

# Local community-based river management: A case study of kuin river, Banjarmasin, South Kalimantan-Indonesia

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## Local community-based river management: A case study of kuin river, Banjarmasin, South Kalimantan – Indonesia

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### ABSTRACT

Community-based river management is a form of **integrated and sustainable** river management. Participation of the local community is a strategic key to be empowered and synergized with other components in this management. The objective of this study was to identify the participation of the Kampong Kuin's community in the management of the Kuin River. The data were gained from semi-structured interviews, surveys and documentation. The results showed that to optimize the community participation in river management, an important figure was appointed as the river guard (*Pemangku Sungai*). Community empowerment through *Pemangku Sungai* is a process of facilitating and encouraging people to position themselves proportionally and become the main actors in utilizing their strategic environment optimally and fully involved in river management. There were two river guards appointed to motivate the community involvement in managing of Kuin River. Another effort was by holding *Maharagu Sungai* event. This event was intended to restore the function of the river, to get the community involved and to trigger the revitalization innovation based on the characteristics and condition of the river environment. In addition to involving local communities, the management of the Kuin River also involves a community organization concerned with river conservation called *Melingai*. The *Melingai* community who has a role in educating the community related to river preservation is expected to **increase community participation in river** management.

**Key words :** River management, Empowerment, Local community, Kampong Kuin, Banjarmasin, South Kalimantan – Indonesia

### Introduction

River management as a form of environmental management faces basic challenges of managing the river resource and environmental carrying capacity in order to give maximum and sustainable benefits for human beings (Day, 2009; Everard & Powell, 2002; Llewellyn, Rohse, Day, & Fyfe, 2017). Natural

resources and environmental carrying capacity of river area must be developed in away that they will be socio-economically profitable and environmentally friendly (Wynne, Nieves, Vulava, Qirko, & Callahan, 2018). That development must consider the conflict of interest that might occur between some parties and the local community. Power distribution and influences in community is the core of

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the many environmental challenges and development, so a new approach, which is participatory local appraisal, must be considered to solve the environmental issues (Daim *et al.*, 2012).

One of the possible approaches to take is the community-based development. This is a co-management between the community and local government, aiming to get the local community actively involved in the planning and implementation stages of the development and management (Widodo *et al.*, 2010; Yogaswara, 2003). Community involvement in river management can be in the form of active empowerment to make the community care and participate in the planning, implementation, and evaluation of river-related programs (Ananga *et al.*, 2017; Apipalakul *et al.*, 2015; Maryono, 2014).

Kuin river is one among many rivers running through Banjarmasin, South Kalimantan, Indonesia. This river network serves as the course for water movement in Banjarmasin and connects Barito River and Martapura River. Many settlements have been built along the watershed. In the 1990s, this was known as settlement for Banjarese community called *Kampung Kuin* (Subiyakto, 2005), a village named after the river. The houses making up the settlement areas float above the river, known as *Rumah Lanting* (*Lanting House*). Meanwhile, the houses set up on the ground were built overlooking the river and were built on stilts. As time went by, these settlements became very crowded. Many houses were built permanently/semi-permanently on the right and left side of the riverbanks (Figure 1). If this continues without proper planning, the river will face several issues, which include but not limited to health and sanitation.

These condition calls for an effort to maintain and manage the river, both from the government and local communities. In Indonesia, central government and local government handle the management

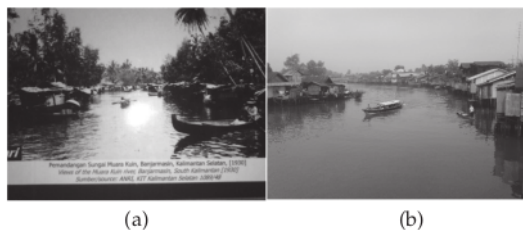


Fig. 1. The development of settlement in the Kuin River (Sources: (a) Regional Archive of South Kalimantan Province, (b) photo by Angriani, 2017)

of large rivers (Fulazzaky, 2014; Raharja, 2009; Subijanto *et al.*, 2013). For instance, Barito and Martapura rivers in Banjarmasin are the responsibility of the local government to maintain (Geenen, *et al.*, 2015). Meanwhile, medium-sized and small rivers are utilized and maintained by the nearby community based on their habits (Darmanto and Sudarmadji, 2013; Widodo *et al.*, 2010; K. Widodo *et al.*, 2012).

In principle, river management and river area planning cannot be done by the government alone. The participation from all parties, especially the local community, is required. All the parties need to have coordination, so that they will not violate the principles of river conservation, utilization, and damage control. The local community must be involved and empowered in the management of the river and its surrounding area. Thus, a study on the local community-based river management is important. This study is aimed to identify the Kuin's local community participation in management of Kuin River.

## Materials and Methods

This study used a qualitative case-study approach and focused on traditional village of Banjarese community that was *Kampung Kuin*. The data in this study consist of results of field survey conducted in June – November 2017. The data were gathered from existing statistics, observations, semi-structured interviews, and documentation. Data on the management of the river were obtained from the Municipal Government of Banjarmasin, which included Research and Development Planning Agency of Banjarmasin, Public Works and Housing Agency - Sub-Division of River, Environmental Service Agency, and River Basin Organization of Kalimantan II. The data on geographical and demographic condition of the area were obtained from the Central Agency on Statistics of Banjarmasin and sub-district office. While semi-structured interview were conducted with local community and government officials to find out the participation of *Kampung Kuin* community in river management. There was a total of fifteen informants: two river guards (*Pemangku Sungai*), eight local community members, two activists of the *Melingai* (the community organizations concerned with river preservation) and three government officials of Banjarmasin from Public Works and Housing Agency - Sub-Di-

vision of River, Environmental Service Agency and the Kuin Utara Village (Table 1). The interviews used open-ended question, so the informants can answer the questions freely (Table 2). This was done in order to get more information related to their experiences and participation in river management. The interviews were conducted in Bahasa Indonesia and the Banjar language, the local language, and were recorded with a tape recorder. The interview recordings were transcribed to facilitate the data analysis. The data from the interviews were analysed to seek meaning, which is by constructing the themes, relations between variables and patterns

in the data based on the content. Analysis of the content of the interview transcripts was required to determine the underlying meaning of what was being said. Coding system was used to sort and retrieve the data.

## Results and Discussion

This section presents the findings of the study. It begins by describing the environmental physical condition and the socio-cultural activities of the local community in Kampong Kuin of Kuin Utara Village, Banjarmasin, participation of this community

Table 1. Survey method at Kampong Kuin around the Kuin River

Administrative Village	Kuin Utara
Technical survey approach	Secondary data collection, semi-structured interview
Date of survey (month/year)	June – November 2017
Interviewed people and their function*	<ul style="list-style-type: none"> <li>- Bapak Hamzah (the river guard / <i>Pemangku Sungai</i>)</li> <li>- Bapak Latif (the river guard / <i>Pemangku Sungai</i>)</li> <li>- Bapak Saiful (head of the hamlets)</li> <li>- Bapak Usman (merchant)</li> <li>- Bapak Syarif (merchant)</li> <li>- Bapak Dodi (government officials of the Public Works and Housing Agency - Sub-Division of River)</li> <li>- Ibu Nina (government officials of the Environmental Service Agency)</li> <li>- Ibu Eny (head of the Kuin Utara Village)</li> </ul>

\*The names of informants are changed to keep their real identities confidential.

Table 2. Questions asked during semi-structured interviews

Question	Rationale
Personal details (name, age, education background, gender, religion, members of family)	Socio-demographic
How long have you been living in Kampong Kuin?	Local environmental knowledge
Could you tell me about this river and the surrounding area?	Life value
Do you have any concerns over the current condition of the Kuin River?	Community care
If yes, what do you or the communities do to preserve the Kuin River and its tributaries?	Community and Government perception
Are there any programs, either from the government or other parties, concerning in management of the Kuin River?	
If yes, have you ever been asked to involve in that activity?	Community participation
What are the forms of the activities?	Community participation
What do you expect from the activity?	Community participation
Do people know about Pemangku Sungai (the river guards) and their roles?	Community participation
What do you think about those river guards and what do you expect from them?	Community perception
What are the roles of the <i>Melingai</i> in the community related the river preservation program?	Community perception

to maintenance and management of the Kuin River, and the roles of the *Melingai* in the community related to management of the Kuin River. Various interactions between community and river are shown, while both physical and social aspects are considered.

## The Profile of Kampong Kuin

### 1. Environmental physical condition

Seen from its topography, the surface structure of land in Kampong Kuin is relatively flat and there is not much difference in the aspect of land surface structure. In term of hydrology, Kuin River, which is the tributary of Barito River, runs through this village. Based on the data from the Public Work and Housing Agency Sub-Division of River, the Kuin River is a medium-sized river, with 3909 metres long and between 7 to 61 metres wide. This river runs along three administrative villages, which are Kuin Utara Village in the Sub-District of Banjarmasin Utara, Kuin Selatan and Kuin Cerucukin the Sub-District of Banjarmasin Barat. The Kuin River has three tributaries which are Jagad Baya (Jagabaya) River, Pangeran River and Kidaung River (Figure 2).

These rivers are tidal type, so that affect the condition of groundwater in the Kuin area. Flat morphology causes the drainage to stop functioning and turns the soil swampy. Based on the observation, there was no waterway encountered along the residential roads, so that rain water directly flows to lower area or the river. The river tides not only affect to the groundwater condition, but also the pattern of river water movement.

The water movement pattern affects the sediment-



Fig. 2. Map of the Kuin River in the Sub-District of Banjarmasin Utara

tation level of Kuin River which directly empties in the Barito River. When the river tide, human and industrial waste will drift away around the Barito River, such as the Kuin River, or vice versa, and when the water subsides, the waste will drift into the estuary (the Barito River). During this water movement, sometimes the waste gets stuck under the houses of the villagers which are built along the riverbank (Figure 3). This causes the water to be polluted and plastic waste fastens the river siltation.



Fig. 3. The waste drift away and stuck under the houses during the tides of the river (photos by Angriani, 2017)

### 2. Socio-cultural activity

Kampong Kuin is a settlement located in the suburb of Banjarmasin, South Kalimantan, Indonesia. It is associated with the river running through this place, that is Kuin River. Kampong Kuin is in Kuin Utara Village, Sub-District of Banjarmasin Utara. This village stretches from the end of the Alalak River confluence to Pangeran River. Kuin River serves as the main water route which connects Barito River and Martapura River. Along the riverbank of Kuin lies the first settlement of Banjarmasin which makes Kampong Kuin the oldest village in Banjarmasin and around. Kampong Kuin is considered as the oldest historical village because it was the pioneer for the first Banjar Kingdom to transform into Banjar Islamic Kingdom under the name of *Kesultanan Banjarmasin* (Norpikriadi, 2015). The first Banjar palace was built at Kuin riverbank, that was between Keramat River and Jagabaya River. The first mosque called Sultan Surianyah mosque was built at Kuin riverbank and right on the side of the Jagabaya River.

Kuin River is not only the place where the Banjar Kingdom was set up, but it plays an important role for the local community in Kampong Kuin, especially for river transportation. The rivers and

swamps trigger the local community to create a means of transportation for daily affairs. Before the existence of land transport, river became the transportation route for people. At that time, the only means of transportation to reach the nearby areas was *jukung* or boat with no engine. There were several kinds of *jukung* invented such as *jukung sudur* to the latest version which was *jukung rangkan* (Lambut, 2017). Along with the development of technology, the boats have been equipped with engine and turbine. This motorized boat is wellknown as *klotok* by Banjar people (Figure 4).



Fig. 4. Means of transportation used by the Banjarese; (a) *Jukung*, (b) *Klotok* (photos by Angriani, 2017)

For people in Kampong Kuin, river is not only used for transportation but it also plays a role as the interaction route among humans who have different backgrounds of race, religion, culture and economic condition. This interaction forms relationships that are based on economy, socio-culture, and politics. The interaction can be seen in the form of the presence of floating market (Figure 5). In this market, transaction is done aboard the *jukung* or *klotok*.

In an interview with *Bapak Saifulas* the head of hamlet of Kuin Utara village, he said:

“... at the beginning, the floating market of *Muara Kuin* was the only traditional floating market found in Banjarmasin, many traders from nearby areas of Banjarmasin came to this market to make transactions ...”

The same thing was also stated by *Bapak Latifas* the river guard (*Pemangku Sungai*) in Kuin Utara village. He said:

“...in the 90s, the *Muara Kuin* floating market was crowded and became the center for traders on boats to bring their farming and fishing products along with other staple goods for trade with the nearby community or to be bartered with other fellow traders. Nowadays, this floating market is not as lively as it was before because markets on the land have replaced it ...”

From their statements, it can be concluded that the *Muara Kuin* floating market is a cultural asset

that needs to be preserved. Attraction in the floating market can be an important aspect for tourism.



Fig. 5. The *Muara Kuin* floating market (photo by Angriani, 2017)

### 3. Local Community-Based River Management in the Kuin River

Optimization through community empowerment Government Regulation of the Republic of Indonesia No. 38, Year 2011 about River, article 71 paragraph (1) states that society's participation is aimed at improving the performance of river management, and paragraph (2) says that the society participation is done through the formation of working groups and cooperation in the river management. It is clear that the society members are encouraged to participate in socialization stage and public consultation. It means that society members must be actively involved in the management of river and its surrounding areas (Budryte, Heldt, & Denecke, 2018; Laurens, 2012). If the society members are not well informed about the river, the related government agency must provide socialization for them.

The same is also mentioned in Government Regulation of Banjarmasin No. 15, Year 2016 about the Efforts in Improving the Management of River, article 21 paragraph (1) about river management states that local government must empower the society and article 24 paragraph (2) states that society participation can be in the form of the formation of community and cooperation group for river management. Article 25 paragraph (1) states that a river guard (*Pemangku Sungai*) needs to be appointed to optimize the society empowerment in the river management, paragraph (2) says that

*Pemangku Sungai* has a role to stimulate the involvement and the guide for local community in managing the river, and paragraph (3) confirms that *Pemangku Sungai* is appointed and inaugurated by the Mayor.

Based on the result of interview with *Bapak Mochammad* and *Bapak Yuliadi* as *Melingai* activists, the term of *Pemangku Sungai* was first introduced by *Melingai* community in a meeting for the preparation for the river preservation competition (*Lomba Maharagu Sungai*) in 2016. According to them, if in the indigenous communities there is a term of *Pemangku Adat* (someone who is elder and respected), then for the Banjarmasin which is famous with the river community, there should be a *Pemangku Sungai* (the river guard), because the river is part of Banjar society life. The same thing was also confirmed by *Ibu Nina*, the government officials in the Environmental Service Agency in Banjarmasin:

“... the government needs to appoint *Pemangku Sungai* as an effort to transform river as the economic drivers for community especially in the sector of tourism because Banjarmasin does not have natural resources such as mining or forest ...”

Based on the data from Environmental Service Agency of Banjarmasin, there were 52 *Pemangku Sungai* who had been inaugurated by the Mayor of Banjarmasin in 2016. Focus Group Discussion (FGD) of *Pemangku Sungai* in Banjarmasin: The Community Empowerment and Participation in Water Resources Management in South Kalimantan, year 2017, stated that *Pemangku Sungai* is a volunteer who has concerns over the river and is prepared psychologically, academically, physically, as well as technically and has social interaction skills (Figure 6).

According to *Bapak Mochammad*: “*Pemangku Sungai* is not “river cleaning officers”, but they are

the public figures who are capable of motivating and mobilizing the community in order to maintain the sustainability and cleanliness of the river, so that it can be optimally used for the community prosperity. *Pemangku Sungai* can be the pioneer in reviving the river culture of Banjar community”.

Based on the information provided by *Ibu Eny*, the Head of *Kuin Utara* village and *Bapak Saiful*, head of the hamlets, there are two *Pemangku Sungai* in *Kuin Utara* village. *Pemangku Sungai* has the duty to get the community members to protect and maintain *Kuin River* and its tributaries that run through their villages. In the interview, *Bapak Hamzah* and *Bapak Latif*, two *Pemangku Sungai* in *Kuin Utara* Village, said that each of them has 10 river squad members who help them. This river squad members are the people living nearby who actively volunteer in the activities of *Pemangku Sungai*. Their main activities include socializing the importance of maintenance and utilization of river without causing damage, informing prohibition for polluting river with waste, warning citizens when they are found to be littering the river, and inviting citizens to actively cooperate in keeping the river clean.

Most citizens are well informed about *Pemangku Sungai* in their areas. Here are some excerpts of an interview about the citizens knowledge on the presence of *Pemangku Sungai*:

“...he eh tahu ai *Pemangku Sungai*, semalam pas rapat warga ada dipadahi *pemangku sungai*, nang dipilih nang dituhakan...”

(translation: yes, I know there are *Pemangku Sungai*, I was informed during the citizens meeting, they were chosen because they were affirmed by the people). (*Bapak Udin*)



Fig. 6. Focus Group Discussion of *Pemangku Sungai* in Banjarmasin (Sources: (a) *Melingai* file, 2016, (b) photo by Angriani, 2017)

"...iya ada semalam dipilih Pemangku Sungai, Rusmani di Rt. 04 lawan Hariyani, Rt 05, tapi itu gasan sungai parak sini, sungai Jagabaya, anak sungai Kuin. Semalam tu dipilih gasan lomba maharagu sungai. jadi dari ibu lurah, diminta warga meadakan rapat warga untuk memilih pemangku sungai..."

(translation: yes, the *Pemangku Sungai* was appointed yesterday, *Bapak Hamzah* and *Bapak Latif*, but this is for the nearby river, which is Jagabaya River, the tributary of Kuin River. They were appointed to join in *Maharagu Sungai* competition. So, the head of the village was asked to hold a meeting to appoint a *Pemangku Sungai*). (*Bapak Saiful*)

"...ada ai, tahu ai aku pas semalam rapat, jar kami pulisi sungai, tapi lain pulisi yang berseragam tu pang..."

(translation: yes, I was informed about it during the meeting, we call the person as "the police of the river", but they are not the police in uniform (the river/water police)). (*Bapak Syarif*)

Based on the interviews result, people expect that the appointed of *Pemangku Sungai* can help maintain Kuin River and its tributaries. *Pemangku Sungai* has the role of motivating and making people aware of the river sustainability. Here is the excerpt from the interview on the role of *Pemangku Sungai* in community:

"...kami ni ya kaya itu pang, menagur warga bila ada nang kalihatan membuang sampah kasungai, babarasih sungai, pas ni kan kami ada pasukan sungai 10, tapi lawan warga nang lain jua, di RT sebelah iya jua, pabila tu meolah plang larangan, diandak yang sakira kalihatan, ta baca warga, plang himbauan supaya maharagu sungai..."

(translation: this is just who we are, we give a warning to the people who throw waste into the river, we work together to clean the river, there are 10 river squad members, a few days ago we made a prohibition board (prohibition on littering into the river), it was put in a place that everybody could see.) (*Bapak Latif*)

"...ya membawai warga supaya kada membuang sampah, bahuu ditagur sidin bila ada kadapatan, bebawaan bila ada kerja bakti membarasihi sungai sini, tu beolah plang supaya maharagu sungai, tapi kaya itu pang, ngalih jua mun sidin sorangan, ngarannya sungai ni ampun urang banyak, ya parlu kasadaran masing-masing, tapi mun ada apa tuh ngarannya "pemangku sungai" teawasi jua sadikit..."

(translation: He tell the people not to throw waste (into rivers), sometimes he (*pemangku sungai*) warns if someone throws waste into the river, invite the people to work together cleaning the river (Jagabaya River), make notice board telling people to keep the river clean, but well, it is hard if he does this alone, this river belongs to us all, so it needs everyone's awareness to do; however, *Pemangku Sungai* has kept his eyes on, at least.) (*Bapak Ahmad*)

"...membawai kerja bakti babarasih sungai parak sini, walaupun kada rutin (kada tejadwal) tapi pasti ada, alhamdulillah paling kada tajaga jua sungai kami ni, kakanakan rami umpatan pas bila ada kegiatan kaya itu, apalagi semalam pas handak lomba maharagu sungai, banyak nang talibat, kalurahan, sakulahan, rami babarasih..."

(translation: invite people to clean the nearby river (Jagabaya River), it is not a routine but it is conducted, *Alhamdulillah*, someone guards our river, children are actively involved during the activity, and when we were about to join the river preservation competition (*Lomba Maharagu Sungai*), many were involved, from the village government, schools, all were involved in the cleaning process). (*Bapak Fauzi*)

"...membawai kerja bakti mambarasihi sungai, managur bila ada kadapatan nang membuang sampah kasungai, bagusai jadi teawasi sungai, semalam pas handak lomba maharagu sungai buhannya kerja bakti meangkati sampah, ilung, alhamdulillah lumayan barasih..."

(translation: invite the people to clean the river, warn the people not to throw waste into the river, the river becomes well-guarded, before the *Maharagu Sungai* competition, they worked hand in hand to clean the river from garbage, water hyacinth, *Alhamdulillah*, it became quite clean). (*Bapak Usman*)

It can be explained from the results of interview that society empowerment through the *Pemangku Sungai* is a process to facilitate and support society to be able to proportionally position themselves and make them the main actor in utilizing the strategic environment to reach long term sustainability. Through empowerment, the members of society are supported to possess skill to optimally make use of the resources they have and to be involved in the river management. The important aspect in a society empowerment program is that the program is planned by the society members themselves so that it can meet the basic needs of the people and sup-



port the involvement of everyone (Euler and Heldt, 2018; Sastrowihardjo, 2015). There are three important stages in the empowerment process, namely (1) awareness, (2) capacity building includes organization and value system, and (3) empowerment, that is giving the strength, authority and opportunity (Wrihatiplo and Dwidjowijoto, 2007). In other words, community empowerment emphasizes more on community initiative and autonomy of decision-making, and thus the learning process becomes important to complement the community towards sustainable change (Indrawati *et al.*, 2016).

#### 4. Optimization through community activities

Sustainable management of Kuin River requires the participation of the local community. The participation is needed not only from the community living along the riverbank of Kuin, but also the formal figures (leaders of the neighborhood communities, head of village, head of district, mayor), informal figures (society leaders, religious leaders, head of community organizations, NGO), law enforcers, people's representative, and others. This confirms that the preservation of the river and its surrounding areas is the responsibility of not only the people residing along the river banks but also the everyone in the surrounding areas.

In order to improve community participation in maintaining the river, the government of Banjarmasin held competition of the river preservation (*Lomba Maharagu Sungai*) in 2017, which was joined by all districts. Three administrative villages in the District of Banjarmasin Utara joined the competition, which were the Alalak Selatan Village (the Jeruju River), Sungai Jingah Village (Antasan Sei Gampa River), and Kuin Utara Village which was focused on Jagabaya River, the tributary of Kuin River. The evaluation for the competition was conducted from April – September 2017. Based on the information from Ibu Nina, the government officials in Environmental Service Agency of Banjarmasin, this event was focused on small rivers because large rivers or medium-sized rivers mostly run crossing the administrative borders of district or village such as Kuin River, which runs through three villages in two districts. The second reason was to expose the active participation of all community in preservation of the river in their area. *Maharagu Sungai* is taken from Banjar language which means preserve the river.

She said, the purpose of this competition was to

store the functions of river, raise awareness and increase community participation in preserving the river. And the most important is to encourage the emergence of various revitalization innovations in accordance with the characteristics and environmental conditions of each river. The competition was in the form of sorting and management of waste, construction of waste disposal to prevent people from throwing waste into the river, the establishment of waste bank, and creation of environmental-friendly sanitation program, replanting the river banks with local Kalimantan plants, such as *Rambai Padi (Sonneratia sp)*, *Jingah (Gluta rengas)*, and *Putat (Planchonia valida)* trees, that can help stop abrasion. It is expected that communities maintain the sustainability of their roles in preservation of the river and its surrounding areas. It can be started from small river to the bigger ones. In this competition, Municipal Government provided support in the form of net, *tangguk*, hoe, *parang* that could be used for cleaning the river.

The same thing was also stated by Ibu Eny, head of Kuin Utara Village. She said that the *Maharagu Sungai* competition was one of the ways of involving the community in protecting and maintaining the river in their areas. The community along with the village government worked together to remove the waste that settles in the river or under the people's houses, clean the river from water hyacinth, and post warning or prohibition board to remind people to keep the river clean at all times (Figure 7). It was expected that this river cleaning activity could be a regular program to increase people's participation and awareness on the importance of protecting the river.

From the interviews, it is learned that to optimize the community participation in managing and preserving the river, it is necessary to treat the community as subjects rather than objects in the activity. The local community is one of the important factors in integrated and sustainable river management (Jingling *et al.*, 2010; Whaley and Cleaver, 2017). The socio-cultural approach is very important, because it places the community as the subject of activity, and further emphasizes the humanistic rather than positivistic style. It is based on the fact that society is a collection of active, creative and dynamic people (Steiner and Mahn, 1996). Therefore, community-based river management becomes an important part in bringing sustainable use of water resources (Distanont, Khongmalai, Rassameethes, &



Fig. 7. People's activity in Mahragu Sungai Competition. (Sources: (a) photo by Angriani, 2017, (b) & (c) the file of Head of Kuin Utara Village, 2017)

Distanont, 2017). The local community participation in river management is needed, because without their participation it is impossible to realize a clean river (Tantoh and Simatele, 2018; Verbrugge *et al.*, 2017).

#### The Roles of Melingai in River Preservation

River management, which is focused on local community involvement, requires the involvement of community organizations. Therefore, there is a need to give more attention to the community organization (Ibrahim, 2017). Based on the interview with Bapak Yuliadi and Bapak Mochammad, two *Melingai* activists, this organization is the connector between government and society. They said that government worked in the technical area, while they worked on the socialization and action on the field. *Melingai*, an abbreviation of *Masyarakat Peduli Sungai* (River Care Community), is a community organization, in which there is a group of people who have concerns

over the river. *Melingai* in Banjar language means 'to clean'. *Melingai* consists of groups of environmental cares, such as *Forum Komunitas Hijau Banjarmasin* (Banjarmasin Green Community), *Sahabat Bekantan* (Bekantan's friend), *Masyarakat Pecinta Pohon* (Forest Cares Community), *Forum Peduli Satwa* (Animal Cares Community), and others. *Melingai* was established in 2015 and was the development of Banjarmasin Green Community that was formed back in 2012. These organization focuses its activities on river-related actions such as giving education to the society on the importance of preserving the rivers, replanting the trees along the river banks, and cleaning river from waste, releasing fish fingerling to the river, socializing to eliminate the latrine culture on the river, socializing the negative impact of constructing buildings on the river (Figure 8)

In 2016 *Melingai*, with the government and the society, initiated the establishment of River School in Banjarmasin. The purpose of the establishment is



Fig. 8. The Program of Melingai Community of Banjarmasin (Source: the *Melingai* file, 2017)

to build awareness and shared responsibility in the control of pollution and river degradation, increase the institutional capacity in disaster risk reduction, build human behavior in river management, making the river as a resource of innovative learning and multiply the benefits of the river in the socio-economic field (the development of creative economy).

Bapak Yuliadi, one of *Melingai* activists, stated in an interview:

"... the participants of the River School came from different backgrounds, such as environmental activists, society members, students, and even government officials. The purpose of this school was to provide trainings and briefing for facilitators, in order that they had commitment and capacity in preservation of the river in their areas. It was to create communication between agents and community, especially people living along the river bank in order that they care about the river..." (Figure 9).



Fig. 9. The Socialization of River School in Banjarmasin (Source: the *Melingai* file, 2017)

Thus, the River School is a public school entity or community school which enables the transfer of knowledge (about river) with the productivity measurement in the forms of improvement escalation of cognitive, affective, and psychomotoric values. The cognitive value is the wholistic and integrative knowledge toward river among the society, the affective value is the sense of belonging and being protective toward the river, while the psychomotoric value is in the effort to solve river-related problems. This River School concept will give alternative to people in understanding the characteristics of the rivers without any formal administration like schools in general. This River School is an academic community from the society, to the society, and for the society (Setyono, 2016).

## Conclusion

Community-based river management is essentially

the embodiment of a participatory river management mechanism by applying a top-down integration mechanism with a bottom-up approach to the principles of 'by and for the community'. In this management, the government of Banjarmasin optimized community participation in the form of empowerment by appointing someone who had personality and exemplary values to be a river guard (*Pemangku Sungai*). The *Pemangku Sungai* is a member of society who voluntarily becomes the environmental activist for river, conducts observation and education and leads river-related activities. In Kampong Kuin, Kuin Utara Village, two people were appointed to be the *Pemangku Sungai* whose duty was to get people in their areas involved in the activities of maintaining and managing Kuin River and its tributaries which run through their village. In addition, to increase community participation in river management, the government held competition of the river preservation (*Lomba Maharagu Sungai*) in 2017. In Kampong Kuin, the activity was focused in the Jagabaya River, which was one of the Kuin River tributaries. The activity was aimed at increasing awareness and community participation in maintaining and preserving rivers in their areas. In river management, an community organization called *Melingai*, which focuses on river environment, has an important role. Its main activities included educating people about the importance of protecting rivers, replanting the river banks, cleaning the rivers from waste, releasing fish fingerlings into the rivers, socializing to eliminate the latrine culture on the river, and socializing the negative impact of constructing buildings on the river. Moreover, along with the government and society members, this organization initiated the establishment of River School in Banjarmasin, which was aimed at shifting the society culture to become more appreciative to the river and water as the source of living.

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