The Strengthening of Social Capital in Flood Disaster Preparedness in Jebres District, Surakarta

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Abstract. This study was aimed to identify social capital in communities living in flood-prone areas and analyze the role of local communities on flood disaster preparedness in Jebres District, Surakarta City. This study used a qualitative approach in which the research subjects were people living in flood-prone areas. Informants were selected purposively consisting of government officials, key figures, representatives of non-governmental organizations and community representatives. Data was taken through in-depth interviews with communities in 4 areas affected by floods every year in Jebres District, namely Jebres, Gandekan, Pucang Sawit and Sewu Subdistricts. The results of the study showed that there had been a strengthening of social capital in four research areas with different characteristics. Strengthening social capital helps in planning flood disaster preparedness actions by building relationships and networking that are based on beliefs and norms that live within the local community which can lead to action initiatives and are useful to reduce the impact of floods for the sake of survival.

1. Introduction
Flood disaster is a threat for both the society and the social activities. Furthermore, the flood disaster risk is increasing in various locations due to the massive development in floodplain area [1][1]. Changes in land use into built-in areas can increase the risk of flood disasters caused by changing run-off characteristics and drainage pathways[2]. This condition is exacerbated by the occurrence of climate change where several places experience changes in the frequency of rainfall[3]. Floods that occurred in several areas in Jebres District were caused by the high intensity of local rainfall and the presence of water supplies from Karanganyar, Wonogiri, Sukoharjo, and Klaten, besides that some of the Jebres area was on the riverbank[4].

Preparedness in facing floods helps the community to form and plan what actions need to be taken when flood happen. Success in handling and evacuating from floods depends highly on the preparedness of both the community and the individual. The community could be better prepared and the negative impact caused by the disaster could be reduced if the society has an attitude of preparedness. Social capital as an indicator of flood disaster preparedness has an important role, especially for people living in disaster-prone areas. In addition to structural risk reduction steps, it is necessary to strengthen non-structural steps. Social capital as "an element that have two characteristics; the aspect of social structure and facilitating the actions of individuals in the social structure" [5] has elements in the form of social relations (cooperation behavior, loyalty, wisdom and local knowledge), social institutions (associations, networks, and social leadership) and effective values or norms (tolerance, sympathy,
trust, honesty) that can be used appropriately to generate social contracts, social responsibility, independence, and participation. Social capital is the ability that arise from the existence of trust in a community. [6].

The capacity of the community to carry out adaptation strategies in dealing with flooding is to form groups or communities in society, especially in flood-prone areas that aim to deal with floods. The emergence of communities that have social awareness indicates the enactment of the values of survival and overcoming problems that depend on the independence of the community. Social capital provides an important role in the stage of the disaster risk management cycle, both in pre- and post-disaster conditions.

People who live in disaster-prone areas will instinctively have a culture to adapt and survive with certain local wisdom. The interaction between humans and the environment will give rise to a unique culture as a reflection of the interaction relationship between the two. Social capital is needed in flood disaster preparedness because it allows mutual trust, mutual understanding and mutual bonding in shared values in society. Social capital in society can be seen from the level of trust, norms, and networks. Referring to in Putnam in Lili Wang.[7]

Identification and strengthening of social capital in the community is very important in the context of flood disaster preparedness to reduce disaster risk. Thus, the identification and strengthening of social capital in flood disaster preparedness in Jebres District, especially in the 4 most flood-affected subdistricts, namely Jebres, Pucangswat, Gandekan and Sewu, is very useful in the context of flood risk reduction. This study was aimed to identify the forms of social capital that exist in flood-affected areas and in which direction the role of social capital should be improved in order to elevate the flood disaster preparedness in Jebres District, Surakarta City. The research framework can be described as follows:

![Diagram](attachment:figure1.png)

**Figure 1.** Strengthening Social Capital and Flood Disaster Preparedness

Coleman in Ayu K [8] states that social capital is the ability of people to work together, in order to achieve common goals, in various groups and organizations. This social capital enables mutual trust, mutual understanding and mutual bonding in shared values in society. Cohen and Prusak in S Ada.[9]. The dimension of social capital emphasizes on the community togetherness in achieving the goal to improve the quality of life, thus, the society needs to develop several values, such as: participatory attitudes, mutual attention, giving and receiving, and trusting each other. The dimension of social capital describes everything that makes communities allied to achieve common goals on the basis of togetherness, and in them are bound by values and norms that grow and are obeyed[10]. Referring to Ridell in Muhammad[11] and Putnam in Syahra [12], there are three parameters of social capital, namely trust, norms and networks. Healthy communities tend to have strong social networks. People know and meet other people. They then build deep relationships, both formal and informal[13].

According to Coleman in Syahra[12] social capital is established based on its functions. Social capital is productive, which enables the achievement of several objectives that cannot be achieved
without its existence. The forms of social capital according to Coleman [12] are obligations and expectations, potential information, effective norms and sanctions, relations of authority, social organizations that can be adjusted and deliberate organizations. Social capital can be created, nurtured, and damaged by the consequences of decisions made by the individuals themselves.

Preparedness is an action taken to anticipate a disaster to ensure that the actions taken can be carried out appropriately and effectively during and after a disaster. The paradigm shift in Indonesia, which began in 2007, with the issuance of Law Number 24 of 2007 concerning disaster management, has gradually evolved. The implementation of disaster risk management is also gradually being strengthened starting at the national level to the local level. The Disaster Management System also continues to be strengthened, not only by the government, but also by community institutions and the business world. In the 2015-2019 RPJMN, the target of disaster management is to reduce the Disaster Risk Index at the centers of economic growth. As a disaster management coordinator in Indonesia, BNPB has set a target of reducing the Disaster Risk Index to 30% by 2019. The strategy undertaken is to increase disaster management capacity in the regions (districts/cities) by involving multistakeholders including academics and disaster experts. Progress in mitigating disasters is inseparable from the role of the community as the vanguard of change in both paradigms and actions.

2. Methodology
This research was conducted in Jebres District, Surakarta City, Central Java Province, which included four subdistricts that were frequently affected by floods. Data collection was taken through in-depth interviews with communities in each flood affected area. The research subjects were all people living in flood-prone areas in Jebres District. Research informants were determined by using purposive sampling technique, taken people who really knew about community social capital in flood disaster preparedness strategies. They are representatives from the community, community leaders or key people in the research area, relevant communities in handling river and flood problems and local governments. Qualitative descriptive data analysis was used in analyzing the data.

3. Result and Discussion
Jebres District is one of 5 Districts in Surakarta with an area of 1,258 ha. Based on the RBI 1408-343 Surakarta map, the area is located between 7°31’41” SL to 7°34’37” SL and 110°49’42” EL to 110°52’08” EL and floods every year during the rainy season due to some of the Jebres area is on the riverbank. The floods in Jebres District were caused by several factors; the areas which are on the riverbank, the high intensity of rainfall, the presence of water from various regions around the city of Surakarta and the overflowing of the Bengawan Solo River.

Another factor that causes flooding is the low level of public awareness in disposing of garbage. On Wednesday, November 29, 2017, Solo, Kompas.com wrote that rain poured down the city of Solo, Central Java, from Tuesday morning to night, making a number of houses near Pepe River, the tributary of the Bengawan Solo River, inundated, such as Sewu, Pucang Sawit, Gandekan, Semanggi, and Pasar Kliwon subdistricts. Inundation height reached 50 centimeters to 1 meter. In Gandekan subdistrict there were 143 families, consisting of 572 people whose houses were flooded with water from Pepe River and residents were forced to flee. Flood in Jebres, especially in Gulon RT 05/RW 21 began to enter the house with a height of about 20 cm. Water in Pucang Sawit flooded RT 03/RW 06, RT 03/RW 08, RT 03/RW 04, and RT 02/RW 09. Thirty eight families in Kampung Sewu were affected by floods. Water entered homes in Putat RT 02/RW 03. In Jebres subdistrict, flooding occurred in Gulon RT 4 and RT 5 and Mipitan Sewu. The flood submerged Gandekan area. The overflowing of Pepe and Buntung rivers was due to a high rainfall intensity. The drainage channel which was supposed to flow to the Pepe River could not pass due to garbage plugged. Water overflows at Gandekan because the area is in the lowlands. Likewise floods that occurred in the Sewu area, which is on the banks of the river, floods in Pucang Sawit, and Jebres occurred due to overflowing of the Bengawan Solo tributaries and poor waste management.

The flood in Jebres District had caused changes both physically and non-physically. Physical changes made by the community can be seen in the changes in housing construction, as happened in
several area in Sewu which were affected by floods as one of the patterns of adaptation to face the threat of flooding. Non-physical changes can be seen in changes in social capital, namely trust, norms and social interaction. Floods that occur almost every year in several areas in Jebres District have shown a change of trust in the community. This can be seen especially when disasters occur.

Communities help each other in evacuation, moving valuable objects to a safer place and guarding from irresponsible people. Trust can also be seen from the smoothness in the process of distributing logistics assistance to people affected by floods. The cooperative attitude of the riverbank residents could be seen in their willingness to be relocated, though there are still few people who don't want to be relocated. There is openness to the presence of outsiders who assist in evacuation and assistance. Societies that have weak social ties are vulnerable to conflict.

The residents of Jebres District responded to the danger of Flood Disaster by uniting the strengths of both structural and non-structural with the development of social capital in community-based flood disaster preparedness. Communities can participate and work with various disaster preparedness institutions. Social capital in flood disaster preparedness appears in the form of communities with programs to empower the society to take action in reducing the impact of disasters that occur. The disaster alert community can be an early detection system. If natural disasters occur, they have recognized and can take actions to reduce the impact of disasters. People who have high social capital tend to work together, feel safe to speak and are able to overcome differences. Conversely, people who have low social capital will appear to be suspicious of each other, separating "our groups" to "their groups", the absence of legal certainty and social order, and often the arise of misunderstandings.

From the changes in norms that exist in flood-affected communities, a disaster prepared community was established in Sewu, Gendakan and Pucang Sawit Subdistricts, called SIBAT. While for the Jebres Subdistrict there is still no such community. In Jebres subdistrict, especially for Gulan RT 4 RT 5 and Mipitan Sewu, floods have not been handled properly, this is an evident of the absence of disaster preparedness. Communities are weak in terms of coordination during pre and post floods. Not so in Sewu Subdistrict, SIBAT in Sewu has been established since 2015 and has developed very rapidly and most advanced compared to other Subdistricts. SIBAT as a Disaster Preparedness Community in Kampung Sewu has strength and proactive actions in preparing for floods, making Kampung Sewu a strong village for floods.

In the dynamic infrastructure of social capital in the form of collaborative networks that facilitate communication and social interaction is seen in the strong collaboration of SIBAT and several other organizations or communities that support each other in strengthening social capital in flood disaster preparedness. Floods have led to social movements at the grassroots level. The emergence of local communities shows horizontally a link of movements among local residents and vertically a liaison between local residents and the government. Local communities build awareness of citizens to strengthen networks among their own citizens, for example the SEWU SIBAT who plays a role in giving assistance to flood victims also provides education and training to the community about flood disaster preparedness and mitigation. Cooperation began between communities and civil organizations and government organizations, including SIBAT, PMI Surakarta City, PJT I and BBWS Bengawan Solo, so that there was an increase in flood preparedness in the community. Based on the study above the strengthening of social capital in flood disaster preparedness in Jebres Subdistrict is very much needed to give direction to flood-affected areas that are still weak in building out networks and do not yet have local communities.

4. Conclusion

Strengthening social capital in flood disaster preparedness in Jebres District, Surakarta City appears in form of trusts, norms and social networks. In the dimension of trust there are still people who are weak and not well organized. There is a lack of trust between members of the community themselves and the government's response which is often considered unprepared in taking tactical and strategic steps. In the norm dimension, community togetherness during floods is very strong but in pre and post of flood, it actually decreases in some areas even though local community groups are still exist. While in
certain regions it has been strengthened by programs related to flood disaster preparedness. In the dimension of social networks, the community began to have an awareness of the importance of building social networks in an effort to deal with flood disaster preparedness which was marked by the emergence of post-flood local communities. Strengthening social networks builds relationships and increases the role of community organizations in overcoming floods. The strengthening is in the form of providing counseling and training to the community about flood disaster preparedness.

References
[1] Sagala S, Wimbardana R and Dodon 2014 Adaptasi Non Struktural Penduduk Penghuni Permukiman Padat terhadap Bencana Banjir: Studi Kasus Kecamatan Baleendah, Kabupaten Bandung Resil. Dev. Initiat. 1–19
[2] Cahyadi A and Setyaningrum A 2017 Peranana modal sosial (sosial capital) dalam pemenuhan kebutuhan air domestik di kwasan karst gunungsewu (studi kasusu di dusun Gemulung, desa Ngposari, kecamatan Semanu kabupaten Gunungkidul provinsi Daerah Istimewa Yogyakarta Ina. Pap. 1–7
[3] Banjir K and Di L 2016 ESTIMASI DAMPAK PERUBAHAN IKLIM TERHADAP VEI vs Tahun Kejadian Erupsi Gunungapi 162–9
[4] aosgi 2017 Separuh Kelurahan di Surakarta Rawan Banjir BPBD Surakarta
[5] Coleman J 1988 Social capital in the creation of human development Am. J. Sociol. 94 95–120
[6] Fukuyama F 1995 Trust: The Social Virtues and the Creation of Prosperity Few York Free Press. 1995. xv., 457 pages
[7] Wang L and Ganapati N E 2018 Disasters and Social Capital : Exploring the Impact of Hurricane Katrina on 99
[8] Kusumastuti A 2015 Modal sosial dan mekanisme adaptasi masyarakat pedesaan dalam pengelolaan dan pembangunan infrastruktur Masy. J. Sosiol. 20 81–97
[9] Ada S 2010 THE IMPORTANCE OF SOCIAL CAPITAL IN EMERGENCY MANAGEMENT : Sosyal Sermayenin Acil Durum Yönetimindeki Önemi : Bir Yazin İncelmesi Örgütsel Öğrenme Personel Balikesir Univ. J. Soc. Sci. Inst. 13 172–85
[10] Cahyono B and Adhiatma A 2012 Peran Modal Sosial Dalam Peningkatan Kesejahteraan Masyarakat Petani Tembakau Di Kabupaten Wonsobudhi Conference In Business, Accounting and Management (CBAM) vol 15 pp 786–90
[11] Muhamad R A T, Sekarningrum B and Yusar 2017 MODAL SOSIAL DALAM PENANGGULANGAN BENCANA BANJIR (Kasus di Kabupaten Bandung, Jawa Barat ) Prodi Sosiologi, Fakultas Ilmu Sosial dan Ilmu Politik, Universitas Padjadjaran . Prodi Sosiologi, Fakultas Ilmu Sosial dan Ilmu Politik, Universitas Padjadja SOSIOGLOBAL J. Pemikir. dan Penelit. Sosiol. 1 101–14
[12] Syahrir R 2003 MODAL SOSIAL : KONSEP DAN APLIKASI Perkembangan Konsep Modal Sosial J. Masy. dan Budaya 5 1–22
[13] Suharto E 2008 Modal Sosial dan Kebijakan Publik 1–16