

Environmental Communication of *Gerakan Ciliwung Bersih* for Downstream Communities

Hidayaturahmi¹, Djuara P. Lubis², Soeryo Adiwibowo³, Hariadi Kartodihardjo⁴

¹ IPB University and hidayaturahmi_amy@apps.ipb.ac.id

² IPB University and djuaralubis@gmail.com

³ IPB University and adibowo3006@gmail.com

⁴ IPB University and hariadi@apps.ipb.ac.id

ABSTRACT

A social movement is becoming a phenomenon along with development. Most of the social movements relate to environmental issues. River management issues among downstream communities have been increasingly raised as the problems of the river arise. This study aims to identify the social movement of downstream communities for the Ciliwung River and to analyze the communication development model of *Gerakan Ciliwung Bersih* (GCB) for downstream Ciliwung communities. This study used mixed methods, conducting a survey supported by interviews and observation. The results of the study found that the downstream communities have a different focus on Ciliwung social movement. It depends on the characteristics of the geography and their communities. Secondly, the communication development model of downstream communities mostly focuses on networking development as this influence most public participation in environmental actions. The study recommends collaboration between downstream and upstream communities as the issues of the Ciliwung River cannot be overcome partially between upstream and downstream areas. Finally, networking development as the communication model of the communities has to be combined with the city, capacity development, and organizing communities.

Keywords: Environmental Communication, Downstream Communities, Social Movement

1. INTRODUCTION

Indonesian government has implemented many regulations in the management of the Ciliwung River. In the period 1960-2000, no less than 33 regulations have been enacted (Wibowo, 2013). About 69.69% of these were issued by the central government, while the remaining 33.30% came from local governments. However, these regulations have not effectively overcome the river's problems. It is believed that the involvement of individuals with the same understanding to act collectively can optimally overcome the problem.

Individuals who move within the framework of common understanding are needed (mutual understanding) to act in movements that answer problems and complaints. Olson in his book entitled 'The Logic of Collective Action' mentions that individuals tend to participate in unions, social movements and revolutions, and activities based on collective action if they believe they will gain an advantage over not participating. In essence, individuals are more likely to participate because they enjoy the benefits of participating (Jasper 2010).

According to Sen & Avci (2016), the green poor environmental movement become one of the reasons for the birth of a social movement; 'With the occurrence of these social movements arose the question, why social movement is born and grow'. The social movement towards environmental issues is an interesting thing for individuals to get involved in because of the strategic impact that will arise if collective action is not carried out on environmental issues that occur.

The government's technocratic approach, such as the plan to build a dam in the Ciawi area, is also considered unable to solve long-term problems if it is not supported by ecosystem restoration in the upstream Ciliwung area. It is not enough to just deal with the land use change and

reconstruction of the area along the riverbank. Based on the flood cases that occurred in 2002 and 2007, the total rainfall that could not be absorbed was 62.3%, resulting in a maximum discharge of up to 525 cubic meters per second. This condition implies that the central government has not consistently implemented several regulations related to river management, including Government Regulation (PP) Number 38 of the Year 2011 about Rivers and Government Regulation Number 26 the Year 2008 about National Spatial Planning which regulates river management and river boundaries. Likewise, the Regional Government is also considered not to be able to fully manage the river optimally (Sigit, 2015). There is a gap between government regulation and the participation of all stakeholders involved. It is not a small number to mention how many communities' movements have been involved in solving the Ciliwung River problems. But the question that should be addressed is whether all the movements have already put the best strategy to apply their solution.

This study identifies the question: How does the social movement of the downstream communities for the Ciliwung River? What is the model of environmental communication of *Gerakan Ciliwung Bersih* for downstream communities?

2. LITERATURE REVIEW

2.1 Social Movement

Social movements are rational, directed, and organized actions. Social movements have conditions including being carried out by two or more people, reflecting collectively, and being oriented towards change (de la Porta & Diani 2006). Social movements are considered organized but informal social entities that engage in goal-oriented extra-institutional conflicts. There are two main elements in social movements, namely campaigns (having a long term and managed through public efforts that create common targets), repertoire (as tactics from groups implemented in certain socio-political environments), and WUNC (Worthiness, Unity, Numbers, and Commitment) which is an intensive effort from participants in social movements to show themselves and their support to citizens (Tilly in Carty 2015).

The nature of social movements according to Touraine (1985): 1) Social movements are always defined as social conflicts by their opponents; 2) In certain types of society there is only one central pair of conflicting social movements; 3) The plurality of conflicts is ascribed to the identification of social movements as opposition movements or popular movements that oppose the "social order". In contrast, popular social movements cannot be separated from ruling-class social movements, and only their conflicts can be considered as the centre of social movements; 4) There is a long tradition of identifying social movements and political action as organized actions aimed at controlling state power; and 5) Social movements, in a narrow sense, represent conflicting attempts to control cultural patterns (knowledge, investments, ethics) in a particular type of society.

Social movement becomes a distinct social process, consisting of mechanisms through which actors engage in collective action in several forms:

1) Collective action conflicts

Social movement actors engage in political or cultural conflicts intended to promote or oppose social change. Thus, addressing a collective problem, producing a public good, or expressing support for some moral value or principle does not automatically correspond to social movement action. The latter requires the identification of a target for collective effort, specifically articulated in

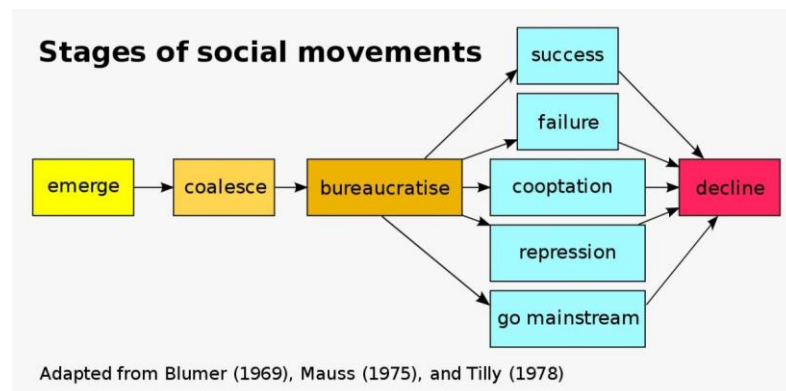
social or political terms. Conversely, when collective action focuses exclusively on the behaviour of certain individuals, then it is difficult to speak of a social movement process.

2) Dense informal networks

Dense informal networks distinguish social movement processes from the innumerable instances where collective action occurs and is coordinated, mostly within the boundaries of a particular organization. A social movement process is when individual and organized actors, preserving their autonomy and independence, engage in a continuous exchange of resources to achieve common goals. The coordination of specific initiatives, the regulation of individual actors' behavior, and the definition of strategies all depend on permanent negotiations between individuals and organizations involved in collective action. Therefore, more opportunities arise for highly committed individuals to play an independent role in the political process than if the action were concentrated in formal organizations.

3) Collective identity

Social movement processes only occur when a collective identity develops, which goes beyond specific events and initiatives. Collective identity is strongly linked to recognition and the creation of connectedness (Pizzorno 1996). It brings a sense of common purpose and shared commitment to a cause, which allows one to consider themselves closely linked to other actors, not necessarily identical but certainly compatible, in a broader collective mobilization (Touraine 1981).



Source: Christiansen 2009

In the process, social movements do not necessarily emerge and grow solidly. But it undergoes a metamorphosis of several stages:

- 1) Emergence, the first stage of a social movement is known as emergence. In this stage, the social movement is very early and there is little or no organization. At this stage, people tend not to take any action to redress grievances over disagreements with some policies. Or if they have the opportunity to address, it is likely to be done as an individual action rather than a collective action.
- 2) Coalescence, the social movement has overcome some insurmountable obstacles. Often, it occurs through social unrest or discontent without organizing or through massive mobilization/ At this point, leadership and strategies are sought. The most important is the

stage where the movement becomes organized and strategic. At this stage, individuals begin to participate and behave.

- 3) Bureaucratization, it is characterized by higher levels of organization and coalition-based strategies (De la Porta & Diani, 2006). In this stage, social movements have some success in raising awareness to coordinate across all social movement organizations. Similarly, social movement organizations will rely on specialized staff who can run daily activities and implement movement goals.
- 4) Decline, the last stage in the social movement cycle is decline or institutionalization. The decline does not necessarily mean failure. But this can be decreasing in terms of intensity and relationship.

2.2 Environmental Communication as Development Communication

Environmental communication is a scientific discipline that is the development of communication science. In its development, communication becomes a science that develops in various fields. Because of the nature of communication that forms the basis of interactions between individuals, as seen in some of the previous definitions of communication. One area of communication developed in environmental communication.

Pezzullo and Cox (2018) define environmental communication as 'The pragmatic and constitutive modes of expression, the naming, shaping, and negotiating, of our ecological relationships in the world, including those with nonhuman systems, elements, and species'.

Environmental communication aims to provide an overview of how communication choices can affect environmental quality and how to describe the relationship between humans and nature through human communication, art, symbols, and others (Cox 2010). This study looks at the development of communication from the perspective of communication, information, and education as seen from four factors, namely: 1) Advocacy; 2) Network development; 3) Community organizing (community organizing); and 4) Capacity building.

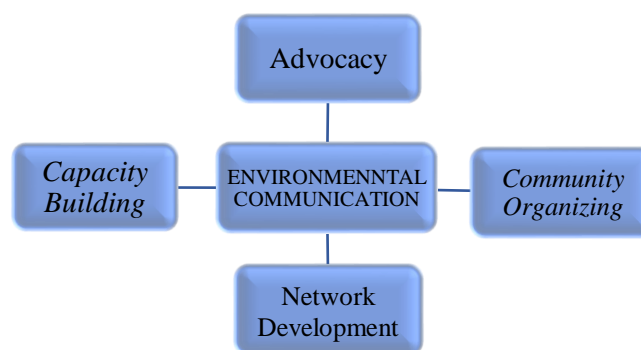


Figure 1 Environmental Communication Model (processed from Lubis *et al.* 2007)

Advocacy is a process that is strategic in nature and directs various activities that are designed appropriately for stakeholders and policymakers (Lubis *et al.* 2007). Advocacy is one way to campaign environmental messages. Advocacy is defined as initiatives taken by individuals or groups to influence critical decisions in social, political, and economic terms.

In another definition, advocacy is emphasized as a process of speaking on behalf of individuals and groups of victims that aims to bring about system changes. This advocacy is often associated with mobilizing potentially affected individuals and organizations/institutions to participate with advocates/accompanists in carrying out campaigns. Advocacy focuses on strategic programs and attempts to change policies by mobilizing the direct environment and indirectly shifting normative social support. In another definition, Servaes and Malikho (Wilkins et al 2014) say that advocacy is a key term in development discourse, which has the goal of encouraging public policies that encourage problem-solving or programs. In a study, advocacy activities to be able to change people's behaviour can be carried out through several activities, namely political lobbying, seminars/presentations, and media advocacy (Zainal 2018).

Community organizing is an effort so that people have a forum and media to discuss and make decisions on the problems they face and look for resources that can be used to solve these problems (Lubis et al 2007). The community organizing approach is usually used in community development activities where community groups are used as a forum for reflection and action with other community members. This community organization can be formed in stages at the community level, between communities at the village level, between villages at the sub-district level, and so on up to the national and even regional levels (Lubis et al 2007). Cox (2010) suggests that social action is the type of activity that involves the public directly, which is one way of organizing the community. This social action is intended to influence certain behaviours through social actions. A study identified forms of community organizing activities carried out in two programs, namely program planning and program implementation (Pradana, Sucipto, Ishaq 2016). This form of program planning is then implemented in the form of program socialization, organizational structure formation, and training planning to be carried out. Meanwhile, the implementation of the program includes the process of preparing work mechanisms, facilitation assistance, and assistance with funding sources.

Network development is a partnership with other parties (individuals, groups, or organizations) to be able to support each other in achieving goals. The most important element in network development is mutual trust, which is an important element of social capital which is an important component in community development. Individuals and communities that have good networks will experience better development than others (Lubis et al 2007). Network development can also be done by expanding the formation of community groups. The greater the development of the network formed, the stronger the existence of the community will be. Community groups aim to move people to act by mutually agreed goals (Cox 2010). Network development in communication requires a common understanding of information from actors involved in communication by using patterns or models that can connect individuals or between individuals and groups, with the principles of interpersonal communication and group communication (Hasanah 2017). The implementation of this model includes teamwork building, collaboration, and partnership at the local, national, or international levels.

Capacity building is an effort to increase community capacity in all fields, including advocacy, self-organization, and network development. Capacity building is a form of public education that aims to influence social attitudes and behaviour (Cox 2010). Capacity building includes three things, namely increasing or changing the behaviours of individuals, organizations, and community systems in achieving the stated goals effectively and efficiently. Increasing individual abilities

includes changes in terms of knowledge, attitudes, and skills (Lubis *et al* 2007). The capacity building becomes a strengthening effort for a community based on its values and priority needs and organizes its members to carry out capacity building independently. A study found that forms of capacity building can be carried out with a focus on increasing the ability to access information, the ability to interact, and the ability to utilize information (Oktavia *et al* 2017). Another study found that about capacity building in an organization, it is done by increasing knowledge, increasing leadership, the ability to build cooperation, and information management (Sihotang, Dewi, Riasih 2017). The implementation of this model includes dissemination, workshop, training and development.

3. METHODS

This study uses quantitative and qualitative approaches. This used two types of data collection, primary data, and secondary data. Primary data was collected through surveys and in-depth interviews with selected sources. The type of interview conducted in this study is a semi-structured interview, where the researcher has prepared the questions to be asked. The key informants selected in this study varied from the government and Ciliwung communities'. Secondary data in this study were obtained through document review and observational studies. Document review is carried out through program and activity reports as well as other documents related to the Ciliwung River program. Observation studies are carried out by looking at the phenomena in the meeting activities of community groups, as well as the results of activities and products.

4. RESULTS AND DISCUSSION

The downstream area of the Ciliwung River is the largest of the total length of the Ciliwung River. Its length is about 117 km from the upstream area to the downstream area. Based on the administrative area, the Ciliwung watershed includes the upstream, middle, and downstream areas: a) The upstream part includes Bogor Regency and parts of the Municipality of Bogor; b) The central part includes Bogor Regency, Bogor Municipality, and Depok City; c) The downstream section includes the Municipalities of South Jakarta and Central Jakarta, West Canal, Central Jakarta, West Jakarta, and North Jakarta Municipal areas (Ridlo, 2017).

Therefore, the problems faced by the Ciliwung River community downstream are considered to be more problematic. One of them is the quality of the water in the Ciliwung River which flows into the downstream area tends to be of very low quality compared to the river flow in the upstream area. Out of a total of 36 communities along the Ciliwung River, the number of communities in the downstream area is around 18 communities. However, there are not many communities that are still actively carrying out the program and activities to preserve and improve the Ciliwung River. This study chose 3 communities in the downstream segment as the focus of research: Mat Peci, Gema Bersuci, and Lentera Ecoprint.

Mat Peci (Masyarakat Peduli Ciliwung)

Mat Peci is a community formed by people who have the same views regarding cleanliness, beauty, beauty, and environmental sustainability as well as watersheds. Mat Peci was founded in Jakarta on January 11, 2009. The vision of the Mat Peci community is realizing community independence in preserving the environment and watersheds (DAS). To reach this vision, Mat Peci has several missions: 1) increasing public awareness and participation in protecting and preserving

the environment and watersheds (DAS); 2) building an environmentally conscious society and creating a clean, beautiful, green and beautiful environment as one of the manifestations of environmental preservation, enrichment of natural oxygen and clean air production, reducing the impact of waste and air pollution, as well as the impact of global warming; 3) Supporting the improvement of the quality of an adequate living environment, disaster risk reduction and climate change adaptation; 4) building partnerships with the community, government, the business world, the world of education, and the mass media in an effort to protect and maintain the sustainability of the environment and watersheds; 5) Making watersheds as icons of green areas and nature conservation and biodiversity educational parks as a medium of communication and information for the public in the interests of nature conservation and conservation, and 6) Building motivation and participation in order to develop the potential of the community to play an active role in saving and preserving the environment and watersheds in a sustainable and sustainable manner.

As part of a social movement concerned with the preservation of the Ciliwung River, Mat Peci has launched an activity program that refers to two aspects, namely the main activity program and the field activity program. The main activity program is divided into several zones known as zones 1 to 3 and non-zones:

Zone 1: Ciliwung River School

Programs in Zone 1 areas focus on Ciliwung River school activities. This activity aims to provide an introduction and practical experience regarding rivers and river management and the use of equipment in rivers, their functions, and uses. In addition, river school activities also include cleaning up trash, tree planting, and verticulture and hydroponic installations, as well as providing education related to natural-based disasters.

Zone 2: D' Green Camp & Recreation

In the activity zone, the focus is on biological-based activities and open nature tourism. These activities include Outdoor activities in the open nature of camping care for the environment, camping ground and outbound supporting facilities, arboretum development and preservation of bamboo areas, water Education and water breeding, biodiversity: Several findings of animals found in the Ciliwung River and commitment to protecting biodiversity in Ciliwung, and ecotourism of Ciliwung rafting, and water rescue team for carrying out evacuation and rescue training activities for drowning victims in Ciliwung in flood preparedness.

Zone 3: Ecoriparian Ciliwung

Zone 3 focuses on Ciliwung ecoriparian activities. Programs in Zone 3 include jogging track-initiated infrastructure development in the Ciliwung Ecoriparian Area, educational Saung on Compost Processing and Composting Activities for residents to process organic waste, urban farming activities with vegetable crops on the banks of the Ciliwung, domestic Wastewater Treatment and Sanitation Installation

Non-zona (Climate Village Program)

In addition to the three zones above, there are also types of activities that are not based on zones, which are called non-zones or climate village programs. This activity includes several activities that interest the community, namely: the arrangement of Thematic Parks in the Ciliwung Watershed

Climate Village, Conservation and food security, and education and community development: disaster preparedness villages, creating volunteer cadres for preparedness in assisted areas, disaster management program Asia Pacific forum in collaboration with disaster agencies, research activities with students from various universities, action activities and research for disaster mitigation with students, activities company gathering and environmental education for the business world, character development and changing the mindset and mentality of society towards the environment.

Gema Bersuci

Gema Bersuci (*Gerakan Masyarakat Bersih Ciliwung*) or the Ciliwung River Cleaning Community Movement or called KPC *Gema Bersuci*, is one of the communities in the downstream segment that has been established since 2011. *Gema Bersuci* has the goal of changing the mindset and mindset of the community towards environmental functions and waste. The first step that will be taken next is to close the location of illegal waste disposal on the banks of the Ciliwung River in South Jakarta, especially the East Pejaten area. In 2012 the closing of the garbage disposal. This activity was carried out in collaboration with BPLHD Jakarta in the framework of Ciliwung Ecotourism, as well as in outreach and socialization of STOP NYAMPAH (throw the waste) on rivers.

Gema Bersuci besides having concerns about reforestation and disaster response, also has concerns about waste management. The chairman of KPC *Gema Bersuci* emphasized that the problems of flooding and garbage will never be separated when discussing the Ciliwung River. According to him, the volume of water from the previous flood has not changed much until now. However, because people build houses, they are getting closer and closer to the edge of the river, so when a flood occurs they are greatly affected. Apart from paying attention to green spatial planning and river environmental conservation, *Gema Bersuci* is also concerned about disaster preparedness and disaster. The reason is that the results of greening and waste management efforts cannot be felt immediately, but flood disasters are still coming. For this reason, to support security in the riverbank area, human resources in the community are needed who are ready in the event of a disaster or accident in the river area.

Lentera Ecoprint

Lentera Ecoprint is located in the downstream segment of Ciliwung. Its geographical conditions are partly steep but mostly sloping from the surface of the river. The riverbanks are densely populated with residential areas and at some points, there is still vegetation of bamboo and trees typical of the Ciliwung watershed. The socio-cultural situation of the native Betawi people who are educated is mixed with educated immigrants with various professions and expertise. The environmental conditions along the riverbanks are densely packed with residential areas and at some points, there are still bamboo vegetation and trees typical of the Ciliwung watershed.

The Ecoprint community focuses on recycling waste to make it into works of handicrafts based on ecoprinting and micro, small and medium enterprises (MSMEs). Ecoprinting is an environmentally friendly and sustainable printing method that uses natural dyes and pigments derived from plants, vegetables, and other organic materials to create designs and patterns on fabrics. Through these MSMEs and eco-printing approaches, the Ecoprint community is committed to supporting the local economy and promoting the sustainable use of natural resources. With a commitment to sustainability and responsibility to the environment, the community realizes that the products they produce will not only look good but also be good for the planet we live on.

Another form of participation carried out by the community is through economic growth as a motive to move the community. The Ecoprint community, like other communities, also experiences difficulties in maintaining the enthusiasm of its volunteers to continue to be active in preserving the Ciliwung River. Because most of them have been recruited to work in other business sectors, for example, to become the orange team (road cleaners). In response to this condition, the community leader who was the resource person in this study conveyed that there had been a change in strategy that was to emphasize the development of MSMEs which would have an economic impact on these environmental activists. This reinforces that the essence of community formation is how when we invite community participation in protecting the environment, they can, with enthusiasm and motivation, be able to fulfill their daily needs in parallel.

Based on the data obtained from selected informants, it is known that the focus of community participation is very diverse, as shown in the table below. The geographical and historical background of the surrounding community greatly determines how the focus of the area of participation is chosen by the community. In general, each community determines its participation by looking at the character of the community around its area.

Table 1. Focus Area of Ciliwung Community Participation

COMMUNITY	PARTICIPATION FOCUS
Bamboo bush	Art and culture
Warning	Empowerment of local stakeholders (RT/RW administrators)
<i>Ecovillage</i>	Formation of cadres, Women Farmers Group
<i>Ecoprint</i>	Empowerment of women, MSMEs
Friends of Ciliwung	Water sports
Mat Peci	River School, eco-edutourism
Purified Echo	Planting seeds, conservation
Depok Ciliwung Community	Advocacy, education

In general, it can be said that the Ciliwung communities have participated very actively in efforts to improve the Ciliwung River and have specific areas of focus according to their characteristics. Among the activities that are the focus of the community, there are types of activities that have something in common, for example, education and conservation. However, unfortunately, activities that tend to be of the same type are not coordinated between communities. In general, each community still tends to prioritize the achievements of the program of activities in their respective scope of work.

Model of Environmental Communication

GCB with its resource capabilities, both material and non-material resources, compiles and implements work programs that can support its vision and mission. The role of GCB for more than three decades since its establishment has been part of the resources that strengthen the vision and mission in efforts to improve the Ciliwung River, starting from the community level to the policy level. At the policy level, GCB is involved in various efforts to improve central government and DKI Jakarta policies to strengthen the protection of the Ciliwung River. Meanwhile, at the community

level, GCB has a role in the formation of Ciliwung communities that are spread from upstream to downstream.

Table 1. Environmental Communication of GCB for Downstream Communities

VARIABLE/ INDICATOR	ADVOCACY		CAPACITY DEVELOPMENT		NETWORK DEVELOPMENT		COMMUNITY ORGANIZING	
	n	%	n	%	n	%	n	%
<i>Frequency</i>								
Never	5	7.25%	7	10.14%	9	13.04%	7	10.14%
Seldom	20	28.99%	30	43.48%	23	33.33%	19	27.54%
Sometimes	33	47.83%	18	26.09%	28	40.58%	24	34.78%
Often	11	15.94%	14	20.29%	9	13.04%	16	23.19%
Always	0	0.00%	0	0.00%	0	0.00%	3	4.35%
<i>Attention</i>								
Never	5	7.25%	8	11.59%	11	15.94%	6	8.70%
Seldom	10	14.49%	23	33.33%	21	30.43%	7	10.14%
Sometimes	32	46.38%	15	21.74%	22	31.88%	35	50.72%
Often	21	30.43%	22	31.88%	13	18.84%	21	30.43%
Always	1	1.45%	1	1.45%	1	1.45%	0	0.00%
<i>Duration</i>								
Never	5	7.25%	8	11.59%	9	13.04%	6	8.70%
Seldom	9	13.04%	22	31.88%	24	34.78%	6	8.70%
Sometimes	24	34.78%	11	15.94%	31	44.93%	11	15.94%
Often	14	20.29%	12	17.39%	5	7.25%	31	44.93%
Always	17	24.64%	16	23.19%	0	0.00%	15	21.74%

In general, data shows that the downstream community has been implementing environmental communication implemented by GCB, from advocacy, capacity building, community organizing, and network development. On community organizing, the table shows there was a positive reaction in which the majority of respondents stated both in terms of frequency and attention that the GCB has done a lot of things related to revitalizing the community, giving financial assistance, and giving opportunities to communities for the community empowerment.

5. CONCLUSION

Development communication is a key strategy in determining the success of achieving the goal of realizing a clean Ciliwung river that can be used for various community activities, such as transportation, drinking water sources, and tourism. This study recommends the importance of strengthening the advocacy model, capacity development, and network development, as those can strengthen the participation of downstream communities besides community organizing. This study emphasizes the importance of conducting studies related to development communication for the private sector (corporations), given the importance of the private sector in supporting efforts to improve river management, both from the side of capital owners and as business actors that affect river quality.

REFERENCES

- (ADB), A. D. (2016). *Indonesia Country Water Assessment*. Manila: Asian Development Bank.
- Cangara, H. (2020). *Komunikasi Pembangunan: Telaah untuk memahami konsep, filosofi, serta peran komunikasi terhadap pembangunan dan pembangunan komunikasi dalam era digital*. Depok: Raja Grafindo.
- Cox, R. (2010). *Environmental Communication and The Public Sphere (2nd Ed.)*. California: Sage.
- Coyle, K. (2005). *Environmental Literacy in America*. Washington, DC: The National Environmental Education & Training Foundation.
- Elfidasari, D., Ismi, L. N., & Sugoro, I. (2019). Heavy Metal Contamination of Ciliwung River Indonesia. *Ecology & Safety*, 13, 106-111.
- Fontaine, C., Haarman, A., and Schmid, S., 2006. *The Stakeholder Theory*, MNC.
- Hendrawan, D. (2008, Desember). Kualitas Air Sungai Ciliwung Ditinjau dari Parameter Minyak dan Lemak. *Jurnal Ilmu-Ilmu Perairan dan Perikanan Indonesia*, 15(2), 85-93.
- Koto, J., & Negara, R. B. (2018). Study on Rivers Pollution in DKI Jakarta. *Journal of Ocean, Mechanical, and Aerospace*, 52(1), 6-10.
- Krnel, D., & Naglic, S. (2009, December). Environmental Literacy Comparison Between Eco-Schools and Ordinary Schools in Slovenia. *Science Education International*, 20(1/2), 5-24.
- Liliwer, A. (2015). *Komunikasi Antar Personal*. Jakarta: Kencana.
- Lubis, D. P., & al, e. (2007). *Pengantar Pengembangan Masyarakat*. Bogor: IPB.
- Moleong, L. J. (2015). *Metodologi Penelitian Kualitatif*. Bandung: Remaja Rosdakarya.
- Nasution, Z. (1998). *Komunikasi Pembangunan: pengenalan teori dna penerapannya*. Jakarta: Rajagrafindo Persada.
- Oktavia, Y., Muljono, P., Amanah, S., & Hubeis, M. (2017). Hubungan Perilaku Komunikasi dan Pengembangan Kapasitas Pelaku Agribisnis Perikanan Air Tawar di Padang Sumatera Barat. *Jurnal Penyuluhan*, 13(2).
- Peraturan Pemerintah Nomor 38 Tahun 2011 tentang Sungai
- Peraturan Pemerintah Nomor 26 Tahun 2008 tentang Rencana Tata Ruang Wilayah Nasional
- Peraturan Gubernur Provinsi Daerah Khusus Ibukota Jakarta Nomor 31 Tahun 2019 tentang Pembangunan dan Revitalisasi Prasarana Sumber Daya Air Secara Terpadu dengan Konsep Naturalisasi.
- Rahmad, R., & Sigit, R. R. (2015, Maret 15). *Normalisasi Baru untuk Cegah Banjir Ciliwung, Jalan Efektif atau jadi Masalah Baru*. Retrieved from <https://www.mongabay.co.id/https://www.mongabay.co.id/2015/03/15/normalisasi-untuk-cegah-banjir-ciliwung-jalan-efektif-atau-jadi-masalah-baru/>
- Ridlo, A. (2017, November). Analisis Kelembagaan Dalam Monitoring Kualitas Air Sungai Ciliwung di Wilayah Provinsi DKI Jakarta. *Jurnal Wacana Kinerja*.
- SAGEE. (2008). *Benchmarks on the Way to Environmental Literacy K-12*. Massachusetts: Secretaries Advisory Group on Environment Education (SAGE).