

SOCIAL CAPITAL AND SUSTAINABLE LIVELIHOOD STRATEGIES IN DOWNSTREAM AREA OF BENGAWAN SOLO RIVER, EAST JAVA, INDONESIA

YAYUK YULIATI AND RIYANTI ISASKAR

Agriculture Faculty, Brawijaya University, 65145 Jalan Vetetan, Malang, Jawa Timur, Indonesia

*Corresponding author: yayuk.yyl@gmail.com

Abstract: Most of the north coast areas in East Java known as Pantura (Pantai Utara), especially north Gresik and north Lamongan, are very arid and have no sufficient technical irrigation in almost all of the farming areas. Despite their location which is across Bengawan Solo River, most villages in this area cannot utilize the river water using gravitation system because of the hilly nature of the villages with elevation higher than the river. The dry land agriculture system in this area does not have stability like irrigation-based agriculture system and it affected the rapidly growing population badly. In order to repair the damaged environment and increase the society's welfare, in addition to technical innovation, enhancement of social capital is prominent considering that social capital building is an important community asset.

This research aims to analyze (1) the social capital and other livelihood resources/assets of Surah and Surowiti villagers and (2) the livelihood strategies preferred by the villagers to keep their life sustainable. The research was conducted in Serah and Surowiti villages in Gresik Regency. The primary data were collected using in-depth interviews, Focus Group Discussion (FGD), and observation techniques; the secondary data were collected using documentation.

The findings reveals that livelihood assets conditions, i.e., natural, human, social, physical, and financial resources were not sustainable in the targeted villages. Also, most villagers prefer to adopt exploiting social family network (remittances) and accumulation strategy as their livelihood strategies.

Keyword : Social capital, sustainable livelihood strategy, welfare, dry land

Introduction

Background of the Research

The human efforts to get a decent life cannot be separated from the problems associated with human habitation. This situation applies to people living in the north coast region of Java known as *Pantura (Pantai Utara)*. Northern Gresik and northern Lamongan are among the areas located in East Java's Pantura which have arid conditions that technical irrigation is not available in most of their agricultural lands. Furthermore, during the dry seasons, these areas usually experience water shortages which are very vital for not only agricultural purposes, but also for household. Although these areas are adjacent to the Bengawan Solo River, people in the surrounding areas cannot optimally use its water since their lands are located at a higher elevation than the river. Despite this condition,

the local people still cultivate the land by planting crops during the rainy seasons for their life survival. As noted by Yunus (2006), land use is a specific way of venturing the land to meet the needs of human life.

According to Odum (1971), dry land is a part of the terrestrial ecosystem which is an expanse of land that will not be flooded or waterlogged most parts of the year. In Java, the utilization of dry land agroecosystem for food crops (seasonal crops) is not only in the downstream areas (lowlands) but also in the headwaters of watersheds (mountains). This eventually brought the land to its severe damaged condition (Yuliati, 2011; Hefner 1999).

Considering the dry land condition, several efforts to improve watershed management in Java is urgently needed at the moment. The government has actually made several attempts, but the results are still considered far from

the expectations. Since the last two or three centuries ago, the damage on dry land agro-system in Java has become part of the opaque history on the management system of settled agriculture in rural Java (Graaf & Pigeaud, 2001, Lombart, 2000; Thijsse, 1982; Geertz, 1983; Reid, 2004, Hefner, 1999). This damage is not only a result of the lack of the ability of farmers and rural communities in managing dry land agroecosystem, but it is also caused by the fault of the government in building the local village community empowerment model (Yuliati, 2012). Consequently, the rural development intended to improve Dry Land Agroecosystem (DLA) requires a new approach. In this case, what is meant by new approach is an increase in social capital in the society (Kostov and Lingrad, 2001). Some experts of rural development state that without strengthening social capital including institutional and social organization, community participation, and society economic empowerment, such development efforts will fail (Tjondronegoro, 1977; Sajogyo, 1974; and Mubyarto, 2002).

Most of the allotments of land in the researched villages are dry land farming which is called as “tegal” in the local language. Rainfed areas in Serah village is only 9.9 hectares or 9% of the total land, while in Surowiti village, the land is even narrower taking up 2% or 7.7 hectares of the total area of 374.50 hectares. Moreover, the area of land owned by farmers is very narrow with an average of 0.17 to 0.25 hectares. Due to the condition of the land, the productivity is so low that a decent life is difficult to achieve. People in the studied villages face various risks caused by the poor state of the physical environment, so they are forced to manage the incomes and resources or assets as well as to seek a variety of livelihood strategies in order to be able to meet their household needs.

Based on the aforementioned background about dry land farming condition in Serah and Surowiti villages, the research entitled “Social Capital Building and Sustainable Livelihood Strategies in Downstream Area of Bengawan Solo River, East Java, Indonesia” is conducted.

Research Objectives

This research has two objectives as follows:

1. Analyzing the social capital and other livelihood assets including the natural capital, human capital, physical capital, and financial capital of the people living in the villages of Serah and Surowiti, and
2. Analyzing the livelihood strategies preferred by the villagers in keeping their life sustainable.

Method

This is a descriptive research conducted in Serah and Surowiti village, in the District of Panceng, Gresik Regency. The reason for selecting these villages as research locations is because these villages are very dry regardless of their locations which are in the watershed area. The informants for this study consists of farmers and community leaders whose number was determined by the purposive sampling technique resulting in the total of 13 people from Serah village and 12 people from Surowiti village. This research used both primary and secondary data. The primary data were collected using in-depth interviews, Focus Group Discussion (FGD), and observation techniques. The secondary data were collected by using documentation. In-depth interviews and FGD were conducted to obtain the data or information related to how people used Bengawan Solo River. Documentation in this study refers to the retrieval of data or information derived from the records existing in the village office and the district office that mentioned the number of population, education, livelihood, diseases suffered, the number of institutional or social organizations, facilities, infrastructures and other livelihood assets found in the targeted villages. To investigate the status of community livelihood consisting of human capital, social capital, physical capital, natural capital, and financial capital, a qualitative analysis was conducted by applying the Likert scale. Lastly, a qualitative descriptive analysis was applied to investigate the life strategies selected by the

farmers in improving their welfare (Miles and Huberman, 1998).

Results and Discussion

Overview of the Researched Villages

The total area of Serah village is 109.40 hectares divided into four different designations, namely: rice fields (9.90ha), dry land (79.50ha), yard or housing (13.20ha), and others, i.e., rural roads and cemeteries (6.8 ha). The total area of Surowiti village is 374.50ha, consisting of rice fields (7.70ha), dry land (81.10ha), yards or housing (6.30ha), state-owned forest (272.30ha), and others, i.e., rural roads and cemeteries (7.1ha). Based on the explanation, it can be concluded that the villages are very dry because they are dominated by dry lands including state-owned forest.

The population of Serah village is 2,691 people consisting of 1,376 men and 1,315 women that belong to 537 households. In Surowiti village, the total population is 1,718 people consisting of 834 men and 884 women that belong to 353 households. Considering the widths of the area and the number of population in each of the researched area, it is noticeable that Serah village has higher population density than Surowiti village.

Social Capital and Livelihood Assets

Livelihood asset refers to the capability or the capital that sustains the livelihood of individuals, families, or communities. In this research, livelihood assets including human capital, social capital, natural capital, physical capital, and financial capital are presented.

a. Natural Capital and Infrastructure

Natural capitals in Serah village and Surowiti village cannot be categorized as sustainable because nearly 100% of their areas are dry lands. Besides, these villages have poor water supplies for both agricultural and sanitation

purposes during the dry seasons. Although the villages are relatively close to Bengawan Solo, their locations which are higher than the river make their inhabitants unable to use the river's water for agricultural purposes as usually expected from the villages which are located nearby a river. Consequently, the productive land area in these villages which has already been relatively narrow, taking up about 0.04 to 0.17ha in Surowiti Village and approximately 0.04 to 0.25ha in Serah village, has very low level of productivity as well.

In addition to agricultural land owned by the farmers, the villages' natural resource is the state-owned forests managed by the State Forest Company (*Perhutani*). The local people can make use of the forest by collecting the twigs of teak trees planted in the forestry areas and use them for household-firewood. Moreover, in Surowiti village, local villagers are allowed to rent and cultivate the forest land with crop plants like chili and medicinal plants like herbs. Each individual renting the land has to pay as much as IDR 2,000,000 to *Perhutani*. The planting of crops and herbs yields significant produce for the renting villagers and provide them with additional income to meet their everyday needs.

However, the facilities and infrastructures to support farming are still considered insufficient. Regarding the dry soil conditions, irrigation development for agriculture and daily household needs should have been given priority; however, the real condition in the field shows a contradictory situation. Moreover, the transportation infrastructure to support agricultural development is also very poor. Both the access road to the villages and the roads accessing the farming areas within the villages are in bad conditions. Fortunately, an official figure who has been serving as the head of Surowiti village for three years is fully aware of the importance of supporting facilities and transportation infrastructure for the village's economic development. Therefore, since three years ago, he has paid more attention to the road infrastructure in the village.

The road infrastructure in Surowiti village functions not only for supporting the agricultural development, but also improving the visit of religious tourists to the village. People visit the tomb of Sunan Kalijaga (one of Javanese Islamic leaders) which is located in Surowiti village on particular days and/or in particular month as part of a religious pilgrimage. Eventually, the increasing number of tourists who come to the village would increase the village income.

b. Human Capital and Natural Resources Management

Human capital refers to a workforce with the capability, skills, health, and experience that are utilized in adopting livelihood strategies in pursuing life objectives in synergic way (DIFD, 1999). In this research, the studied human capital indicators involve education/skills, employment, and health. The status of human capital in the researched villages is categorized as unsustainable as indicated by the farmers' low level of education. More than 50% of farmers only hold either primary or secondary education qualifications, while those who graduated from higher education (high school up to university) are very few. Non-formal education such as agricultural knowledge is rarely given. However, the health status of the research participants is classified as sustainable, meaning that they rarely suffer from serious diseases. In their opinion, it is not important to have higher education. Healthier body is much more important to them in order to get a better life because only by having a junior high school certificate and healthy body, they are considered qualified to apply for a job as Indonesian migrant workers (*TKI: Tenaga Kerja Indonesia*) who will work overseas (Malaysia).

The type of jobs done by the farmers in the research sites vary greatly, ranging from the sectors of agriculture, industry, construction, trading, and services with the highest number of people working in agricultural sector in their home village and in service sector overseas,

i.e., in Malaysia as migrant workers. The high percentage of the heads of the household (70-90%) who choose to work overseas (in Malaysia) is triggered by the small size of their farming land whose crop yields will certainly not be sufficient to meet their household needs. Considering that the availability of their human capital is better than natural capital, the villagers decided to work as migrant construction workers in Malaysia as brick-layers or construction labors.

Moreover, the research finding shows that the land is cultivated traditionally and it depends highly on the nature. Most of the villagers' farming knowledge is inherited, for example rice is grown using direct seeding technique (in Bahasa Indonesia: *Tabur Benih Langsung (Tabela)*). Using this *tabela* technique, upon the coming of the rainy season, the rice farmers sow the seeds directly on the rice field, leave them to grow, add fertilizers, and harvest the rice when ready. At the end of the rainy season and/or after the rice crops have been harvested, the field is cultivated once again to grow corn or chilies. During the dry season, the land condition is so poor that it cannot be cultivated due to the unavailability of water. The condition is worsened by the absence of the men or the heads of households who work as migrant workers, leaving the farming work to women and elder people.

A few years ago, there was a horticultural development program for mango plantation in Serah village. However, the lack of adequate dissemination and technical guidance for the local farmers caused the program to fail. In addition, insufficient supply of water for agricultural purposes became another main reason for the low response to the agricultural development by the villagers. More importantly, housewives in the village was too dependent on their husbands' earnings gained by working abroad (Malaysia) as migrant workers. This factor contributed significantly to their low response to agricultural development in this village. Shortly, the villagers generally consider

that agricultural development programs will fail in increasing their income significantly.

c. The Role of Social Capital to the Villagers' Economics

Social capital is a description in social networks that households use both formally and informally to be able to survive (Scoones, 1998; DFID, 1999). Social capital shows how households have interaction with other communities in their social environment. Using social capital, different households can increase mutual trust and reduce the work expenses since everything is carried out together (DFID, 1999). In this research, the social capital includes the existence of social institutions, people's participation in the institutions, functions and benefits of the institutions, and people's expectations of the institutions. In addition to the existing social institutions, this research also investigates the role of leadership or the role of the head of a village.

There are two social institutions found in the villages of Serah and Surowiti, namely mutual cooperation institution (called as *gotong royong*) and economic institution or financial institution. The existence of the two social institutions shows that there are mutual trust, solidarity, and mutual cooperation among the society members (horizontal relationship) in dealing with the financial and non-financial needs.

The existence of the *gotong royong* institution is shown by mutual cooperation or volunteerism activities called as *sinoman* (compassionate community service (for the death of family member)), mutual cooperation or volunteerism in holding social events and mutual cooperation or volunteerism in doing farm work. *Sinoman* has been found to exist in both villages since a long time ago. According to the information given by an informant, *sinoman* institution is unlikely to be disbanded because it provides significant contributions and benefits for the society members. When a family experiences a death of its family member, almost all the neighbours and relatives will help

this family by giving both moral and material supports.

Similarly, mutual cooperation or *gotong royong* in helping a family that holds a social event is still well-practiced in these villages. For example, when a family is about to throw a wedding party for their daughter or son, the neighbours will lend their hands voluntarily to do some cooking or help with the preparations of the party. The spirit of *gotong royong* or mutual cooperation is also shown by the migrant workers from these villages. The migrant workers donate as much as MR10 that equals to IDR 30,000 monthly. Their donations are used to finance the repair of roads, bridges or mosques as well as other public funding needs in the villages.

On the other hand, nowadays, the mutual cooperation or *gotong royong* in doing farming work has been gradually disappearing in both villages, meaning that the villagers do not voluntarily help their neighbours in doing any farm work. The mutual cooperation regarding farm work is limited to the family members. For example, married children who live in a different household from their parents will come to help the parents in doing farm work like seeding or harvesting. *Gotong royong* in doing farming activities has been continuously disappearing as a result of the Green Revolution movement in almost all Javanese villages in early 1970s. The development of the Green Revolution in the villages has led the farmers to be more rational and commercial including in the use of manpower in agriculture (Collier, et. al, 1974).

In terms of financial institution, a social gathering for rotating savings and credit associations called as *arisan* is very popular among the villagers, especially women, in the researched villages. *Arisan* is usually associated with the activities of National Women's Movement of Family Welfare Education (called as *Pembinaan Kesejahteraan Keluarga (PKK)*) or of religious teaching and learning forum known as *Majlis Taklim*. This financial institution is very helpful for women

who suddenly need big amounts of money. In addition to *arisan*, another financial institution existing in the villages is cooperative institution (called as *Koperasi*). Nowadays, the cooperative institution which is also quite popular among women in rural communities in East Java is women cooperative institution known as "*Koperasi Pakde Karwo*" (literally means Uncle Karwo's Cooperative Institution). *Pakde Karwo* is the nickname used by East Javanese people to address their governor. He launched the rural women empowerment program through the establishment of women cooperative institution in almost all villages in East Java that is considered as successful.

The establishment of cooperative institutions provide significant assistance for women to meet distinctive financial needs for paying their children's school enrolment, celebrating Eid, etc. Although cooperative institutions are available in both Serah and Surowiti villages, the existence and the dynamics of those institutions differ significantly in each village. There are seven cooperative institutions in Surowiti village because the villagers recognize the advantages offered by these institutions. Among the seven cooperative institutions, one of them is *Koperasi Pakde Karwo* and another one is a village-owned cooperation enterprise. In contrary, Serah village has a fewer number of cooperative institutions than Surowiti village. Also, the cooperative institutions in Serah village are less developed than those in the other village. The participation and expectation of Serah villagers in cooperative institution are relatively low because most housewives in Serah village do not have significant financial problems as they rely much on their husbands who work as migrant workers. Another contributing factor is the difference in leadership style found in these two villages. The head of Surowiti village actively encourages his people to participate in social activities like *PKK* and cooperative institutions, while the head of Serah village does not.

Considering the vertical relations between the people and the head of village, this research

found that the leader in Surowiti village has stronger leadership in cooperating with his people. The head of Surowiti village is very close to his people and promotes his people's involvement in running his programs. He has created a lot of programs in order to improve the villagers' welfare such as establishing cooperative institutions in every sub-village, giving trainings on automotive skills for school dropouts, and developing religious tourism. Therefore, it is not surprising to see this village eventually improve its condition.

However, the facts behind the achievement gained by the head of Surowiti village in developing his village are inspiring. The village of Surowiti was once categorized as an under developed village before the current head of village leads the village three years ago. The poor condition of this village motivated him to run for the head of village election expecting to have bigger authority to improve the village development and prosperity. In order to keep himself focusing on the development of the village, the head of Surowiti village was willing to leave his furniture business. He has already designed a working plan for the following thirty years in order to develop Surowiti village. By building cooperation with local government and private investors, he managed to build village roads and the village office, establish more cooperative institutions, and promote activities for women through *PKK* and various productive activities.

Livelihood Strategies and Households Welfare

Household livelihood strategy is the choice of livelihood activities carried out by households in meeting their needs. In this research, the livelihood strategies include survival strategy, consolidation strategy, accumulation strategy, diversification strategy, and utilizing social networks, family and government (White, 1991; Scoones, 2001). This research reveals that not all of those strategies were adopted by the farmers of Serah and Surowiti villages in meeting

their needs. In Serah and Surowiti villages, the farmers' strategy in fulfilling the shortfall of their household needs is dominated by the strategy of utilizing the social network of family by receiving remittances from family members who work as migrant workers overseas. If there is a delay in remittances sent by their migrant worker family members, they will take another strategy like borrowing some money from cooperative institutions or friends.

The strategy of borrowing money for dealing with difficult situations is common in villages. This is affected by social bond in the form of neighbourhood and relatives. According to Fu (2004), borrowing some money from a neighbour is based on the feeling of mutual trust which is an important element in social capital as this serves as element which can tighten the relationship among community members. Moreover, trust is expected in a community which shows normal attitude, honesty, and cooperation based on the shared norms which are applied for the sake of the community members' benefit. In addition to receiving remittances from family members who work abroad as migrant workers and borrowing money from cooperative institutions or friends, some household members also adopt the accumulation strategy by opening a small business at home like opening small stores selling household daily needs like rice, vegetables, and fruits. Some others, especially those quitting from working overseas, start a cattle business by raising cows and then selling them in the market.

Finally, family welfare is a condition when all physical and psychological needs of a household can be fulfilled based on the living standard (BPS, 2007). The welfare status or level can be measured based on the proportion of family expenses (BPS, 2000). A household can be categorized as a prosperous family when the proportion of the family's spending on primary/staple needs is equal or lower than the proportion of spending on extra/non-staple needs. On the other hand, a household is not considered as having welfare status when the

proportion of spending on primary/staple needs is higher than the proportion of spending on extra/non-staple needs.

Based on the welfare standard set by the Indonesian National Development Planning Bureau (*Bappenas*), the research finding discloses that, on average, the households in Serah and Surowiti villages are not at welfare status. The study reveals that in Serah and Surowiti villages, the average expenditure on primary/staple needs is IDR 1,394,160/family/month, while the average expenditure on non-primary needs is IDR 1,471,440/family/month. The average household income of IDR 2,560,920/family/month is actually insufficient in fulfilling the needs. However, considering that the social capital remains strong in these two villages, when a community member faces difficulties in fulfilling his/her household needs, s/he will soon be offered an assistance by his/her parents or siblings.

Conclusion

The condition of livelihood assets of Serah and Surowiti villages can be described as follows: the human resources aspect is categorized as unsustainable, the natural resources aspect is categorized as unsustainable, the physical resources aspect is categorized as unsustainable, and the financial resources aspect is also unsustainable. However, while the social capital resources aspect is unsustainable in Serah village, it is found to be sustainable in Surowiti village. Considering the unsustainability status, people in both villages adopt several livelihood strategies in pursuing sustainable livelihood. The most frequently used strategy is utilizing social network and family by having remittances from a family member (usually a husband) who works overseas as a migrant worker. Another alternative strategy is consolidation strategy which is applied by opening a small store selling daily needs and borrowing some money from neighbors, relatives, and/or cooperative institutions.

Suggestion

In order to improve the utilization of natural and physical resources and the quality of human resources, the coordination, integration, and synergy between community members and stakeholders play very important roles, especially when the community empowerment is done by the “outsiders” i.e. either the government or the private investors. Dialogues and information disseminations should be conducted prior to the implementation of any program. In general, the efforts in improving the utilization of natural resources and physical resources can be done by applying agricultural intensification like providing irrigation, supplying clean water, and improving the road access and transportation system. Meanwhile, the improvement of human resources can be achieved by providing non-formal education in the form of disseminations of agricultural knowledge targeting not only male but also female farmers and trainings in skills other than farming.

Acknowledgements

The authors extend their gratitude to the local government of Gresik Regency for funding this research and to communities in research sites for providing abundant information. Hopefully, this study can enrich the addressed field of science and become a source of recommendations for the government policy in the development of community based on social capitals.

References

- BPS (Badan Pusat Statistik). (2000). *Gresik Dalam Angka*. Gresik: BPS.
- BPS (Badan Pusat Statistik). (2007). *Kabupaten Gresik Dalam Angka*. Gresik: BPS.
- DFID (Department for International Development). (1999). *Sustainable Livelihood Guidance Sheet*. London.
- Fu, Q. (2004). Trust, Social Capital, and Organizational Effectiveness. *ejournal*.

narotama.ac.id.

- Geertz, C. (1983). *Agriculture Involution : The Process of Ecological Change in Indonesia*. Berkeley, Los Angeles, and London: University of California Press.
- Graaf, H. d., & Pigeaud, T. (2001). *Kerajaan Islam Pertama di Jawa : Tinjauan Sejarah Politik Abad XV dan XIV*. Jakarta: PT. Pustaka Utama Grafiti. Cetakan IV.
- Hefner, R. W. (1999). *Geger Tengger : Perubahan Sosial dan Perkelahian Politik*. Yogyakarta: LKIS.
- Kostov, P., & Lingard, J. (2001). *Integrated Rural Development : Do We Need A New Approach?* Ancona, Italy. Retrieved 04 29, 2016, from [www.iiste.org>index.php>JEDS](http://www.iiste.org/index.php/JEDS).
- Lombart, D. (2000). *Nusa Jawa : Silang Budaya, Warisan Kerajaan-Kerajaan Konsentris*. Jakarta: PT. Gramedia Pustaka Utama.
- Miles, M. B., & Huberman, A. M. (1992). *Analisa Data Kualitatif : Buku Sumber Tentang Metode-metode Baru*. Jakarta: Universitas Indonesia.
- Mubyarto. (2002). *Pemberdayaan Ekonomi Rakyat dan Peranan Ilmu-ilmu Sosial*. Yogyakarta: Yayasan Agro-Ekonomika.
- Odum, E. (1971). *Fundamentals of Ecology*. Philadelphia: W.B Saunders Company.
- Reid, N. (2004). “Community Empowerment: A New Approach for Rural Development”. *Rural Development Perspectives*.
- Sajogyo. (1974). *Modernization Without Development in Rural Java*. A Paper Contributed to the Study on Changes in Agrarian Structure, FAO of UN. *Bogor Agricultural University*.
- Scoones. (2001). *Sustainable Rural Livelihood : A Frame Work for Analysis*. *IDS Working*, 72.

- Thijsse, T. P. (1982). *Apakah Jawa akan menjadi Padang Pasir?* Jakarta : CV. Rajawali.
- Tjondronegoro, S. (1977). The Organization Phenomenon and Planned Development in Rural Communities of Java : A Case Study of Cibadak District, West Java and Kendal District Central Java. *University of Indonesia*.
- White, B. (1991). Economic Diversification and Agraria Change in Rural Java 1900-1990. *Royal Tropical Institut Amsterdam*, 41-49.
- Yuliati, Y. (2011). *Perubahan Ekologis dan Strategi Adaptasi Masyarakat di Wilayah Pegunungan Tengger (Suatu Kajian Lingkungan Berperspektif Gender)*. Malang: UB Press.
- Yuliati, Y. (2012). *Gender dan Lingkungan : Model Pemberdayaan Perempuan Tani di Kawasan Hutan*. Malang: Danarjaya.
- Yunus, H. S. (2006). *Megapolitan Konsep, Problematika dan Prospek*. Yogyakarta: Pustaka Pelajar.