

7-21-2017

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Recommended Citation

Dewi, Ova Candra; Shanti, Lathiyfah Purnama; Atmoko, Teguh Utomo; Napitupulu, Andry Andreas; and Anggraeni, Meri (2017). Sustainability assessment on community park revitalization. *ASEAN Journal of Community Engagement*, 1(1).

Available at: <https://doi.org/10.7454/ajce.v1i1.63>

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Sustainability assessment on community park revitalization

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Abstract

Nowadays the green open spaces are becoming more difficult to find, especially in urban areas. Malls and other physical buildings tend to dominate public options for recreation. This paper describes the community engagement program in developing community park in Bogor Regency that has been done within July-December 2016, which was initiated by American Red Cross in Indonesia. Implemented together with Indonesian Red Cross and Universitas Indonesia, the program highlighted the necessity of community park revitalization as nature-based infrastructure that also functioned as refugee point when disaster occurs. The "Charrette" was used as the method to collect information from the community and to make sure bottom-up approach was applied. This way, the community park can be revitalized based on the needs of the community. This paper accesses the process of green open spaces revitalization in the 4 selected locations in Bogor Regency. It observes the sustainability potentials based on the preconditions in each locations. In general, the processes show that community engagement in terms of enthusiasm, willingness to contribute voluntary and financial capital highly influence the sustainability of the green open space. Based on the assessment, one of the four green open spaces hold the highest sustainability potential.

Keywords: green open space; revitalization; sustainability

1. Introduction

Indonesia, the fourth most populous country in the world after China, India and the United States (USA), currently has a population of more than two hundred millions, whereas urban areas dominate more than 50% of the world's land (UNDP, 2015). Such tendency is also happening in Bogor Regency, which is located close to the Indonesian capital city, Jakarta. The decreasing of open green space and the dominance of physical buildings such as residential, office and shopping centers now mark Bogor Regency. In 2014, Bogor Regency has 42% green open space and this number potential to be decreasing (radaronline, 2014). Hence, the need to revitalize the current green open space should be the major consideration of city planning in Bogor Regency.

Green open space is a space that is planned to meet the need for community interaction and joint activities. Based on Law No. 26/2007 of Republic of Indonesia about Spatial Planning, the definition of green open space is a linear/gathering area that is open and becomes the media for plants to grow naturally or conventionally. The law also added that the proportion of green open space within a city should be at least 30%, in which 20% of them are public, in order to maintain environmental sustainability. According to the Ministerial Regulation of Public Works and Public Housing No. 25 Year 2008, green open space is also a space that serves a means as the container for human life, both individually and in groups, as well as other living creatures that live and grow sustainably. The space also serves as an active playground for children and adults, a place of leisure for adults and as a green conservation area towards sustainability.

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The Urban Disaster Risk Reduction (DRR) Greater Jakarta Project is implemented by the initiative of the American Red Cross (Amcross). Under the cooperation with Indonesian Red Cross (PMI) and Universitas Indonesia, namely the Faculty of Engineering, Department of Architecture, and the Faculty of Social and Political Science, Department of Anthropology.

One of the activities of Urban DRR Greater Jakarta Project in 2016 is the development of community park which can serve the need for the community gathering point for conducting various activities, including as a meeting point when disaster occurs/emergency situations. This community engagement program aims to obtain a high quality public space and to improve the quality of the urban environment. Therefore the Indonesian Red Cross with its volunteers (SIBAT), Amcross and Universitas Indonesia team carry out this revitalization program starting from the preparation until the technical assistance together with the local community. This study will not discuss about the new designs and technology implemented in detail, but rather looks into the sustainability potentials of the selected community park. It will discuss about what possibly happened in the future by looking through the whole assistance phases historically. This paper reports the assessment of sustainability potentials based on the community response, involvement and capacity that had been observed during the program.

2. Theoretical Background

2.1. The Power of Social Capital

Social capital is one of the most important factors in promoting engagement to the community. It is known as the ability of people to work together in groups or organizations and it is related to traditional virtues such as honesty, the keeping of commitments and engagement (Fukuyama, 2000:3). In addition, Fukuyama also added that social capital is informal and formed rather spontaneously (Fukuyama, 2000: 13).

In developing countries, the government initiatives alone tend to fail in solving the problem (for instance: waste management) and, therefore, community-based initiatives are expected to bridge the cases (Bhuiyan, 2005: 191). Antschütz (1996) conducted studies on community-based problems addressing some solutions proofed to be successful. Some examples are by providing education on “low willingness to manage problems” and define the rights, obligations and responsibilities on “lack of accountability”. Both are considered as management problems in the community.

2.2. The necessity of Green Open Space

A community park consist of open spaces that can exist in the form of parks, athletic fields, and playgrounds. Except for the trees, the green open spaces also provide a platform for people to conduct “open air activities”. Some of the backgrounds behind green open space preservations are to create the microclimate and to reduce the air pollution potential from surrounding activities, to conserve the natural resources and to serve as evacuation areas during disasters (penataanruang.com). The green open space is dominated by natural environment outside and within the city and can be along with recreation area and green line.

A green area demands environmentally friendly land-use planning and building arrangement for everyone, and the creation of such space needs to meet attractive and aesthetic value. Law No. 26/2007 of Republic of Indonesia emphasizes that the spatial planning in regencies should be addressed to empower local communities, preserve the quality of environmental sustainability, conserve the heritage, and preserve the agriculture land, and maintain the balance of cities-regencies development.

The urban green space may bring 3 types of benefits: (1) environmental benefit which consist of ecological benefits, pollution control, biodiversity and nature conservation (2) economic and aesthetic benefits such as energy savings and property values, and (3) social and physical benefits which include recreation and wellbeing and human health (Haq, 2011: 602).

3. Methods

The assessment in this paper is conducted through qualitative approach. It is also an action-based research. Four community park locations were selected during the process of revitalizing the existing community park in Bogor Regency. They are Pondok Rajeg, Karadenan, Waringin Jaya and Sukahati green open space with an average of 300 households. The involvement of all community elements that exist at the region was enforced during the revitalization. Community involvement is intended to increase community belonging to the community park. It is expected to increase community willingness to spend more time in the community park while also maintaining and taking care of it. In addition, by involving the community as the user, the needs can be observed, including infrastructure and management. In this way, the ideal green open space can be addressed from the community point of view. To access this needs, a method called "charrette" was employed. The process is divided into 3 phases: pre-design phase, development phase and Design Implementation Phase.

The core funding came from American Red Cross. But this is not the single source funding. The community is expected to fund the program partially. The Indonesian Red Cross with its volunteers is responsible to select the locations and communicate with the local community. Universitas Indonesia took part on the action-based planning, including observing the character of the community, analyzing potential environmental protection through water saving, waste management and of course the design.

3.1. Charrette

Charrette is an intensive and multi-disciplinary workshop design (The Town Paper, 2017). This method is commonly used to facilitate discussions between stakeholders on a project or program. At charrette, a group of experts meet with community groups and related stakeholders for 3-4 or two weeks to gather information related to the issue that initiated the activity. Then, the multi-disciplinary experts work together to produce the design as a clear, detailed and realistic solution to implement. Charrette open windows for discussion and gives space for improvements (Fig 1). It is flexible and suitable for community-based approach.



Fig. 1 Documentations from Charrette Process with Sukahati Community
Source: private (2016)

Due to the limited time, the charrette is only done in one day, which in turn resulted in a development plan. Four steps were delivered:

1. Charrette begins with the plan making that is generated from the issues and wishes of the stakeholders, especially members of the community, with one key question: "What is the definition of the park for me?" The information was gathered from four to five experts out of the local community.
2. Next, common activities during weekdays and weekends on site (daily activities) are described, any complaints felt from the current activities are discussed and then formulated into needs.
3. Priority activities which still want to be maintained, added and reduced are determined.
4. The result of the discussion is a rough idea of the future green open space to be revitalized.

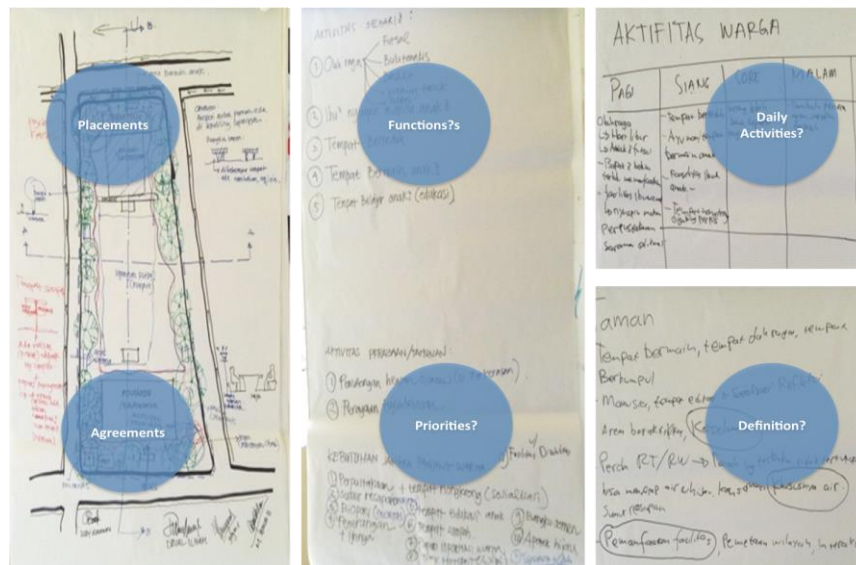


Fig. 2 Transformation of Charrette Result into a design in Karadenan (an example)
Source: Private (2016)

After the charrette, the community park plan is technically translated into a design by the experts. Some consideration should be taken immediately so that the construction costs

can be calculated in the form of a cost estimation (Fig. 2). Once agreed upon, the cost estimation and design of the 4 community park are ready to be implemented. Then the task of the expert team is to monitor the development activities in each location.

At the same time the utilization and management planning of the park was conducted by anthropologists, community representatives and teams from Indonesian Red Cross. The almost final technical drawings and estimation cost were presented to the community representatives, key stakeholders and community leaders to produce the final designs. This design had to be implemented and completed within 30 days. Apart from the design nature-based infrastructures such as water catchment area and biopori were applied (Fig. 3). The community was also taught how to make it and the reason why we should have it. This community engagement program was divided into 3 assistance phases (Table 1,2 and 3).



Fig. 3 Banks with water catchment – example of technology transfer

Source: Private (2016)

3.2. The Assistance Phase

I - Pre-Design Phase and Role

Table 1. Pre-design Phase

Architecture Team	Anthropology Team
<ul style="list-style-type: none"> Review the location of community park Keep track of physical characters on site and analyze possible accesses Trigger the community to come up with ideas to be implemented in the space Develop a design from the result of the discussion between citizens and Indonesian Red Cross volunteers 	<ul style="list-style-type: none"> Review locations Read the character of the residents, explain about the activities and invite the people to contribute in charrette

II – Design Development Phase

Table 2. Design Development Phase

Architecture Team	Anthropology Team
<ul style="list-style-type: none"> Process the charrette results and develop them with Indonesian Red Cross and its volunteers Realizing the design in the form of illustrations from various sides, including site plan Prepare the cost estimation in each community park and discuss it Indonesian Red Cross 	<ul style="list-style-type: none"> Provide important inputs / records related to the character of the community in each location, including activities by age type (children up to the elderly) Following the design and cost estimation developments developed by the Architecture team

III – Design Implementation Phase

Table 3. Design Implementation Phase

Architecture Team	Anthropology Team
<ul style="list-style-type: none"> Reviewing the implementation issues in the field, checking the shortcomings and suitability of design and built Take steps and actions on the state of the field that may not be in accordance with what is planned in the beginning 	<ul style="list-style-type: none"> Review the field and observe the workings of the community and its participation, including the enthusiastic citizens (especially the children) in experiencing the implementation process Developing "exit strategy" as an effort of citizens in taking care of green space facilities in the future, including institutions and management procedures.

3.3. Variable for Potential Sustainability Assessment

Sustainability in this paper means the condition where the local people keep their commitments and willing to maintain the community park after the revitalization program is finished. Therefore, seven assessment variables was selected as the key to measure the potential green open space sustainability factors. These variables were recognized during the revitalization process I to III at each locations and was adjusted to Haq (2011) about the benefit of community engagement. From these variables, stars are given based on the highest (★★★), medium (★★) and to the lowest (★), in which more stars show higher potential for the green open space to be maintained by the community, and is therefore potentially sustainable. The first 3 variables are the main social and financial capital. These variables tend to determine the assessment result. The 7 variables are:

Table 4. Assessment Variable

No.	Types of Benefits	Variables	Parameters
1	Social and physical benefits	Enthusiasm	Shows the enthusiasm of the community after hearing the community park improvement program
2	Social and physical benefits	Willingness to contribute voluntarily	Shows the contribution willingness from the community to engage with the program without any forces from outside
3	Economic and aesthetic benefits	Financial Capital	Shows where the financial capital sources come from for current program
4	Social and physical benefits	Human resource	Shows the capacity of human resources to get involve in the program
5	Environmental Benefit	Area	Shows how big/small the area is
6	Environmental Benefit	Location	Shows the location (in term of easy-to-access by public)

7	Economic and aesthetic benefits	Previous Fundings	Shows where are external funding sources for the previous program (if any)
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4. Result and Discussion

After the Charrette session, the information was compiled as daily activities during weekdays, weekends and holidays, in order to understand how the community around the site benefiting the site and engaging with the sites and with each other. From the list of daily activities below, the expert team tried to find the facility that can cater to the activity needs. The list table 5 below shows the tranformation from existing data into priority data (facility needs) by merging the data into the priority list. The revitalization will then take action based on these facility needs.

Table 5. Daily Activities and Needs on the 4 Green Open Spaces

	Morning	Daylight	Afternoon	Evening	Facilities needs
Location 1: PONDOK RAJEG					
Weekdays	<ul style="list-style-type: none"> Sports activities from schools outside the housing cluster 		<ul style="list-style-type: none"> Playing futsal every afternoon 	<ul style="list-style-type: none"> Futsal (often) Volley (often) 	<ul style="list-style-type: none"> Mushollah Storage of sports equipment Changing room Reflection therapy
Weekends and Holidays	<ul style="list-style-type: none"> Futsal Aerobic for women Small walk/reflection therapy 	<ul style="list-style-type: none"> Event - futsal /volley competition on national holidays 	<ul style="list-style-type: none"> Small walk/ reflection therapy Futsal Children playing 	<ul style="list-style-type: none"> National holiday related activity futsal Karang Taruna/ youngsters activity 	<ul style="list-style-type: none"> Playground Gazebo Jogging track (surrounding the green open space)
Location 2: KARADENAN					
Weekdays	<ul style="list-style-type: none"> Reflection therapy Jogging Mothers feeding their children while playing at play ground 	<ul style="list-style-type: none"> Shelter School children's place (community hall) 	<ul style="list-style-type: none"> Children's playground 		<ul style="list-style-type: none"> Library Infiltration wells Biopori Information Child education park Trash can
Weekend and Holidays	<ul style="list-style-type: none"> Reflection therapy Jogging 	<ul style="list-style-type: none"> Qurban slaughter Independence day event 	<ul style="list-style-type: none"> Futsal Basket ball 	<ul style="list-style-type: none"> badminton 	<ul style="list-style-type: none"> Information boards Hotspot point Park bench Herbal plant garden Diversification of shade plants The facility is difable
Location 3: WARINGIN JAYA					

Weekdays	<ul style="list-style-type: none"> • Mothers feeding their children while playing at play ground • Children playground • Meet up place for men • Exercises place for women 	<ul style="list-style-type: none"> • Hang out place 	<ul style="list-style-type: none"> • Futsal for children and teenagers 	<ul style="list-style-type: none"> • Patrolling basecamp 	<ul style="list-style-type: none"> • Children playground • Information and security • Trash can • conblocks • Drainage • Jogging track • reflection therapy
Weekend and Holidays	<ul style="list-style-type: none"> • Mothers feeding their children while playing at play ground • Children playground • Meet up place for men • Exercises place for women 	<ul style="list-style-type: none"> • Hang out place 	<ul style="list-style-type: none"> • Futsal for men 	<ul style="list-style-type: none"> • Patrolling basecamp 	<ul style="list-style-type: none"> • Publick Toilets • Flower plants, fountains, gazebo • herbal plants • Garden chairs • Lights
Location 4: SUKAHATI					
Weekdays	<ul style="list-style-type: none"> • Mothers feeding their children Tempat bermain anak • Children playground and exercise (Tuesday, Thursday) • Meet up place for men • Exercise place for women 	Small walks (for the elderly and pensioners)	Sports activities of school children		<ul style="list-style-type: none"> • Maximize park function • Expand the lights, minimize the bench • Provide a trash can • <i>Biopori</i>
Weekend and Holidays	<ul style="list-style-type: none"> • Mothers feeding their children Tempat bermain anak • Children playground and exercise (Tuesday, Thursday) • Meet up place for men • Exercise place for women 	Small walks (for the elderly and pensioners) Exercise		basketball Community activities around the field	

4.1. Pre-Condition Assessment on the community park

Each community park has different pre-conditions for the project development. The university team tried to compare the pre-condition of each site to figure out the result of the project development, whether it is potentially sustainable or not. The pre-conditions, mainly the social and financial capital, play a big role in determining the sustainability of each green open space. According to Bhuiyan (2005) the community should have the power that the government don't have enough.

Three main variables were assessed to observe the sustainable potential on each green open space. These 3 variables influence very much on the sustainability of the program and those are enthusiasm, willingness to contribute and financial capital. However only by seeing

these firsts 3 variables, the sustainability after the program ends on the green open space can be predicted.

Haq (2011) described about 3 types of community engagement benefit and those are environmental benefit, economic and aesthetic, and social and physical benefits. In this sustainability assessment all benefit were transferred into more specific variables, which were taken from the process.

In terms of enthusiasm, the highest stars would be given to a site which has high motivation. This variable is one of the most important issues for sustainability. Additionally, all stakeholder segments (men and women, adults and teens) were expected to be involved. Moreover, any community initiative would be taken as added values. Out of the four locations, Pondok Rajeg and Waringin Jaya received the most stars and Sukahati was the lowest as it showed low interest in participation of the program. The assessment was taken on the phase I. Not as in other locations, it is found difficult to communicate or have feedback from Sukahati community since the phase I. Mainly communications only last one ways. Once team was asking about the size of the green open space to the contact person, but the number never showed up. Then the team decided to measure the green open space them selves.

In terms of willingness to contribute, the highest stars were given to the community that was willing to contribute voluntarily and give their power to implement the revitalization. This assessment was conducted on Phase II and III and the highest number of stars went to Karadenan and Waringin Jaya as the local community also built the constructions together. Almost in all location (except in Sukahati), the workers are joining forces between the profesional (external workers) and the local community. They are willing to do the construction work by contributing what they can, even by only moving stones/sands from the trucks to the site.

In terms of financial capital, the highest number of stars was rewarded to the self-funding scheme (not external funding), as it formed a sense of belonging to the sites. Considered the American Red Cross as the donor and it is limited, the community in Karadenan dan Waringin Jaya were also putting their effort to contribute financially in order to achive the ideal conditions. In this way they are not only support phisycally but also financially.

In terms of human resources, location Karadenan and Waringin (3 stars) Jaya were more advanced. The community had various skills/backgrounds. On the other hand, Sukahati's human resources were unknown since very few community members got involve in all phases.

The bigger the area, the bigger the opportunity for the community and expert team to explore what can be improved at the community park. However larger areas need a larger amount of money. The highest number of stars went to Sukahati (3 stars).

Table 6. Pre-condition Assessment

No.	Parameters	Pondok Rajeg	Karadenan	Waringin Jaya	Sukahati
1.	Enthusiasm (Phase I)	The community shows very high interest in participating to the program. They gave a lot of requests and recomendations	The community shows very high interest in participating to the program. They gave a lot of request and recomendation	The community shows high interest in participating to the program. They gave a lot of request and recomendation	The community shows little to low interest in participating to the program (+). The earlier measurement of the site even

No.	Parameters	Pondok Rajeg	Karadenan	Waringin Jaya	Sukahati
		during the charrette (+++). They even prepared a decent tent for the charette and invite the expert team for lunch (+). People who come to the charette were including men and women, but no teenager/ youngsters (-).	during the charrette (+++). But, they forgot to involve women and people who lives near the site, only some men and some teenager from Karang Taruna (-).	during the charratte (++). They even prepered a decent tent for the charatte and invite our team for lunch (*).	handled by the SIBAT not the community itself. It is recognized later that the community here is less active.
	Stars	★★★	★★	★★★	★
2.	Willingness to contribute volunteerally (phase II and III)	The Community in Pondok Rajeg have high motivation to contribute to the project (+++). But their daily routine activities made them less active than the others (-).	The Community in Karadenan has high motivation to contribute to the project(+++). They even organize the construction process by their local workers.	The Community in Karadenan has high motivation to contribute to the project with the community also contribute financially and actively doing the construction work (+++).	The community in Sukahati has low motivation to contribute to the project.
	Stars	★★	★★★	★★★	★
3.	Financial Capital (all phase)	Pondok Rajeg Public Space was also get a lot of financial contribution from their institution (external) and community (++)	Karadenan Public Space was also get a lot of financial contribution from their own community (+++)	Waringin Jaya Public Space was also get a lot of financial contribution from their own community (+++)	Sukahati Public Space was solely provided by donor contribution (+)
	Stars	★★	★★★	★★★	★
4.	Human resource (all phase)	The Community in Pondok Rajeg is quite solid. But most of the construction work was done by professional worker due to their activities outside the neighborhood during the weekdays (++)	The Community in Karadenan is solid enough that they are willing to do the construction work together along with some profesional worker to asure that the construction technique is right and to provide skill and equipments that they don't have.	The Community in Waringin jawa is solid enough that they are willing to do the construction work together along with some profesional worker to asure that the construction technique is right and to provide skill and equipments that	The community in Sukahati never pay much attention to this project since from the initiative phase until the construction phase. All the construction work was done by professional worker. (+)

No.	Parameters	Pondok Rajeg	Karadenan (+++)	Waringin Jaya they don't have. (+++)	Sukahati
	Stars	★★	★★★	★★★	★
5.	Area	Pondok Rajeg is the second widest area among other sites. This is also mean extra budget to improve the public space. Need extra budget to improve the public space (++)	Karadenan holds the smallest area among other sites. So, the allocated budget could be possible to cover the public space improvement. Thus it limited the opportunity for the community to share contribution (+).	Waringin jaya also the second widest area among other sites. This is also mean extra budget to improve the public space. Need extra budget to improve the public space (++)	Sukahati holds the widest area among other sites. But this also mean extra budget to improve the public space. Need extra budget to improve the Sukahati green open space (++)
	Stars	★★	★	★★	★★★
6.	Location	Located inside a military housing area (++)	Located inside a housing area (++)	Located inside a housing area (++)	Located near the street and is reachable by public transportation (+++)
	Stars	★★	★★	★★	★★★
7.	Previous Fundings	None before But the housing developer already built some basic facilities for the public space. (++)	None before But the housing developer already build some basic facilities for the public space. (++)	None before (+)	Sukahati already recieve previous funding from a specific program for building public space. (+++)
	Stars	★★	★★	★	★★★
Total Stars		15	16	17	13
Green Open Space		Pondok Rajeg	Karadenan	Waringin Jaya	Sukahati

Last but not least, in terms of area, the highest number of stars was given to public and easy to access areas. Although all four locations were considered as public areas, not all of them was accessible by public transportation. Hence, it also limited the benefits from the community park. The location in Sukahati reached the highest rank (3 stars), as it was strategically located next to a main street.

The last parameters, in terms of previous funding, any internal funding was considered better than external funding from a sustainable point of view. However, networking and publications allow community to have external funding. In this way previous funding was considered as an achievement. The only community park that received external funding (government grant) was Sukahati.

The assessment above (Tab 6). shows the community park in Pondok Rajeg collects 15 stars, Karadenan collects 16 stars, Waringin Jaya collects 17 stars and Sukahati collects 13 stars out of 21 total starts. The open space in Waringin Jaya reached the highest amount as it collects always 3 stars in the first 3 most influence variables. Following Waringin Jaya, there are Karadenan and Pondok Rajeg green open space.

All together the team experienced positive working atmosphere with these 3 communities. These community were very much engage to their open green space revitalization and therefore the team believe that these green open spaces will be maintained by the community and will not be abandoned. As long as the community in Waringin Jaya, Pondok Rajeg and Karadenan keep their social and financial capital most likely these community parks will be sustainable. On the other side, if the community in Sukahati did not improve their values for community park, then any revitalization program on this site will not be sustainable. However, Sukahati has the best potential in terms of locations and area. Located exactly aside to a main street, this site is very easy to access and therefore the term green open space as public facility is valid.

5. Conclusion

The sustainability potential within the community park revitalization is the planning that involves local community. It is sustainable if the community shows high motivation to get actively engage during the revitalization program. It is a bottom up approach in accordance with the wishes and needs of the local community, in which social capital and financial capital are a part of. However, professional assistance in architecture and anthropology is needed to help people understand their needs, rather than just focusing on what they want. Hence, it encourages the community to engage in the program while also motivates community to keep the promises (Fukuyama, 2000:3).

The most influential factor in the development of green open space is community enthusiasm, the willingness to contribute to the project and the capitals. These 3 parameters highly influence the potential sustainability. They gave signs for the success of the program. It forms a sense of belonging that allows community to perform the maintenance of the site and even be willing to make improvements by adding other facilities at their own expense. These signs are prominent in Waringin Jaya and Pondok Rajeg as both as all of them received 2-3 stars for the first 3 variables.

The stars within the assessment show the degree of sustainability of the community park in each location. The priority improvement in the revitalization can be done by addressing the lowest star and to support higher stars with relevant activities. In the case of Sukahati community park, the process was taking too long as the early parameter (enthusiasm) was already low from the start. Although it has high parameter of accessibility, previous funding and area, without the first 3 parameters the program seemed to be far from sustainable.

Community park in Waringin Jaya holds the highest rank in terms of the 7 variables measured in this study, followed by Karadenan, Pondok Rajeg and then Sukahati. Karadenan and Waringin Jaya mostly have potential values on the community willingness to contribute voluntarily, capital and human resources (additional). These 3 variables are the key for community engagement addressing the community park sustainability.

Acknowledgements

The team would like to express the utmost gratitude to American Red Cross, Indonesian Red Cross – National and Bogor Regency Team, Directorate Research and Community Engagement Universitas Indonesia (DRPM UI), and Faculty of Social and Political Science Universitas Indonesia (FISIP UI) Departemen Antropology for their initiative, contribution

and commitment in the program. Our highest appreciation also goes to Architecture Department, Engineering Faculty Universitas Indonesia (FTUI) Colleagues and Students for the unconditional and extensive support for the program. Also, our sincere gratitude to the community in Pondok Rajeg, Karadenan, Waringin Jaya and Sukahati (Bogor Regency) and Local Government of Bogor Regency for their cooperation during the program.

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