropes, ballast, *para-para*) and variable costs (seedlings) to cultivators according to the area of land they own. Meanwhile, cultivators have their role as capital managers (production activities), preparing land and labor. The resulting sales of production (gross) are paid for investment costs and variable costs first to *pappalele*. After that, the net proceeds are divided using a 50:50 (halves) system between the cultivator and the *pappalele*.

The following is information from the informant, JAM (45 years old, *papalele*), as follows:

At first glance the income earned by seaweed farmers is very small, but in fact it is quite large, the important thing is that he has paid off the costs of clearing the land, if the problem is that seeds are only given twice a year, namely in June and November, because in the months May and October sea water conditions here are not good for seaweed cultivation. Meanwhile, in a year, they can harvest four to five times. So, the profits obtained by cultivators increase in the second harvest and beyond because there is no longer a burden on the costs of procuring seeds. The seeds used were taken from the production of the first planting.

Profit sharing system between seaweed cultivators (laborers; *sawi*) and *punggawa*. As a provider of capital and owner of production facilities, the retainer takes into account the production costs and work costs (fixed capital and working capital) that must be paid first, which are termed "costs". The operational costs that must be incurred are as follows: installation of ropes tying seaweed seeds on span ropes, IDR 1,500 per span; procurement of seeds IDR 3,000/kg; tying the seeds to a stretch rope IDR 1,000/stretch; installation of stretch ropes IDR 2,500/stretch; making foundations and

placing them on the seabed IDR 25,000/foundation. These operational costs are determined by the capital owner himself, and workers (*sawi*) are only subject to following the applicable provisions. Operational costs as stated above are intended for businesses that are harvesting for the first time, while for subsequent harvests, seeds and foundation construction will no longer be incurred. The seeds used are not purchased anymore but are taken from seaweed that is already producing. In this way, the costs of production facilities are no longer incurred by the capital owner, while the foundation is only made once when the cultivation lands is first created. However, what is interesting is the issue of seeds, even though the retainer no longer has to pay for seeds for the next harvest, the rules that apply are that the seeds must still be priced at half the price of the seeds (counted as "costs") because the source is a series of seeds that have been previously invested.

The following is information from the informant, AC (23 years old, a *sawi*), as follows:

We don't question that issue, the important thing is that we can be employed by a retainer, yes'... it's called if we live barely enough we have to accept the retainer's rules, because the only place to borrow production costs and living costs, is only from the retainer, if the retainer not sure how else to ask for help.

The retainer has practiced capitalistic patterns in production relations, through the reduction of money as a system of production, distribution and exchange, which can be re-accumulated to multiply profits. Therefore (Smith, 2005; Heath, 2010; Tolley & Hall-Arber, 2015) that one form of criticism of the patterns of capitalism is the greed of accumulating capital, which results in excessive exploitation of humans and nature, which in turn give rise to dehumanization and de-economic crises, respectively. Meanwhile, from the *sawi* side, the obedience shown is a form of livelihood strategy that is practiced to avoid the risks that arise from a life of precarious subsistence. Therefore, there is a strong relationship between the subsistence economy and social stratification based on the risks that may be experienced.

Differences in the characteristics of production relationship patterns in the production sharing system of the three actors involved in seaweed cultivation activities in Punaga Village, namely; *pappalele*, *punggawa* and *sawi* can be seen in Table 3.

Table 3. Differences in the Roles of the Three Actors Involved in the Profit Sharing System in Seaweed Cultivation Activities in Pitue Village.

Substantive Social Processes of which we are Part Production Relations			
Actor Relations	Economic ownership: control over investments	Mastery: control over physical Production	Mastery: control over another person's labor
<i>Pappalele</i> with cultivator (<i>sawi</i>)	+ Maximum	- Partial	- Partial
<i>Punggawa</i> with <i>sawi</i>	+ Maximum	+ Maximum	+ Maximum
Cultivator (<i>sawi</i>) with <i>pappalele</i>	- Partial	+ Maximum	- Partial
<i>Sawi</i> with <i>Punggawa</i>	-	-	-

Source: Research Results After Processing, 2023. Information:
 +: complete control. partial: weak control
 -: minimum control: residual control

The phenomenon of sharing production explicitly shows that the cultivator's relationship with the *pappalele* is more profitable than with the *punggawa*, but production and marketing relationships are more closely intertwined with the retainer. In the emic view, the dominance of relational ties to *punggawa* is based more on the role of *punggawa* being played by local actors, while the role of *pappalele* is mostly played by actors from outside the community.

The following is information from the informant, HSB (49 years old, informant leader), as follows:

If they collaborate with pappalele, it is more profitable than being a sawi with a punggawa, the only problem is the people here have a lot of needs, especially before traditional events such as weddings, or birthday events. All of this requires quite a lot of money, so they usually go out to borrow the same punggawa, while with pappalele, most of whom are not from here, usually they don't want to give loans if it's not about seaweed.

This context explains how behavior and institutions are influenced by social relationships. Economic action is socially situated and embedded in ongoing personal social networks among actors. These actions are not limited to the actions of individual actors themselves, but also include broader economic behavior, and all of them are integrated in a network of social relations. Actions carried out by network members are embedded because they are expressed in interactions with other people, based on considerations in terms of trust, ease of cooperation, and emotional attachment as part of a community. The strength of network ties plays an important role in the interpersonal ties that bind society through kinship, friendship, and community of the same origin.

3.4. Recommendations for the government and stakeholders

Based on the results of the research, the seaweed cultivating community in Pitue Village is classified as a high-trust society. The strength of social capital in the dimension of patron-client bonds is built on the moral community. According to Sztompka, a moral community is built on three things: trust, loyalty, and solidarity. (Latusek, 2018). Fukuyama (2001) states that one of the elements of social capital is trust. He believes that countries with a high-trust society will be able to achieve higher economic success compared to those with low trust. (Low-trust society).

Strengthening social capital can be the key to sustainable seaweed cultivation businesses. Several actions that can be taken: 1. Provide education and training to community members engaged in seaweed cultivation to improve knowledge and skills in business management, production techniques, marketing, and finance. 2. Facilitate networking and partnerships with other parties such as governments, non-governmental organizations, educational institutions, and the private sector that can provide access to additional resources, broader markets, and technical support. 3. Encourage seaweed cultivators to formally organize themselves in the form of co-operatives or joint venture groups in order to enhance their collective strength in negotiation, joint marketing and access to larger resources. 4. Develop community economic activities, networks and local cultures that take forward the principles of sustainability. 5. Develop networking of communication and collaboration among local business actors, including exchange of information, experience, and support among community members. 6. Encourage and strengthen values such as equity, justice, social responsibility, and environmental sustainability in everyday business practices. 7. Advocate and enhance public participation in public policy processes, to ensure that there is a policy that supports the growth and sustainability of seaweed farming activities of the community. By strengthening social capital through these actions, it is expected to improve the competitiveness and sustainability of community seaweed cultivation businesses in Pitue Village in the long term.

Conclusions

Social Capital has a very important role in the patron-client dimension of the sustainability of seaweed cultivation businesses through patron support for production capital assistance and access to markets. In situations of economic or environmental change, social capital can help clients adapt and survive in their business and home lives. Seaweed farmers can rely on social networks between fishermen and farmers to find solutions, share information, and get support when facing challenges in the sustainability of seaweed cultivation businesses.

Acknowledgments

I would like to express my gratitude to the community of seaweed cultivators in Pitue Village, Ma'rang District of Pangkajene Islands Regency for their cooperation in providing information related to the seaweed cultivation efforts carried out as research data. Thank you to the staff of the Pangkajene Islands Regency Fisheries Department for its work in giving information and providing fisheries statistical data.

Conflicts of interest/Competing interests

All authors declare that they have no conflict of interest.

References

- Adhawati, S. S., Baso, A., Malawa, A., & Arief, A. A. (2017). Social study of cantrang (danish trawl) fisheries post moratorium at Makassar Straits and Bone Gulf, South Sulawesi Province, Indonesia. *Aquaculture, Aquarium, Conservation & Legislation*, 10(5), 1140–1149.
- Adisel, A., Suryati, S., & Riswanto, R. (2023). Portraying Patron-client in Fishermen Work Relationships: A Phenomenon from Bengkulu, Indonesia. *JSW (Jurnal Sosiologi Walisongo)*, 7(1), 25–36.
- Albert, B. (1993). L'Or cannibale et la chute du ciel: Une critique chamanique de l'économie politique de la nature (Yanomami, Brésil). *L'homme*, 349–378.
- Alemayehu, B. Z., Steffens, P., & Gordon, S. R. (2023). The formation and role of religious social capital in driving entrepreneurial action. *Journal of Business Venturing Insights*, 20(June), e00426. <https://doi.org/10.1016/j.jbvi.2023.e00426>
- Arief, A. A., & Agusanty, H. (2016). Social Network Analysis on Seaweed Farmer in Takalar Regency A Case Study on Punaga Village. *International Symposium of Indonesia Seaweed Consortium*.
- Asri, A., Le Masson, V., Montalescot, V., Lim, P. E., Nor, A. M., Hussin, H., & Shaxson, L. (2021). The role of migrants in the Malaysian seaweed value-chain. *Marine Policy*, 134, 104812.
- Bertolozzi-Caredio, D., Bardaji, I., Coopmans, I., Soriano, B., & Garrido, A. (2020). Key steps and dynamics of family farm succession in marginal extensive livestock farming. *Journal of Rural Studies*, 76, 131–141.
- Bott, L.-M., Pritchard, B., & Braun, B. (2020). Translocal social capital as a resource for community-based responses to coastal flooding—Evidence from urban and rural areas on Java, Indonesia. *Geoforum*, 117, 1–12.
- Brezinski, Z. (2017). The great transformation. In *Russia in the National Interest* (pp. 131–146). Routledge.
- Chenhall, R. H., Hall, M., & Smith, D. (2010). Social capital and management control systems: A study of a non-government organization. *Accounting, Organizations and Society*, 35(8), 737–756.

- Church, E. K., Wilson, K. A., & Dean, A. J. (2023). Broadening our understanding of what drives stewardship engagement: Relationships between social capital and willingness to engage in nature stewardship. *Journal of Environmental Management*, 342, 118128.
- Claridge, T. (2020). Social capital at different levels and dimensions: a typology of social capital. *Social Capital Research*, 1–8.
- Cofré-Bravo, G., Klerkx, L., & Engler, A. (2019). Combinations of bonding, bridging, and linking social capital for farm innovation: How farmers configure different support networks. *Journal of Rural Studies*, 69, 53–64.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95–S120.
- Cook, D., Malinauskaite, L., Davíðsdóttir, B., & Ögmundardóttir, H. (2022). Capital assets underpinning economic well-being—The example of whale ecosystem services in Arctic coastal communities. *Ecosystem Services*, 55, 101432.
- Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, 13(1), 3–21.
- D'agata, S., Darling, E. S., Gurney, G. G., McClanahan, T. R., Muthiga, N. A., Rabearisoa, A., & Maina, J. M. (2020). Multiscale determinants of social adaptive capacity in small-scale fishing communities. *Environmental Science & Policy*, 108, 56–66.
- Datoon, R. F., Camacho, J. V., Lapitan, A. V., & Gapas, J. M. (2023). Bridging and bonding social capital for sustainable technology adoption, the Landcare program in the resource poor rural town of Claveria, Philippines. *Research in Globalization*, 7(September), 100152. <https://doi.org/10.1016/j.resglo.2023.100152>
- de la Puente, S., de la Lama, R. L., Llerena-Cayo, C., Martínez, B. R., Rey-Cama, G., Christensen, V., Rivera-Ch, M., & Valdés-Velasquez, A. (2022). Adoption of sustainable low-impact fishing practices is not enough to secure sustainable livelihoods and social wellbeing in small-scale fishing communities. *Marine Policy*, 146, 105321.
- Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage handbook of qualitative research*. sage.
- Dias, G. P., Silva, M. E., & Gold, S. (2023). Microfoundations of supply chain sustainability practices: A social capital perspective. *International Journal of Production Economics*, 108947.
- Dobbin, K. B., & Smith, D. W. (2021). Bridging social capital theory and practice: Evidence from community-managed water treatment plants in Honduras. *Journal of Rural Studies*, 88, 181–191.
- Ferrol-Schulte, D., Ferse, S. C. A., & Glaser, M. (2014). Patron–client relationships, livelihoods and natural resource management in tropical coastal communities. *Ocean & Coastal Management*, 100, 63–73.
- Fisheries Department of Pangkajene Islands Regency. (2018). *Fisheries statistics for Pangkep Islands Regency*. Pangkep Islands Regency.
- Fuhse, J. A., & Gondal, N. (2022). Networks from culture: Mechanisms of tie-formation follow institutionalized rules in social fields. *Social Networks*.
- Fukuyama, F. (2001). Social capital, civil society and development. *Third World Quarterly*, 22(1), 7–20.
- Gallagher, S., Brown, C., & Brown, L. (2008). A strong market culture drives organizational performance and success. *Employment Relations Today*, 35(1), 25–31.
- Granovetter, M. (1985). The problem of embeddedness. *American Journal of Sociology*, 91(3), 481–510.
- Granovetter, M. (2018). Economic action and social structure: The problem of embeddedness. In *The sociology of economic life* (pp. 22–45). Routledge.
- Haggis, J., Jarrett, S., Taylor, D., & Mayer, P. (1986). By the teeth: A critical examination of James Scott's *The Moral Economy of the Peasant*. *World Development*, 14(12), 1435–1455.
- Heath, J. (2010). "Legitimation crisis" in the later work of Jürgen Habermas.
- Henríquez-Antipa, L. A., & Cárcamo, F. (2019). Stakeholder's multidimensional perceptions on policy implementation gaps regarding the current status of Chilean small-scale seaweed aquaculture. *Marine Policy*, 103, 138–147.

- Horng, S.-M., & Wu, C.-L. (2020). How behaviors on social network sites and online social capital influence social commerce intentions. *Information & Management*, 57(2), 103176.
- Imel, S., Kerka, S., & Wonacott, M. E. (2002). *Qualitative Research in Adult, Career, and Career-Technical Education. Practitioner File*.
- Jafari, A., Aly, M., & Doherty, A. M. (2022). An analytical review of market system dynamics in consumer culture theory research: Insights from the sociology of markets. *Journal of Business Research*, 139, 1261–1274.
- Jiang, J., Liu, Y.-J., & Lu, R. (2020). Social heterogeneity and local bias in peer-to-peer lending—evidence from China. *Journal of Comparative Economics*, 48(2), 302–324.
- Jiao, T. (2016). Toward an alternative perspective on the foraging and low-level food production on the coast of China. *Quaternary International*, 419, 54–61.
- Kant, S., & Vertinsky, I. (2022). The anatomy of social capital of a Canadian indigenous community: Implications of social trust field experiments for community-based forest management. *Forest Policy and Economics*, 144, 102822.
- Khakzad, S., & Griffith, D. (2016). The role of fishing material culture in communities' sense of place as an added-value in management of coastal areas. *Journal of Marine and Island Cultures*, 5(2), 95–117.
- Kim, J.-E. (2013). Land use management and cultural value of ecosystem services in Southwestern Korean islands. *Journal of Marine and Island Cultures*, 2(1), 49–55.
- Kithiia, J. (2015). Resourceless victims or resourceful collectives: Addressing the impacts of climate change through social capital in fringing coastal communities. *Ocean & Coastal Management*, 106, 110–117.
- Klerkx, L., & Proctor, A. (2013). Beyond fragmentation and disconnect: Networks for knowledge exchange in the English land management advisory system. *Land Use Policy*, 30(1), 13–24.
- Konecki, K. T. (2018). *Classic Grounded Theory—The Latest Version: Interpretation of Classic Grounded Theory as a Meta-Theory for Research*. *Symbolic Interaction*, 41(4), 547–564.
- Latusek, D. (2018). Moral space: An interview with Piotr Sztompka. *Journal of Trust Research*, 8(1), 120–136.
- Lin, N. (2002). *Social capital: A theory of social structure and action (Vol. 19)*. Cambridge university press.
- Lindström, M., Pirouzifard, M., & Rosvall, M. (2021). Social capital, the miniaturization of community, traditionalism and mortality: A population-based prospective cohort study in southern Sweden. *SSM-Population Health*, 16, 100956.
- Liu, Y., Liu, Z., Liu, J., Qiu, L., Wang, Y., & Fu, X. (2022). Research on the impact of members' social capital within agricultural cooperatives on their adoption of IPM in China. *International Journal of Environmental Research and Public Health*, 19(18), 11538.
- Malherbe, W., Sauer, W., & Aswani, S. (2020). Social capital reduces vulnerability in rural coastal communities of Solomon Islands. *Ocean & Coastal Management*, 191, 105186.
- Malino, A. C. P., Ginting, N. M., Fachrizal, R., Darma, R., Betaubun, P., & Arief, A. A. (2021). Socio-economic conditions of small-scale traditional fishermen: a case study in Payum Village, Merauke District, Papua, Indonesia. *Jurnal Ilmiah Pertanian*, 18(1), 20–28.
- Maryudi, A., & Fisher, M. R. (2020). The power in the interview: A practical guide for identifying the critical role of actor interests in environment research. *Forest and Society*, 4(1), 142–150.
- Miñarro, S., Forero, G. N., Reuter, H., & van Putten, I. E. (2016). The role of patron-client relations on the fishing behaviour of artisanal fishermen in the Spermonde Archipelago (Indonesia). *Marine Policy*, 69, 73–83.
- Nath, S., Dunn, F. E., van Laerhoven, F., & Driessen, P. P. J. (2021). Coping with crisis on the coast: the effect of community-developed coping-strategies on vulnerability in crisis-prone regions of the Ganges delta. *Journal of Environmental Management*, 284, 112072.
- Neilson, J. (2022). Intra-cultural consumption of rural landscapes: An emergent politics of redistribution in Indonesia. *Journal of Rural Studies*, 96, 89–100.

- Nichols, C. (2021). *Self-help groups as platforms for development: The role of social capital*. *World Development*, 146, 105575.
- Nurdin, N., & Grydehøj, A. (2014). *Informal governance through patron–client relationships and destructive fishing in Spermonde Archipelago, Indonesia*. *Journal of Marine and Island Cultures*, 3(2), 54–59.
- Octasylya, A. R. P., Yuliati, L. N., & Soehadi, A. W. (2023). *Entrepreneur Orientation and Social Capital As A Key To Developing Dynamic Capability: A Conceptual Framework*. *Indonesian Journal of Business and Entrepreneurship (IJBE)*, 9(2), 186.
- Parlee, C. E., Foley, P., Gomez, M. A. L., Miah, M. R., Mather, C., & Stephenson, R. L. (2021). *Full spectrum sustainability and a theory of access: Integrating social benefits into fisheries governance*. *Marine Policy*, 134, 104764.
- Perdana, E., & Syah, T. Y. R. (2023). *The Effect of Social Capital and Collaborative Knowledge Creation on E-Business Proactiveness and Organizational Agility in Creating Business Sustainability*. *International Journal of Applied Business Research*, 167–186.
- Perugini, M., Gallucci, M., Presaghi, F., & Ercolani, A. P. (2003). *The personal norm of reciprocity*. *European Journal of Personality*, 17(4), 251–283.
- Philip, J., Newman, J., Bifelt, J., Brooks, C., & Rivkin, I. (2022). *Role of social, cultural and symbolic capital for youth and community wellbeing in a rural Alaska Native community*. *Children and Youth Services Review*, 137, 106459.
- Ping, L., Xiaosong, S., & Jinzhao, L. (2022). *Research on farmers' households credit behavior and social capital acquisition*. *Frontiers in Psychology*, 13, 961862.
- Polo, J. B. (1987). *Philippine Municipal Fishery Resource, Production and Research: A Social Profile*. *Philippine Sociological Review*, 39–46.
- Pomeroy, R., Arango, C., Lomboy, C. G., & Box, S. (2020). *Financial inclusion to build economic resilience in small-scale fisheries*. *Marine Policy*, 118, 103982.
- Putnam, R. D. (2000). *Bowling alone: America's declining social capital: Originally published in Journal of Democracy 6 (1), 1995. Culture and Politics: A Reader*, 223–234.
- Richmond, L., & Casali, L. (2022). *The role of social capital in fishing community sustainability: spiraling down and up in a rural California port*. *Marine Policy*, 137, 104934.
- Roberts, N., Mengge, B., Utina, M. R., Muhatar, F., Icardanhi, A., Zulkifli, R. M., & Humphries, A. (2022). *Patron-client relationships shape value chains in an Indonesian island-based fisheries system*. *Marine Policy*, 143, 105142.
- Smith, R. (2005). *Capitalism and Collapse: Contradictions of Jared Diamond's market meliorist strategy to save the humans*. *Ecological Economics*, 55(2), 294–306.
- Solomon, P. (2023). *Can cooperatives be a tool for poverty reduction? Social capital perspectives of fisher's cooperatives in India*. *Marine Policy*, 147, 105373.
- Stacey, N., Gibson, E., Loneragan, N. R., Warren, C., Wiryawan, B., Adhuri, D. S., Steenbergen, D. J., & Fitriana, R. (2021). *Developing sustainable small-scale fisheries livelihoods in Indonesia: Trends, enabling and constraining factors, and future opportunities*. *Marine Policy*, 132, 104654.
- Steenbergen, D. J., Marlessy, C., & Holle, E. (2017). *Effects of rapid livelihood transitions: Examining local co-developed change following a seaweed farming boom*. *Marine Policy*, 82, 216–223.
- Sulistiyono, S. T., & Rochwulaningsih, Y. (2013). *Contest for hegemony: The dynamics of inland and maritime cultures relations in the history of Java island, Indonesia*. *Journal of Marine and Island Cultures*, 2(2), 115–127.
- Suyo, J. G. B., Le Masson, V., Shaxson, L., Luhan, M. R. J., & Hurtado, A. Q. (2020). *A social network analysis of the Philippine seaweed farming industry: Unravelling the web*. *Marine Policy*, 118, 104007.
- Szreter, S., & Woolcock, M. (2004). *Health by association? Social capital, social theory, and the political economy of public health*. *International Journal of Epidemiology*, 33(4), 650–667.
- Tolley, B., & Hall-Arber, M. (2015). *Tipping the scale away from privatization and toward community-based fisheries: policy and market alternatives in New England*. *Marine Policy*, 61, 401–409.

Xie, G., Wang, L., & Khan, A. (2021). *An assessment of social media usage patterns and social capital: Empirical evidence from the agricultural systems of China*. *Frontiers in Psychology, 12*, 767357.

Yin, H., Jin, X., Quan, X., & Yu, J. (2022). *Does social network improve corporate financing efficiency? Evidence from China*. *Pacific-Basin Finance Journal, 74*, 101802.