

River Conservation as a Representation of Environment-Friendly Community Movement

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Abstract. River as main water source is used to meet daily life and activity needs of surrounding people, just like Code River of Yogyakarta. Therefore, the river conservation attempt is a common responsibility for all elements: community, regional government, and industry. This research aims to study activity of conserving Code River as a representation of social movement caring about environment. This exploratory research took place in Jetisharjo, Yogyakarta, because some river conserving activities are held by citizens and Pemerti activists affiliated with culture-based Code River conserving group selected using purposive sampling, involving the organizer of river school and Code Village Exploration, Yogyakarta City's Environment Office, NGO, environmentalist, and academician. Data was collected through observation, in-depth interview, Focus Group Discussion, and documentation, validated using source triangulation, and analysed using Frickel and Arancibia's new social movement theory. The result shows that the river conserving activity to keep nature clean involves cleaning Code River through removing rubbish contaminating the river, planting tree in the Code Riverbank to maintain the ecosystem balance around the river, educating the people about waste management, recycle, and plastic use reduction, constructing landfill, supervising pesticide use around the river, and promoting vegetable planting to maintain river water quality.

1 Introduction

River is a natural resource playing important role in human life. River not only provides clean water for daily needs but also contributes to maintaining the ecosystem balance, so that river conservation is important to do to ascertain the sustainability of natural resources [1]. Some Asian and Pacific states actively hold river conservation through various collaborative programs and activities between institutions and communities, supported with state budget [2]. A variety of river conserving activities conducted by community and government, such as cleaning river periodically and maintaining vegetation around the river are effective because vegetation help maintain river fertility and prevent erosion [3].

Indonesia is still faced with various bitter realities on the worrying river condition because of high-level river pollution. Republic of Indonesia Minister of Living

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Environment and Forestry's Decree in 2018 about Pollution Load Capacity shows rivers with high pollution load rate, including Ciliwung, Cisadane, Citarum, Bengawan Solo, Brantas, Kapuas and Siak Rivers, so that government designs river conservation program [4]. Citarum River has severe pollution of 54%, moderate pollution of 23%, and mild pollution of 20% and only 3% of water do meet standard quality. The factors causing pollution mostly to come from domestic pollution such as domestic waste and rubbish resulting from industrial activities [5]. Cisadane River extending from Bogor to Tangerang is on the 4th class or the lowest class order of water quality. Water pollution in Cisadane River is caused mostly by domestic (83.99%), industry (8.39%), animal husbandry (3.94%), farming (2.46%), infrastructure and service (0.71%), and fishery (0.51%) factors [6].

The complex environmental problem initiates the appearance of environmental movement or environmentalism, including conservationist, policy campaigners, and mobiliser. Environmental movement or environmentalism results from the impact of environmental crisis occurring in almost all regions damaging not only environment but also humans surrounding. The role of non-governmental actor is based on disappointment with the government less responsive to the environmental damage occurring [7]. Environment protection will politically resolve discordance of ecocentrism and anthropocentrism in ecologism to protect and care about environment in relation to the obligation to the future generation including using anthropocentric methods to achieve the ecocentric objectives. Organized irresponsibility points to a series of cultural and institutional mechanisms through political and economical elites effectively encircling the origins and the consequences of catastrophic risks and hazards resulting from advanced industrialization [8].

Code River dividing Yogyakarta City has initiator and Pemerti activists affiliated in a culture-based Code River conserving group. Pemerti Code is a community in Code Village that gathers people along the river who care about the sustainability of the Code River. Jetisharjo, Yogyakarta is developed into tourist village using ecotourism sector's creative approach to conserve Code River [9]. This research aims to study Code River conserving activity conducted by citizens and *Pemerti Sungai Code* as the representation of social movement caring about environment.

2 Research method

This exploratory research was conducted in Jetisharjo, Yogyakarta because some river conserving activities have been held by people around Code Riverbank, and *Pemerti* activists as the culture-based Code River conserving group. Informants were selected using purposive sampling technique. Data were collected using observation, in-depth interview, Focus Group Discussion and documentation. The informants of research consist of Jetisharjo people, and organizer of river school and Code Village exploration, Environment Office of Yogyakarta City, community caring about river, NGO, environment observer and academician. Data were then validated using source triangulation technique and analysed using an interactive model of analysis [10].

3 Results and discussion

Jetisharjo located in Code Riverbank under Sarjito Bridge, Yogyakarta is developed continuously. A number of colourful flowered polybags decorate the village streets. A small garden is built near a stall reading *Welcome to Kampung Code Riverside* in the front side. A big-sized bird cage is also built under the bridge to contain *jalak uren*, *merbah cerukcuk*, and *gelatik Jawa* birds. These birds can fly short distance inside the cage and

perch on the plants growing there. Their sound emulates that of vehicles passing over the cage. Jetisharjo is also developed into tourist village [11].

In Code River, there are initiator and *Pemerti* activist affiliated in a culture-based Code River conserving group. The community caring about Code River comprises upstream, middle, and downstream [12]. The activities include, among others, removing the rubbishes from the river flexibly, particularly plastic rubbishes when they pile following flood. In addition to the river cleaning activity, an attempt is also taken to maintain the river ecosystem through banning the activities that can damage it, such as fishing using poison, electrocution, and so on. Particularly downstream section is located in Wonokromo, exactly Jejeran Hamlet. This activity is also intended to make river an environment educating medium to children through constructing educational garden [9].

The management of environment to keep it conserved is carried out through ecotourism sector's creative approach. Many tourists are interested in visiting Code River and make it a favourite destination. They are interested in going along the river, visiting the villages located in the riverbank, and even staying there. This program is implemented to river school and Code Village exploration through travelling three-kilometre distance to go along Code River. However, some improvement is still needed to prepare tracking routes as only few sections are shady and green (40% greenary), even in Gondolayu to the north there is almost no shading tree [13].

Almost 3,500 tourists have visited Code River, including public, domestic and foreign tourists, students, regional government employees, and researchers. There are six homestays in Jetisharjo that can accommodate both domestic and foreign tourists [14]. Meanwhile, river school is an educating means in which various groups, including regional government and activists, are interested. The materials delivered in the class include ecosystem-based ecological river management, river regulation, regional regulation, and meteohydrology-based law of river and disaster. The community-based spring management system is demonstrated in the field. There are some springs in the form of shower, *belik* (seep) or *sendang* (source) utilized for bathing and other purposes by the people since a long time ago. Even some springs historically had been used by Court Princess to take a bath, e.g. Jetis Pasiraman or bathing place. The springs are managed through a process of collecting, pumping, raising, and then distributing them to the people's houses in Jetisharjo and currently 152 houses can be served by this system, through utilizing three spring points with the flow rate of about six litres per second [15].

In addition to utilizing springs, tourists are also introduced with a community-based waste management (from waste sorting to composting) and then disaster management models such as early warning, evacuation, and community's initiative to construct soup house. This activity involves surrounding people. There are several Disaster Resilient Villages on the banks of Code River, but some people still throw rubbished into the river through pipes and dispose waste through rainwater pipe, because they have no solution so that they need government's contribution. Several liquid waste processing installations (Indonesian: *Instalasi pengolah air limbah* or IPAL) on the river banks have limited capacity so that only very few rooms can be constructed; therefore this problem needs intense discussion [12].

There is a Non-Government Organization holding a teaching program called River School (Indonesian: *Sekolah Sungai*) initiated by Project Child Indonesia since 2015 in RQ 06 [15]. This program is intended to kindergarten and primary school students. About 40 children engage in this program. This NGO is voluntary in nature and held once a week every Wednesday in a resident's house. People are so collaborative that allow the Project Child Indonesia to use their house to implement this program. Code River's tourist attraction generates other residents' initiatives. The implementation of tourism activity

always involves the participation of people living on the riverbank, for example, *mancing bareng* (fishing together) event. This annual event changes the villages into tourist villages.

The result of research shows that the activity of conserving Code River to keep the nature clean includes, among other, cleaning Code River through removing the rubbishes dirtying it. This activity involves the people surrounding Code River participating in this cleaning program. To keeping the river clean, some formal regulations are also enacted to impose sanction against the people catching the fish using poison. Trees are planted in the edge of Code River to maintain ecosystem balance around the river. The trees planted can reduce soil erosion and maintain river stability. Planting tree is one of obligations the people should comply with to prevent their houses from land sliding and drifting away to river area. Having planted trees, the people's obligation to the river is to take care of the trees in house environment.

Education is given to the people living around Code River concerning the appropriate waste management to prevent river pollution. Education is also given concerning recycling and reducing plastic use. Landfill (Indonesian: *Tempat Pembuangan Akhir Sampah* or TPA) is managed well to contain the sorted rubbishes to prevent them from contaminating the river. Despite sounding trivial, the habit of disposing rubbish in the appropriate place is very important to do, unless the river can be the victim and a disposal place leading to the inhibited water flow. Another adverse effect on the river is flood. In addition, fish can die, and it harms the people themselves. The construction of TPA 3R (Reduce, Reuse, Recycle-landfill) is intended to reduce, reuse, and recycle rubbishes and to prevent them from polluting the river [16].

The waste collecting channel is installed around Code River to collect rubbishes before they are carried away by river current. The supervision of pesticide use around Code River is intended to avoid river pollution due to pesticide hazard use. Human's obligation to the river is to restrain from catching fish using poison. If left unchecked, it will endanger the river ecosystem and water quality. A program of promoting vegetable planting in the edge of river is held to reduce pesticide use and to maintain the quality of river water.

River is the main source to meet human's needs for water. Many people rely on river for fulfilling their need for clean water, but the concern for river has not grown well yet inside everyone. It can be seen from the pollution occurring in the river, including rubbish disposal to the river. Not only the government should maintain river cleanliness and conservation, but the people should also have concern and awareness of managing and conserving the river in their region. Jetiharjo people in Jetis Yogyakarta conserve Code River through holding routine activities everyday. River Care Community (Indonesian: *Komunitas Peduli Sungai*) has held a series of activities to attract the people's attention to the importance of clean water in the life, aiming to grow an attempt of conserving and managing water source either qualitatively or quantitatively to achieve sustainable life. The series of activities are expected to encourage the people to conserve water resource, particularly in creating water condition and quality for the better life. Water is a renewable resource, meaning although the water is used it will never be used up, but sometimes irresponsible human acts lead to the scarcity of clean water. Water should be conserved and saved; therefore, people should maintain water sources because it is uncertain that water will be enjoyed like it is now in the next 50 years [1].

In relation to the regulation, Indonesia has attempted to create a clean and beautiful river and implemented some programs focusing on the acceleration of river pollution control, such as the establishment of water quality monitoring station, integrated waste management, industrial pollutant load reduction program, and implementation of law enforcement support. This strategic target is expected to be achieved through some actions: pollution control, integrated waste management, and community empowerment and partnership.

4 Conclusion and recommendation

Environmental movement for river conservation is a social and political movements directed to conservation, restoration, and improvement of living environment quality through public education, advocacy of lifestyle change, community planning improvement, monetary economic change and state policy reformation. Awareness, influence, and environmental organization getting more varying socially and thematically in the community characterize a principal social movement. The attempt of conserving river environment should be supported by various elements of community, activists and government. One of important attempts is to apply art to educate the people according to their knowledge and economic levels. Improving the people's awareness of the importance of maintaining river cleanliness and conservation is expected to create a better and sustainable environment.

Acknowledgment. This work was supported by grants from the Non-State Budget Funds Universitas Sebelas Maret Indonesia Fiscal Year 2024 Number: 194.2/UN27.22/PT.01.03/2024.

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