

Conference Paper

Community Involvement in Sekolah Sungai

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Abstract

This study aimed to describe the forms of community involvement in the Sekolah Sungai program. As a social institution, Sekolah Sungai needs support from all parties to tackle the range of problems in the Winongo River and thereby lower the disaster risk. A descriptive qualitative approach was used in this study and data were collected through interviews, observation, and documentation analysis. The results showed that there were two elements of community involvement: 1) contribution: community involvement in the forms of energy, notions, funding and provision of Sekolah Sungai facilities; and 2) attitude. Various forms of community involvement were aimed at maintaining the existence of the program. Without the involvement of the community in the process of building awareness, this program would not have been successful. The involvement of the community allowed Sekolah Sungai Winongo to maintain its existence and provide benefits to the surrounding communities in its efforts to reduce disaster risk and act as a water quality control agent along the Winongo River.

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1. Introduction

The existence of a river in the middle of people's lives is like two opposing sides of a coin. On one side, the river's existence in the community can be useful as a source of life. The benefits of having rivers include the fulfillment of daily necessities, irrigation sources, power plants, transportation facilities, and tourism, which is trending now. Although there are many benefits that a river can offer, unfortunately, a river may become a threat as well, posing a high risk of disasters along the river flow such as floods or landslides. This is what community members on the banks of the Winongo River are facing. The risk of disaster is increasing as the problems affecting the flow of river are adding up. Thus, awareness of the people dwelling on the banks of the rivers becomes an important asset to handle risks of various disasters in their vicinities.

River is essentially a habitat for human and fauna life, so it needs to be viewed as a space for biodiversity existence and life that must be preserved. However, rivers in Indonesia are currently experiencing severe environmental damage due to human activities, being a garbage and waste disposal or converted into land to provide space for



human activities. Thus, the decline of the function of the river is conversely proportional to the increased risk of disasters.

Disasters are not new for Indonesians who always witness a great number of disasters that have occurred in this archipelago. Almost every year, disasters terrorize people, from earthquakes, tsunamis, volcanic eruptions, landslides, floods, hurricanes, and so on, becoming news in the national mass media. For example, floods are always a problem when the rainy season arrives. Flood is a seasonal disaster that always occurs, especially in urban areas and Yogyakarta is no exception.

Accordingly, people in the city of Yogyakarta should have vigilance and awareness regarding disaster risks, namely the ability to mitigate disasters: to prevent, and handle things during and post-disaster. Disaster mitigation is a series of efforts to lower disaster risk, both through physical development as well as developing awareness and improving capability to handle threats from disaster. Disaster mitigation is an activity that serves to lower the impact of a disaster, or an effort made to reduce casualties, in terms of lives and property, when a disaster occurs.

Disasters are unexpected events that often threaten the lives of Indonesian people. Various disasters, both natural and non-natural, have ravaged the territory of Indonesia, ranging from earthquakes, volcanic eruptions, hurricanes, tsunamis, droughts, landslides, fires, and floods. Disasters do not appear out of the blue. Many things, natural or non-natural, can cause those disasters. Lack of awareness and community roles in the protection of the surrounding environment can also heighten the disaster risk level in the future. Public knowledge and concern toward the importance of clean environment and river flow is lacking, as shown by the fact that garbage is heaping in several parts of many rivers. The excessive amount of waste in the river leads to the slow flow of water and the low capacity of the water, which will make water overflow and flood the areas around the river. Impaired river flows are a shame because rivers have a strategic role as a natural resource that supports people's lives [1].

Public concern is vital for the realization of a clean river, although natural disasters such as erosion will still occur. Land erosion from upstream basin, carried away by the flow and creating sediment in the riverbed, also causes the river to overflow. The rate of soil erosion is accelerated by land uses, such as conversion of forest into wet and dry agricultural fields and housing. Changes in land coverage can disrupt the rainwater absorption process by the river so that the soil will be easily eroded by rainwater, creating erosion and sedimentation [2].

Reflecting on the existing potential disasters, disaster mitigation processes were carried out in several areas of Yogyakarta, especially along the Winongo River. From

this activity, the community's awareness emerged with the appearances of river school (sekolah sungai) communities, and those communities were expected to be the spearhead of the disaster risk management. Suratman (2016) states that the implementation of Sekolah Sungai is very urgent to be carried out in order to answer the needs of the community. The reason for such urgency is because Indonesia has now been under the threat of a water crisis, and this crisis may incite food crisis, energy crisis, and others. Sekolah Sungai does not obtain its name from its location, which is on the banks of a river. Neither does it get its name from its teaching and learning activities which are carried out near the riverbank with its free or open nature. However, Sekolah Sungai's name comes from one of the community's manifestations of the condition restoration of the rivers in the environment [3]. With the presence of Sekolah Sungai, it is expected that it will be able to restore the functions of the river, starting from triggering the community awareness to dispose garbage properly, reducing the amount of chemicals thrown to the river, and planting aquatic plants to restore the river ecosystem.

2. Related Works/Literature Review

The emergence of the threat of an ecological crisis is one factor which encourages people to save the ecosystem in the surrounding environment, including people's lives. Education is a very strategic effort to encourage environment-saving movements or activities. Sekolah Sungai, as one of the learning media in the community, is an effort to raise public knowledge regarding the risk of disasters or threatening ecological crises. Sekolah Sungai that stands in a certain ecosystem provides an opportunity for a direct learning process. Students (the younger generation) have a direct contact with the local environment which becomes a medium of learning as well as a place to learn. A direct physical contact with the nature provides an in-depth experience on the inner relationship between human and nature. Human's multisensory closeness to nature must always be built as a condition and strategic foundation for the achievement of life and sustainable development [4].

Sekolah Sungai is an effective and strategic way to prepare the community and the environment to face a water crisis. A mutual, symbiotic relationship needs to be built between the community and the river as a part of saving the environment. Sekolah Sungai is the embodiment of one of the 17 SDGs (sustainable development goals), number 14: "Life below Water - Conserve and sustainably use the Oceans, seas and marine resources for sustainable development" [5]. The point is to save and conserve water in the seas and oceans and marine resources in a sustainable manner for sustainable

development. On the world scale, water has received attention in an effort to maintain the sustainability of the planet earth. Therefore, it is essential to properly manage water in rural and urban areas and around human settlements. This means that water in rivers is important for the preservation of the ecosystem of human life in rural and urban areas.

Sekolah Sungai is a place to instill awareness and knowledge, skills, and community care for management of rivers and reduction of risk from flood. Mitigation education through the Sekolah Sungai program is defined as a community development effort which cares for rivers and environment. People who have participated in the Sekolah Sungai program are expected to become pioneers who disseminate the knowledge they attained during their participations in a series of Sekolah Sungai programs to their families and the wider community around them [6].

Sekolah Sungai is a form of effort to provide education about the importance of rivers and their management to foster awareness of the existence and condition of rivers. This activity will be carried out in collaboration with various stakeholders, including the community, government and agencies, academics, non-governmental organizations, communities, private sector, youth, and children. The goal is to build a transfer of knowledge and experience regarding the community-based river management. Aside from indoor education, there will be field activities as well. Participants are given the opportunity to actively participate and contribute, with the community living around the river, to river management education activities. These activities are aimed at improving the participants' abilities in river management. The results of this activity are expected to create new actors who can carry out the community-based management of river, as well as participate and actively contribute in the preservation and sustainment of rivers in their surrounding environment.

The existence of Sekolah Sungai would be meaningless if there were no support or involvement from a wider community. Over time, population growth in the city of Yogyakarta is getting higher so that people are slowly starting to move to riverside areas. The population on the river banks, which is getting denser, will more or less impact the main function of the river. Thus, it has triggered initiatives from both the government and the community to develop Sekolah Sungai whose aim is the improvement of the quality of the existing river functions so rivers will not cause disasters in the future. Community-based education in Sekolah Sungai is expected to be able to sway the community behavior to the restoration of the main function of rivers as water sources, not as a threat to society.

Risk of disasters and ecological crises in rivers is the reason for good river school management. Community/ environment-based learning such as Sekolah Sungai is important

because it provides the ability and knowledge of the community regarding environmental and socio-cultural issues and so on. The community-based education model, which is based on the concept of “from, by, and for the community” is considered to be able to live in the midst of community life. This concept shows that community involvement is the main indicator of the Sekolah Sungai program implementation.

This research was conducted to determine the community involvement in Sekolah Sungai Winongo, which is located in the Bener Village, Tegalrejo District, Yogyakarta City. Community involvement or participation is very important for the survival of the Sekolah Sungai. Without the involvement of the community, undoubtedly Sekolah Sungai will encounter difficulties in carrying out its programs, especially in disaster mitigation programs. *Adi (2007)* states that participation is basically the community roles in the process of problem identification, decision making, implementation, as well as involvement in the evaluation of problem solving [7]. From this statement, it can be interpreted that community involvement takes shape as participation by the community which responds to the threat of potential disasters on the Winongo River banks. Disaster management efforts are a community development process, so that the people involved are local communities based on a particular area. “... Community participation implies the participation of the disempowered. Ideally, it would involve people who have little or no access to basic education as a community, geographical area or gender.” [8]

Public awareness is observable from the level of community involvement or participation in supporting activities aimed at tackling the risk of disasters stemmed from the existence of rivers. *Adi (2007)* states that community participation is community involvement in the process of identifying problems and potentials in the community, selecting and making decisions about alternative solutions to dealing with problems, implementing efforts to overcome problems, and community efforts in evaluating the occurring changes [9]. Community involvement is a manifestation of awareness in overcoming potential disasters through the process of identifying, overcoming, or finding solutions to various problems related to river. The role of the community does not only manifest in the form of material support, but also ideas, motivation, and ongoing cooperation [10]. This statement confirms that community participation or involvement can be in the form of thoughts, motivation, or synergy to support the efforts on risk management for areas along the river.

The existence of Sekolah Sungai, which cannot stand alone in the midst of the hustle and bustle of public life, is an attraction for the author to conduct research. Sekolah Sungai’s needs for community involvement in disaster risk management efforts are absolute. Reflecting on this, this study focused on the community involvement

in the management of Sekolah Sungai Winongo in Bener Village, Tegalorejo District, Yogyakarta City.

3. Material & Methodology

The research used in this study was descriptive qualitative. This qualitative research is a study intended to reveal symptoms in a holistic-contextual manner by collecting data from a natural setting using the researcher as a key instrument. Qualitative research is descriptive in nature and tends to use analysis with an inductive approach. Process and meaning (subject's perspective) receive more emphasis in qualitative research.

This research was conducted at *Sekolah Sungai Winongo*, which is located in Bener Village, Tegalorejo District, Yogyakarta City. The research's choice of location, in *Sekolah Sungai Winongo*, was due to the existence of *Sekolah Sungai* which is under the management from, by, and for the community in an effort to create a harmony between the community life and the surrounding environment on the Winongo riverbank. In an effort to obtain data regarding community involvement in this *Sekolah Sungai*, researchers collected data through interviews, observations, and documentation.

The data analysis method used in this research was qualitative descriptive analysis, namely analysis resulted from detailed presentation and description of the previously clarified data and the analysis of the dynamics between existing events through scientific logic. Most of the data resulted from this analysis were obvious and objective descriptions of community involvement in *Sekolah Sungai*. Meanwhile, the triangulation used in this study was triangulation from different data sources available in the field. Through this technique, the researcher ensured the validity of the data obtained through cross check. By crosschecking the data obtained from interviews and observation, it could be concluded that there were problems that needed to be reviewed or re-checked.

4. Results and Discussion

The existence of a clean, safe, and sustainable river would not have been possible without the management from the surrounding community. The habit of the majority of people, which is to still treat rivers as a dumping ground and a dirty, useless place, makes the river's condition worse. The residents of Bener village, which is located adjacent to the Winongo river, are no exception. At first the community still viewed the river as an unusable land which could only serve as a garbage dump. Such actions slowed

down the river flow and reduced its capacity. The problems peaked in 2016, when the Winongo River flooded the Bener village. This disaster triggered the community to implement river management in order to reduce the risk from disasters that always lurk during every rainy season.

One of the efforts made by the community was their initiative to establish the *Sekolah Sungai Winongo*. Such initiative emerged as a follow-up to the community activities which aimed to manage the river so it could benefit the community, instead of being a threat to the people. Community learning by *Sekolah Sungai* is considered to be able to accommodate the needs of community to learn the river management as well as the disaster mitigation process. This need surfaced as river flows in urban environments were already heavily impaired, presenting the risk of flooding in the upper river basins. The *Sekolah Sungai* initiative process was certainly not easy because each participating member of the community had different ideas, as AGN revealed:

“At first, many opposed, because we were considered only a project-based community. Yes, we started educating the public, what are the dangers of getting too close to the river? As time went by, people became aware because they saw a dirty river, lots of garbage and floods occurred.” (July 2020).

The emergence of *Sekolah Sungai* as a new institution in the community certainly sparked various responses in the community, considering that the process of public education by *Sekolah Sungai* did not only learn about the flows of river, but also discussed the community habit of disposing of garbage and waste in rivers which was the target of *Sekolah Sungai* education. However, gradually the community accepted *Sekolah Sungai*'s existence as they saw that its program was for the good of the community living around the river. This is confirmed by MUL's statement, as one of the *Sekolah Sungai Winongo* managers:

“... at first it was tough, sir, but over time some community members started offering support through funding, providing places, or personnel for river school activities.” (July 2020).

Support from the community allowed *Sekolah Sungai* to implement various auxiliary programs for the river management process. Synergy with the community was shown through preventive actions to build community awareness of the importance of river management and structuring to reduce disaster risk. This was further explained by END:

“We see that the cause of flooding is the habit of people who often throw garbage in the river. Thus, we traced the need for waste management in the community. So we initiated training activities in the waste management, regeneration of human resources, and education related to environmental pollution that is harmful to river ecosystems.” (July 2020).

Various activities were carried out by *Sekolah Sungai* to invite the community to get involved in the waste management, aiming to break the causal chain of flood associated with the habit of dumping waste or trash to the river by the community around the river. The implementation of waste management could be a way to raise public awareness to support a clean river.

Over time, *Sekolah Sungai*, collaborating with several institutions such as Walhi, BLH, BNPB and universities in Yogyakarta, could find various problems existing in the Winongo River such as the amount of waste that disrupts the function of the river, water pollution from household waste, and so on through *biotilik* program. According to Ecoton (2011) the word *biotilik* is derived from the words “bio” and “tilik” which means the use of living things (bio) to view or monitor the environment (tilik) which is synonymous with the term biomonitoring. *Biotilik* is also an acronym for *biota tidak bertulang belakang indikator kualitas air* (invertebrate indicator of water quality), which is synonymous with macroinvertebrates. *Biotilik* has been widely used in various countries as a biological indicator for monitoring water pollution and determining the health of river ecosystems, and has been established as a key parameter in water quality monitoring, in addition to physical and chemical parameters of water quality.

TABLE 1: Assessment of River Pollution Level by Amount of *Biotik* and EPT

River Pollution Level	Indicator	
	Types of Biotik	Types of EPT
Unpolluted	> 13	> 7
Slightly polluted	10 - 13	3 – 7
Quite heavily polluted	7 - 10	1 – 2
Heavily polluted	< 7	0

With the *biotilik* indicator module, the community was invited to observe directly and measure the quality of river water in the vicinity. Having been able to measure the river water quality, the community was expected to be encouraged to improve the water quality of the Winongo River. Equipped with the results of the measurement, *Sekolah Sungai* invited all community components and stakeholders to implement the river management in order to restore the function and quality of river water. It is necessary to do that because without the involvement of all components of the

community, the river management program cannot run well. Therefore, it is essential to have the community involvement in the *Sekolah Sungai* management as to support *Sekolah Sungai* sustainability. The existence of community involvement in *Sekolah Sungai* was stated by END who emphasized that:

“In an effort to invite the community, we try to make breakthrough programs such as the Merti Kali activity which is carried out once a year in collaboration with BLH, there are still biotilik activities that invite children from the environment around the river or students from several schools that have collaborated with us, as well as related learning activities, waste management, disaster mitigation asking for help from local youth as facilitators.” (July 2020).

Sekolah Sungai Winongo managers were aware that without community involvement, the dream of realizing the *Winongo Wisataku* tagline in 2030 will be difficult to achieve. Therefore, various forms of community involvement are always appreciated so that the *Sekolah Sungai* program can continue to run. Hermawan and Suryono (2016) state that community involvement is classified into two forms, namely; (a) physical, i.e. material and work, and (b) non-physical, namely ideas. Participation is also classified into two, namely physical and non-physical [12]. Aminah and Prasetyo (2018) state that community involvement is divided into several aspects, namely; aspects of contribution, responsibility, and attitude [13]. Meanwhile, community involvement in *Sekolah Sungai* takes place in the form of energy, thoughts, materials, and the provision of facilities and infrastructure to support the realization of community learning activities through *Sekolah Sungai*. The forms of community involvement in river schools in this study are classified as follows: 1) aspects of contribution; and 2) attitude aspect.

Contribution from community involvement in *Sekolah Sungai* is available as personnel, thoughts, facilities, or funds. Meanwhile, community involvement in the form of attitude is shown by the community's positive and negative responses regarding the existence of *Sekolah Sungai*.

Aspect, as a contribution to community involvement in *Sekolah Sungai*, is the most prominent in *Sekolah Sungai* management, considering that this institution has the principles that *Sekolah Sungai* is an institute from, by, and for the community. The community is the most contributory element in *Sekolah Sungai* management in terms of personnel, ideas, funds, and provision of facilities. Contribution in terms of energy and thoughts can be seen from the involvement of the community in organizing *Sekolah Sungai* activities, as proven by the fact that there are a lot of community members who

serve as managers or facilitators of *Sekolah Sungai* activities. Those people directly sacrifice their energy and thoughts for *Sekolah Sungai*'s sustainability. The involvement of the community in terms of energy and thoughts was also explained by AGN as follows:

"Sekolah Sungai, of course I personally really support it. Here I am also directly involved as a facilitator of activities at the Sekolah Sungai. Moreover, I also took environmental studies, a Sekolah Sungai program in accordance with my field." (July 2020).

In addition, the community has also contributed facilities for learning activities, such as a secretariat, study rooms, equipment, and green open spaces around the 2nd floor of one of the managers' houses is used by *Sekolah Sungai* as the secretariat and study rooms. Meanwhile, the green open space on the sides of the river is often used by the community for discussions or community gatherings. The gazebo, located on the riverbank, can be used by residents to support economic activities, so that they voluntarily look after the gazebo.



Figure 1: *Sekolah Sungai* secretariat

Funding is a problem to consider by social institutions such as *Sekolah Sungai*. Without funding, all activities will certainly be difficult to run. Therefore, the contribution by the society in the form of funding is very vital. *Sekolah Sungai Winongo*, which upholds the principles of the management from, by, and for the community, always strives to raise funds such as looking for donors or seeking assistance from external parties such as companies or the government to support *Sekolah Sungai*'s access and activities. For example, the existence of a connecting bridge and a gazebo around the *Sekolah Sungai* secretariat was the result of efforts by the managers and residents who received assistance from the government to improve the access and infrastructures, and the availability of access and infrastructures directly impacts the existence of *Sekolah Sungai Winongo*.

Apart from the contribution aspect, the next form of community involvement is the attitude. Community involvement in the aspect of attitude is tangible from the community



Figure 2: Green Open Space



Figure 3: Connecting bridge

response to the *Sekolah Sungai*. Various responses were shown to the presence of *Sekolah Sungai* which more or less changed the structure of community life around the Winongo River. Some members of the community directly supported *Sekolah Sungai*'s existence, but there were also people being apprehensive about *Sekolah Sungai*'s existence.

The different responses shown by the community existed because the community members of the Winongo River, either directly or indirectly, were affected by this *Sekolah*

Sungai program, especially the people who owned lands closest to the river. Those landowners were the most affected by the arrangement process initiated by the *Sekolah Sungai* program. Regarding the public response to the existence of this *Sekolah Sungai*, it was explained by END as follows:

“We, people who live along the Winongo river, are members of FKWA (Forum Komunikasi Winongo Asri (Attractive Winongo Communication Forum)). Thus, from areas upstream to downstream there are communities caring for this river, from Sleman, across the city of Yogyakarta, to Bantul. Each community has its respective duties, for example in Sleman. Sleman is located upstream so their task is conservation, while in Bantul, the community provides a fish sanctuary. Now, here, in the city which we are responsible for, the river environment is already dense. So our task is to rearrange it through M3K (mundhur munggah madhep kali (move farther, move higher, and face the river)). But the rearrangement process is difficult. People didn’t want to change until the 2016 flood disaster hit.” (July 2020).

The community who had been around the river for decades already felt safe and for this very reason those people, who became the subject of the arrangement, decided to hold their ground. However, after the flood disaster in 2016, the community began to realize the importance of the arrangement program initiated by *Sekolah Sungai*. Gradually the program known as *M3K* was able to rearrange the environment, instill awareness into the people so they did not throw garbage or waste into the river, and opened access on the banks of the Winongo River which more or less enabled the revival of the community’s economy.

Programs from *Sekolah Sungai* are suitable and beneficial for the community, especially in minimizing the risk of disaster. Accordingly, such benefit becomes the reason for the community to support those programs. This support is a form of community participation in *Sekolah Sungai*, as confirmed by Remiswal’s (2013) statement which emphasizes that participation is the willingness of the community to voluntarily help the continuity of programs by both local and government-initiated programs.

The awareness-building process by *Sekolah Sungai* requires the presence of the community. Without this presence, the launched program cannot run well. This point is expressed by Alfitri (2011) who states that community participation is a tool to obtain information about the conditions, needs, and attitudes of local communities; without that presence, development programs and projects will fail [14].



Figure 4: River drainage basin environmental arrangement

The various forms of community involvement are aimed at maintaining the existence of *Sekolah Sungai Winongo*. In an effort for community development, community involvement in a program serves as a means or goal (Ife & Tesoriero) [15]. From one point of view, community involvement is a way to continuously maintain the existence and sustainability of the program. On another point of view, community involvement can also be viewed as the goal of a program, seeing that this involvement allows the community to synergize to achieve a better life. Therefore, with the involvement of the community, it is hoped that *Sekolah Sungai Winongo* will increasingly exist and be able to provide advantages to the surrounding community in efforts to reduce disaster risks and as an agent for water quality control along the Winongo River. In this sub section, the results of this work are presented.

5. Conclusion

The existence of the Winongo River amid the people of Bener Village, Tegalrejo District, Yogyakarta City is an advantage but also a threat. The advantages of living around the river flow are, for sure, a source of life for the surrounding community. However, living near a riverbank also has a high risk of disaster, especially during the rainy season.

The establishment of *Sekolah Sungai* in the midst of community life is expected to be able to provide contribution to the surrounding community. Community involvement in *Sekolah Sungai* is an important point for the dissemination of benefits by *Sekolah*

Sungai for the community around the Winongo River. The form of community involvement in *Sekolah Sungai Winongo* is classified into two terms, terms of contribution and attitude aspects.

The aspect of contribution is the involvement of the community in the forms of energy, ideas, funds and provision of facilities. Meanwhile, the attitude aspect is the community involvement in the form of their responses which are shown as the community support for the *Sekolah Sungai Winongo* program. Without the presence of the community in the awareness-building process through *Sekolah Sungai*, the launched program cannot run well.

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