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Strengthening Farmers' Social Capital to Build the Sustainable Agriculture in Tidal Swamplands, South Sumatra, Indonesia

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Abstract

The existence and role of social capital is needed in the success and sustainability of agricultural development in tidal swamp land. This study aims to measure the condition of farmers' social capital and formulate strategies for strengthening social capital in developing sustainable agriculture in tidal swamp land. The research was conducted in Muara Telang District, Banyuasin Regency, South Sumatra Province, Indonesia in 2021 on 150 farmer respondents and 13 expert respondents. Data obtained through direct interviews with respondents using a questionnaire. The strategy for strengthening social capital is formulated using the Analytical Network Process (ANP) analysis. The results showed that the social capital of farmers in tidal swamp rice farming was in the high criteria with a score of 39.86. The strategy of strengthening social capital in developing sustainable agriculture in tidal swamplands can be carried out through: (a) transformational leadership support, (b) increasingly routine and strong interaction between group members, (c) regular and scheduled assistance from extension workers on an ongoing basis, (d)) involvement and organizational roles from the village/hamlet/group level, (e) involvement of the roles of community and family leaders and (f) a variety of programs that prioritize social and human capital capacity building. The strengthening of social capital in this tidal area is expected to empower small farmers in particular to be more empowered in managing their farms in a sustainable manner, building a sustainable corporate farm for mutual prosperity.

Keywords— Analytical Network Process, Social Capital, Strengthening, Tidal Swampland

I. INTRODUCTION

The strategy of agricultural development in swamps must be pursued towards a sustainable agricultural system through optimizing the use of various resources according to land characteristics, specific commodities and still paying attention to the culture of the local community (Ar-Riza and Alkasuma, 2008). Susilawati, et al. (2017) states that the success and sustainability of sustainable agricultural development in tidal land can be done through the application of appropriate land and commodity management technology, supported by human resource capabilities, support for adequate facilities and infrastructure as well as effective and efficient institutions. According to Anggreany and Rohaeni (2020), the development of a technology must be balanced with the competence of farmers in working on it so that it need reinforcement on the social side in order the activities that take place can increase rice production and income farmers in a sustainable manner.

Social capital provides an increase in individual awareness of the many opportunities that can be developed for the benefit of the community, especially in terms of increasing agricultural production.

Putnam (1995) defines social capital as characteristics of social organizations such as

social cooperation, mutual trust and norms that facilitate coordination and cooperation for mutual benefit. Burt (1992) states that social capital is the ability of an individual to relate to one another and become a very important force for aspects of economic life as well as social aspects. Fukuyama (1999) defines social capital as a set of values and norms that live in groups as a common grip.

In general, there are 3 (three) types of indicators that can be used as an approach to illustrate social capital at the micro level, namely indicators relating to attitudes of trust and adherence to prevailing norms, membership in local associations and networks, and indicators related to collective action (Grootaert and Bastelaar, 2002).

Sawitri and Soepriadi (2014) stated that in agricultural activities, social capital also determines the level of productivity. Especially for rice commodities, the role of social capital is very large because it requires great togetherness and cooperation. Pre-production, production and post-production activities will not run optimally without social capital. Unfavorable experiences for farming communities in dealing with other parties interfere with the sustainability of agricultural activities, which economically and socially are still very much needed. The lack of social capital empowerment is especially the case in the agricultural sector in various regions, including South Sumatra.

The hallmark of the people in South Sumatra Province, especially in the tidal swamp land area, is the existence of a heterogeneous community inhabited by many tribes, namely the indigenous tribes of South Sumatra, Bali, Bugis, Javanese and Sundanese. The Javanese dominate this area due to the transmigration program that has been organized by the government aimed at developing food production centers. Similar to the people of South Sumatra in general, the people who live in these tidal areas build cooperation in the form of “gotong royong” and have been embedded in a variety of behaviors with intensities and nuances that are in accordance with the local environment as well as various needs and attractiveness between behaviors within the community group.

However, in social life, there are still gaps between farmers who have a lot of capital and those who don't. Farmers of productive age tend to be receptive to new technologies that are disseminated, but older farmers are more resistant (laggard). The programs that have been implemented so far have been able to increase productivity and the Planting Index (IP) but are felt to have not had a broad impact but have not been able to encourage farmers to be stronger and more empowered in a sustainable manner. The strengthening of social capital in this tidal area is expected to empower small farmers in particular to be more empowered in managing their farms in a sustainable manner, building a sustainable corporate farm for mutual prosperity.

This study aims to: (1) measure the condition of farmers' social capital; (2) develop a strategy for strengthening social capital in developing sustainable agriculture in tidal swamp land. An understanding of social capital (about the underlying values in farming), its practice in agricultural life, and its role is expected to become a strategy formulation and policy recommendation to increase productivity and income.

II. METHODS

Time and Place

This research was conducted in August-October 2021 in Muara Telang District, Banyuasin Regency, South Sumatra Province.

Research Methods

The method used in this research is a survey method, conducted directly through interviews using questionnaires and followed by in-depth interviews with key informants. The respondents in this study were 150 tidal swamp rice farmers and 13 expert respondents from the Agriculture Agency, AIAT, field extension workers, local government (village and sub-district) and academics.

Data Analysis Methods

The social capital attached to farmers in tidal swamp rice cultivation is measured using 4 (four) variables, namely (1) trust, (2) participation, (3) organization/network and (4) the role of norms. The data analysis used to measure the condition of farmers' social capital is descriptive analysis using a Likert scale with a score range of 1-3 and class intervals (Nasution and Barizi in Rambe and Honorita, 2011):

NR = NST – NSR PI = NR : JIK

Description:

NR = Value Range
NST = Highest Score
NSR = Lowest Score
PI = Interval Length
JIK = Number of Class Intervals

Table 1. Value of Farmers' Social Capital Level Indicators in Tidal Swamp Rice Farming

No.	Indicators	NST	NSR	JIK	NR	PI
1.	Trust	12	4	3	8	2,
2.	Participation	18	6	3	1	67
3.	Organization/n	9	3	3	2	4,

Table 2.Class Interval Score Total and Per Question for Assessment Farmers' Social Capital in Tidal Swamp Rice Cultivation

No.	Class Interval Value (Total Score)	Class Interval (Per Question)	Criteria Mark
1.	17.00 x 28.33	1.00 x 1.66	Low
2.	28.33 < x 39.66	1.67 < x 2.33	Medium
3.	39.66 < x 51.00	2.34 < x 3.00	High

The Analytical Network Process (ANP) was used to formulate a strategy for strengthening social capital in building a sustainable tidal swamp rice farm, using the Super Decission 2.10 software application. The results of the data analysis on the condition of social capital are used as a basis for compiling alternatives, criteria and sub-criteria at the model construction stage in the ANP analysis in order to formulate strategies for strengthening social capital in tidal swamp land in Muara Telang District. The form of the ANP network used in this study is a general network form. The stages of ANP research are as follows: (1) model construction, (2) model quantification and (3) analysis of results.

III.RESULTS

Farmers' Social Capital Conditions in Tidal Swamp Rice Farming

The results showed that the overall condition of farmers' social capital was in high criteria with a total score of 39.86 (Table 3).

Table 3. Existing Conditions of Farmers' Social Capital in Tidal Swamp Rice Farming

No.	Components of Social Capital	Score	Criteria
1.	**Trust**	**8.59**	**Medium**
	- Willingness to cooperate with other farmers in terms of rice cultivation in tidal swamp land	2.36	High
	- Trust in information on rice cultivation technology from production and production kiosks	1.87	Medium
	- Trust in information on rice cultivation technology from the Department of Agriculture/BPTP/Universities and others	2.02	Medium
	- Have empathy for fellow farmers and respect each other even though they are of different ethnicity and religion	2.34	High
2.	**Participation**		
	- Always attend an event or meeting organized by agricultural extension workers	**14.54**	**High**

	- Always willing to help when asked to help other farmers in managing their paddy fields	2.46	High
	- Activeness in giving ideas or ideas in farmer group meetings	2.47	High
	- Participate with local government regarding agricultural progress on tidal land in my village		
	- Willing to continue to use the technology delivered even though there is no assistance or program from the government	2.45	High
	- Actively participate in preparing the planting schedule and the stages of rice cultivation carried out	2.45	High
3.	**Organization/Network**		
	- Cooperating with other farmer groups in cultivating tidal rice	2.31	Medium
	- Collaborating with research institutions, agricultural services, AIAT, universities and others regarding rice cultivation technology in tidal land	2.40	High
	- Use of internet technology to obtain information related to rice cultivation technology in tidal land	**7.49**	**High**
4.	**Social norms**	2.62	High
	- I pay the loan money / goods lent by other farmers / farmer groups / savings and loan institutions / banks on time	2.55	High
	- I pay the group dues on time for the needs of the farmer group		
	- I am willing to help small farmers who need help without being burdensome to jointly increase productivity	2.32	Medium
	- Comply with regulations regarding the time of planting preparation (land processing) that has been agreed within the farmer group		
		9.24	**Medium**
		2.51	High
		2.44	High
		2.29	Medium
		2.00	Medium
	Amount	**39.86**	**High**

Farmers' Social Capital Conditions in Tidal Swamp Rice Farming

Priority Criteria

The criteria in the strategy of strengthening social capital to support sustainable agriculture in Muara Telang District consist of 4 (four) criteria, namely (1) Trust, (2) Participation, (3) Organization/Networks and (4) The role of norms (Figure 1).

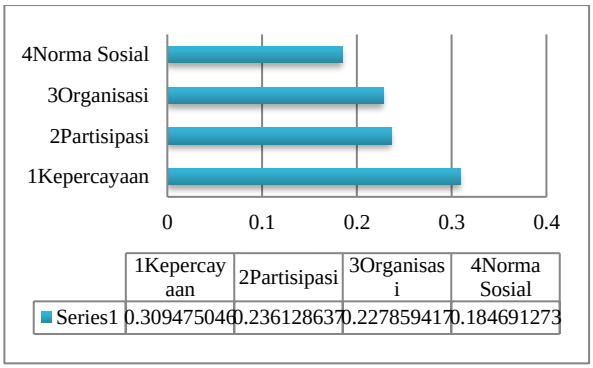

Figure 1. Priority Criteria for Strengthening Social Capital in Supporting Sustainable Agriculture in Muara Telang District

Priority Sub Criteria

The four social capital criteria analyzed, each has 2 (two) sub-criteria based on the results of the analysis of the first objective which is lower than the other sub-criteria (Figure 2).

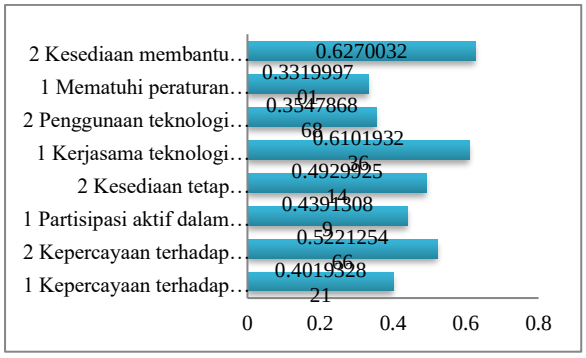

Figure 2. Priority of Sub Criteria for Strengthening Social Capital in Supporting Sustainable Agriculture in Muara Telang District

Alternative Priority

To formulate a strategy for strengthening social capital, 6 (six) alternatives were determined based on the literature study as presented in Figure 3.

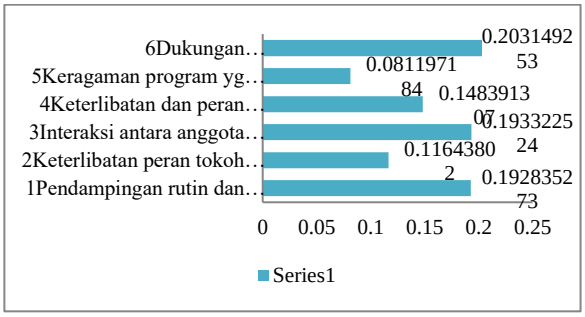

Figure 3. Alternative Priorities for Strengthening Social Capital in Supporting Sustainable Agriculture in Muara Telang District

Table 4. Alternative Priority Strategies for Strengthening Social Capital in Tidal Swamp Land

No.	Alternative Priority	Normalization Value	Party Role
1.	Transformational leadership support	0.203	Local government (Village and District)
2.	Interactions between group members are becoming more routine and stronger	0.193	Head of Gapoktan, Head of Poktan
3.	Regular and scheduled assistance from extension workers on an ongoing basis	0.192	Extension coordinator at the sub-district level (BPP) and PPL at the village level
4.	Involvement and organizational roles from the village/dukuh/group level	0.148	Village heads and administrators, hamlet heads
5.	Involvement of the role of community leaders and families	0.116	Public figure
6.	Diversity of programs that prioritize capacity building for social capital and human capital	0.081	Related agencies and institutions (Department of Agriculture, Center for the Study of Agricultural Technology and Universities)

IV. RESULTS

Table 6 informs that of the 4 social capital indicators of farmers, the trust indicator has the lowest score with a moderate criterion of 8.59. This means that trust has the greatest potential to be empowered by its existence as social capital that has a more active role and is in a stronger condition in the management of tidal swamp rice farming.

Farmers' trust in information on rice cultivation technology disseminated by related institutions such as the Department of Agriculture/BPTP/University as well as from production and production kiosks is in moderate criteria or in other words, the condition of

farmers' trust in these two sources of information is still quite adequate. "*Farmers don't immediately follow the technological recommendations that are conveyed, it takes a long time, it needs to prove tangible results. Especially for farmers who are quite old, they need tangible results and then slowly accept them. The program provided and the technology conveyed can be disseminated and implemented continuously and consistently, it needs to be applicable, not just 1 time, 1 planting season or 1 year and after that it is abandoned*".

It can be taken an effort to view and policy that the technology delivered in the form of programs, activities or assistance, needs to be developed continuously and consistently, must be applicable accompanied by the selection of appropriate extension methods, which are preferred by farmers so that the innovative nature of the technology used delivered is acceptable to farmers. There needs to be an effort to involve field agricultural extension workers as the spearhead of changing the behavior of farmers in the area. This effort is necessary to continue to foster and strengthen farmers' confidence in the technology that is disseminated both from related institutions and from other sources of information such as production and production kiosks.

As stated by Pamungkas and Sunaryanto (2018) that social capital trust is formed from social relations between two or more individuals based on trust and mutual belonging. So to build strong trust within the farmer environment in farming, it takes a long time and happens consistently.

Similar to trust social capital, social norms are also in the moderate criteria with an average score of 9.24. This criterion indicates that the farmer simply complies with the existing rules that have been agreed within the farmer group. This condition is manifested by the willingness of farmers to help small farmers who need assistance without being burdensome to jointly increase productivity, comply with regulations regarding planting preparation time, pay loans and group fees in a timely manner. This social norm is included in the dimension of relational social capital, especially in the sub-dimension of tolerance and social sanctions (Rabbani et al., 2019).

In contrast to the two social capitals above, the results of the measurement of participation social capital are in high criteria with an average score of 14.54. This high participation indicates that farmers play an active role in tidal swamp rice farming activities. The high participation of farmers is expected to encourage farmer behavior in the management of tidal swamp rice.

Grootaert and Basteler (2001) suggest that a person's participation and social networking will increase the availability of information at a low cost. In addition, the participation of individuals and local networks supported by mutual trust will make it easier to obtain joint decisions and implement them in joint activities. According to Widodo and Sugiyanto (2015), in voluntary associations, participation is a key factor in social capital. This is because in a participation there is a fabrication and relationship between group members such as altering ideas, information and knowledge as well as discussing and finding solutions to problems faced by the group.

The organization/network indicator has the highest score (score 7.49). This shows that the cooperation between individual farmers and other parties is well established and the need to join farmer groups and organizations in the community that is attended by individual farmers is quite large, such as the Water User Farmers Association (P3A). The cooperation in question is the cooperation of farmers in a farmer group with other farmer groups in cultivating tidal rice. It can be seen from the exchange and purchase of seeds between farmers and farmer groups, rental and borrowing of agricultural machinery and production equipment and mills. Ernanda et al. (2019) states that relationships that occur within a network/organization both formal and informal are usually formed based on mutual empathy or friendship.

The results of the synthesis (Figure 1) conclude that in formulating a strategy for strengthening social capital to build sustainable agriculture in tidal swamp land, it is necessary to first strengthen trust in social capital, followed by strengthening social capital for participation, organization/network and social norms. Social capital trust is the main thing to be empowered because trust is an important aspect that underlies the strength of other social capital. This trust needs to be built through a long process and time using the same system.

According to Santoso (2020), the idea of trust is the most important thing in the concept of social capital. It is also mentioned that trust is a crucial aspect because its presence and absence will affect the activities carried out. In addition, an activity that provides benefits can be carried out smoothly if there is mutual trust.

In developing sustainable agriculture in tidal swamp land through strengthening social capital, the main and best alternative strategy is transformational leadership support. As stated by Pradana and Istriyani (2020) that in optimizing social capital it is necessary to manage other resources owned by the village. To optimize the role of social capital, support from various parties is needed which must be followed by transformational leadership support. Transformational leadership is able to give birth to new things from old things that can bring about various fundamental changes, such as values, goals and needs of subordinates (Avolio and Bruce, 1997). In addition, transformational leadership plays a role in leading that can encourage values, attitudes and beliefs and behaviors of other leaders to accomplish organizational goals (Rouche in Pawar and Eastman, 1997). Suseno and Sugiyanto (2010) conclude that transformational leadership can increase subordinate awareness of the importance of work output, prioritize group interests and advance the various needs of subordinates to a higher level in order to meet a decent quality of life.

The results of this ANP synthesis are generally in line with the results of research conducted by Cahyono and Adhiatma (2012) which concluded that transformational leadership is indispensable in optimizing social capital. The existence of transformational leadership is able to influence community members, encourage individual creativity, provide inspiration and motivation and have ideals. In addition, this study also reports that strengthening social capital requires the support of human capital because it can provide innovations to community members. To improve the skills of rural communities, especially in cultivation skills and increase agricultural diversification, it is necessary to have a mentoring program. Strengthening social capital aims as social strengthening in the community which can be done through optimizing the functions of BPD, LKMD, Gapoktan, PKK, BUMDes and Cooperatives. The strengthening of social capital is carried out by maximizing the role of social institutions which emphasizes on optimizing the side of trust, mutual respect and mutual benefit, as well as focusing on the prevailing culture and values.

According to Pranadji (2006), in strengthening social capital, the role of leadership is very important. Strengthening social capital will be effective if it begins with strengthening local community leadership, social governance and community organization at the hamlet level. Empowerment of social capital also needs to start from strengthening local cultural values as well as developing parts of social capital that are considered fundamental, such as human capital capabilities, social management and civil society organizations, balance social structures, and strong local leadership. , strong moral and legal systems and good governance.

The results of the study of Sylviani, et al. (2020) shows that strengthening social capital in the aspects of trust, norms, and networks will spur the empowerment of farmers and farmer groups. This is a part of social capital that must be further optimized in order to achieve optimal benefits. Mudiarta (2012) in his research concluded that the high role of social capital in increasing income must be supported by policy intervention in terms of budgeting development

programs that can stimulate the growth and development of social networks. Agribusiness policies, especially the application of technological innovations, must be transformative towards changes in culture and social forms of society.

V. CONCLUSION

Based on the results of the research that has been done, it can be concluded that:

1. Farmers' social capital in rice cultivation in tidal swamp land is in high condition.
2. The strategy for strengthening social capital in developing sustainable agriculture in tidal land is formulated as follows: (1)transformational leadership support, (2) more routine and stronger interaction between group members, (3) regular and scheduled assistance from extension workers on a continuous basis, (4) involvement and organizational roles from the village/hamlet/group level, (5) involvement of leaders community and family and (6) a variety of programs that prioritize the capacity building of social capital and human capital.

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