

Green Open Space: Awareness for Health or Sustainability?

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Abstract. Universitas Indonesia in cooperation with American Red Cross and Indonesian Red Cross have been assisting green open space revitalisation program in 7 locations in Bogor Regency (2016-2017). The program was held under The Urban Disaster Risk Reduction Greater Jakarta Project; an initiative program from American Red Cross Indonesia. This project was not only improving the existing green open space quality, but also creating one adapted from public land. The revitalization project figures what happened on daily basis on the existing land, proposing new programming facilities, community-based construction, monitoring and handing over. This paper discovers the meaning of a green space for the community, whether the community aware of its benefit on human health or environmental sustainability. The research question is does the community aware of green open space benefit for human health or environmental sustainability? Or both? The original data from the community was gathered and grouped based on its relevance with environmental quality and public health.

1. Introduction

The open green spaces are becoming more difficult to find in urban area. Many green open spaces were transferred in to a concrete and brick blocks. Such tendency can also be seen in big cities in Indonesia, nevertheless in Bogor city, which is marked by the decreasing of green open space and the dominance of physical buildings.

Studies have found that when people have access to green open space such as park, they exercise more [1]. Moreover evidence also suggest that people who live close to park and recreation facilities have lower rates of obesity and engage in more physical activity than those who do not [2].

Green open space is a space that is planned to meet the need of community interaction and joint activities. It gives space that serves as a means of container of human life, both individually and groups as well as other living creatures that live and grow sustainably [3]. The space also serves as an active playground for children and adults, a passive lounge for adults and as a green conservation area. Republic Indonesian Act No.26 Year 2007 about green open space stated that the proportion of forest should be minimum 30% from water shade to maintain environmental sustainability.

Universitas Indonesia, American Red Cross and Indonesian Red Cross implemented the Urban Disaster Risk Reduction (DRR) Greater Jakarta Project, specifically on Green Open Space Revitalization Program. The project involves Department of Architecture Faculty of Engineering, Department of Anthropology Faculty of Social and Political Science and Faculty of Psychology. Green open space in this paper refers to human built environment such as urban park, garden or any



green space that is located in the middle of housing settlement. It exists to serve the community needs of community interaction and joint activities.

This paper emphasizes the pre-design phase of the green open space revitalization program in Bogor Regency [4]. It determines the community recognition about the green open space elements. The recognition was done by analyzing input from the community and observing the actual activities. The three stages involved in this phase are (1) to discover what is the meaning of green open space for the community, (2) to observe the existing daily basis activities on the current green open space, and (3) to find out what kind of green open space elements do the community needs or wants to have on the revitalized green open space. The community opinion about green open space elements will determine whether the community aware of its benefit on health human or environmental sustainability.

2. Theoretical review of green open space for health and sustainability

Penataanruang.com describes some of the backgrounds behind the green open space preservations and those are aiming to create the microclimate and to reduce the air pollution potential from the surrounding activities, to conserve the natural resources and to serve as evacuation areas during disasters [5]. The green open space is dominated by natural environment outside and within the urban area and can be along with recreation area and green line.

2.1. Human health

Based on medical dictionary, human health or health is a relative state in which one is able to function well physically, mentally, socially and spiritually in order to express the full range of one's unique potentialities within the environment in which one is living.

2.2. Environmental sustainability

Based on medical dictionary, environmental sustainability is long-term maintenance of ecosystem components and functions for future generations.

2.3. Benefit of urban green space

Haq (2011) underlined the 3 types of benefit from urban green space: (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 [6]. Referring to the benefit of green open space, there is an opportunity to differentiate two direct benefits for the community; those are for environmental sustainability (benefit no.1) and human health (benefit no.3). The benefit of economic sustainability (benefit no.2) is out of discussion in this paper as these benefits were observed during the pre-design phase and based on the actual input from the community.

3. Methodology

3.1. Locations

This paper analyzes the result based on community participation and in depth interview method during the pre-design phase. The seven local communities from seven locations in Bogor Regency, West Java, were involved during the revitalization program between 2016-2017. The number of household from each location is around 300 Households. Community participation is one of key features of Healthy City based on World Health Organization (WHO). The involvement of the local community in this revitalization program is a must in order to identify the activity program on the green open space. It is a bottom-up approach and therefore these needs have to come from the community's side. It is expected that the involvement will increase community belonging sense and willingness to spend more time there, which will directly affect the sustainability of the green open space.

The 7 locations of green open space revitalization and the year of the projects conducted are:

- Location 1: Local Community in Green Open Space Karadenan, 2016
- Location 2: Local Community in Green Open Space Pondok Rajeg, 2016
- Location 3: Local Community in Green Open Space Sukahati, 2016

- Location 4: Local Community in Green Open Space Waringin Jaya, 2016
- Location 5: Local Community in Green Open Space Kedung Waringin, 2017
- Location 6: Local Community in Green Open Space Sukahati, 2017
- Location 7: Local Community in Green Open Space Waringin Jaya, 2017

Table 1. Green Open Space Element Definition

Elements	Definition*
Playground	An outdoor area featuring equipment designed for recreation and play, such as seesaws and swings
Gathering Place	Place for assembly of person; a meeting place
Sport Area	Area for activity involving physical exertion and skill that is governed by set of rules or customs and often undertaken competitively
Green Environment	Grassy environment area located usually at the centre of a city or town and set aside for common use
Trees plantation	An area under cultivated trees or plants
Open space for safety area	An area which is free obstacles
Water Catchment Area	A reservoir, esp. for catching and retaining surface drainage over a large area, in which sediment may settle
Educating Area (depending on kind of activities)	Area to educate
Therapy Area	Area for treatment
3R Facility	Facility for Reduce-Reuse-Recycle
Climbing Wall	Mountaineering a specially constructed wall with recessed and projecting holds to give practice in rock climbing, a feature of many sport centres
Drainage	Systemic withdrawal of fluids and discharge from a wound, sore of cavity
Toilet	An apparatus into which defecation and urination can be done

*) Relevant definition taken from the website [7] [8]

3.2. Data collection method

The data was collected during the Charrette process and held directly on the green open space, within different time and locations (Figure 1). The Charrette is an intensive and multi-disciplinary workshop design [9]. This method is commonly used to facilitate discussion between stakeholders on a project or program. A charrette, a group of experts met with the community groups and related stakeholders. The stakeholders for this program is the community, The Indonesian Red Cross Volunteer (SIBAT), The American Red Cross and the Universitas Indonesia team.

Four questions were raised during the charrette process and the local community was expected to answer. The questions were: (1) what is the definition of the green open space for me (the local people)? (2) What are the activities in this green open space during weekends, weekdays, days and night (3) What do they wish to see or have in a green open space, and (4) what are the priorities between the wish list from answer of question number 3?

To make sure the originalities of the data, only question number 3 is taken in to account as relevant question to this study. All together the wish list from the local community consists of playground, sport are, therapy area, educating area, green environment, trees plantation, 3R facility, catchment area, open space (safety area), toilet, climbing wall, gathering place, and drainage. In this study, we named this wish list as "program activity" list.



Figure 1. Community Participation (right) and the written opinion (left) during the charrette

3.3. Type of benefit from urban green space for the community

This study only involves 2 out of 3 types of benefit from an urban green space for the community and those are human health benefit and environmental sustainability benefit. However from the discussion the study found some wishes of the program activities from questions number 3 could also be part of both human health and environmental sustainability benefits. In this way the group of program community will be (1) program activities which include as part of human health only, (2) environmental sustainability only and (3) the last group, which are considered to be part of both human health and environmental sustainability.

4. Result and discussion

This paper summarizes the pre-design phase results of the green open space revitalization. This study emphasises the awareness of green open space for the community, whether it is benefiting for health, for sustainability or for both. The community has the right to express their opinion in mentioning what program activities that they want in the revitalized green open space. These community opinions were collected and analyzed during the charrette process.

4.1. Green open space community program activities

The local community program activities are shown by the community wish list, either the element is considered to be dominant in human health, environmental sustainability benefit or both. In fact such differentiation were never been asked to the community explicitly. Through the pre-design phase communications, this study underlines the urban green space awareness for the community (Figure 2). This study found that the wish list shows the dominance more on the human health benefit sides. From 13 types of program activities, 11 were considered benefiting human health, 6 were considered benefiting environmental sustainability, 5 were considered benefiting both, and 1 is not relevant to both (Table 1).

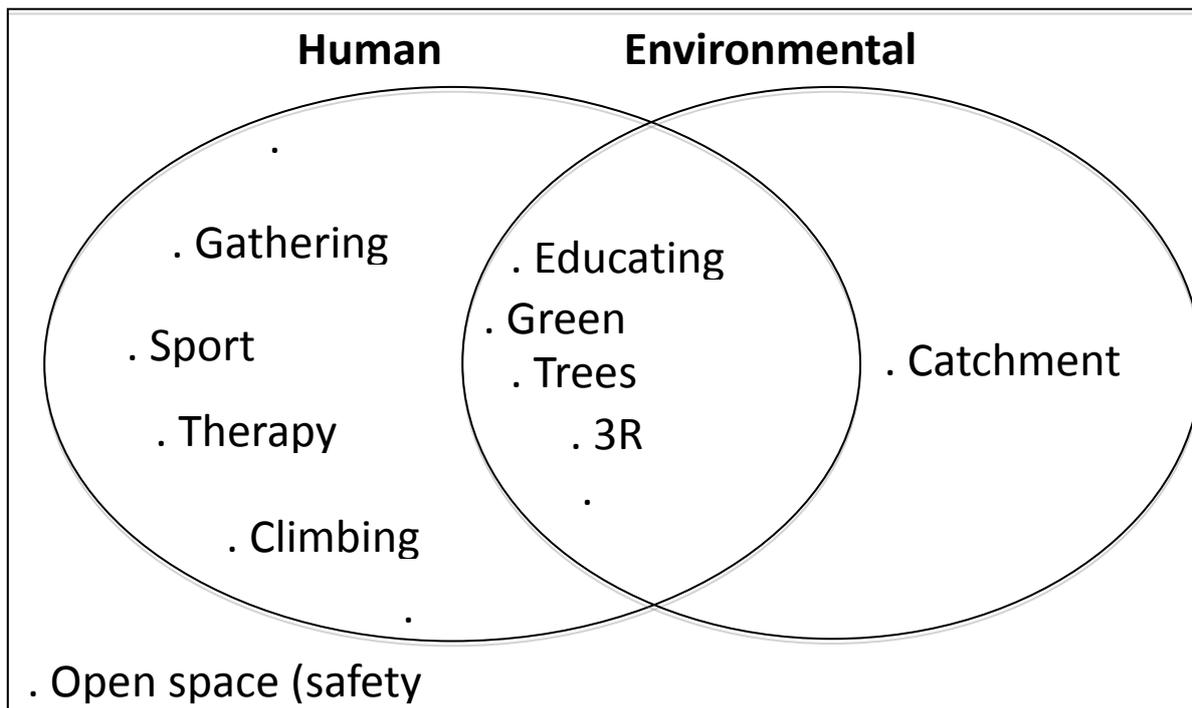


Figure 2. Grouping Result of Program Activities during Pre-Design Phase (Table 1)

4.2. Community priorities on human health program activities

On the human health context (Table 2), it is found that sport area, play ground, gathering place and green environment are the 3 highest priorities for the community. All the 7 locations mentioned Sport Area in their wish list, whereas 6 locations mentioned playground and 5 locations mentioned gathering place and green environment. The least mentioned is toilet, climbing wall, 3R facility and drainage. The climbing wall, toilet and drainage were only come out once, and all in location 4, in Waringin Jaya 2016, whereas the 3R facility was mentioned by location 2.

4.3. Community priorities on environmental sustainability program activities

On the environmental sustainability context (Table 3), the 3 highest priorities are green environment, water catchment, educating area, and tree plantation. Five locations mentioned green environment, 4 locations mentioned tree plantation, and 3 locations mentioned water catchment and educating area. The least mentioned was also 3R facility and Drainage.

5. Conclusion and suggestion

5.1. Conclusion

One of the main ideas of green open space revitalization is 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. The Indonesian Law no.26/2007 is also emphasizing the aim of green open space planning to empower the local communities, preserve the quality of environmental sustainability, conserve heritage and maintain the balance of cities-regencies development. In this way, Indonesian Government is also supporting community to contribute to sustainability.

This study found that the word “green open space” gives more awareness on human health for the community and it is proven by the dominance of human health related program activities. However environmental awareness also showed up, but not explicitly as shown in Figure 3.

In terms of program activities related to human health, program activities like sport area, playground, gathering place and green environment are among the top priorities according to the community. In terms of program activities related to environmental sustainability, the green environment, tree

plantation, water catchment area and the education area are among the top priorities. On both, the 3R facilities and drainage showed up as the least priorities according to the community's wish list.



Figure 3. The green open space with banks and water catchment (right) and sport (left) area

Table 2. Community priorities for human health

Elements	Location							Sum
	1	2	3	4	5	6	7	
Playground	√	√	√	√	√	√		6
Gathering Place	√	√	√			√	√	5
Sport Area	√	√	√	√	√	√	√	7
Therapy Area			√	√		√		3
Climbing Wall				√				1
Toilet				√				1
Educating Area			√			√	√	3
Green Environment	√	√	√	√			√	5
Tree Plantation	√	√			√	√		4
3R Facility		√						1
Drainage				√				1

Table 3. Community choices for environmental sustainability

Elements	Location							Sum
	1	2	3	4	5	6	7	
Water Catchment Area	√		√		√			3
Educating Area			√			√	√	3
Green Environment	√	√	√	√			√	5
Tree Plantation	√	√			√	√		4
3R Facility		√						1
Drainage				√				1

5.2. Suggestion

For the community, explicitly the green open space is a mean of awareness for health whereas includes awareness of environmental sustainability behind it (implicitly). This study found that in the context of urban green open space that is located in the urban area, the community is still having their mind set on a green open space area as playground, sports and gathering points under the green environment. It means currently the green open space represents more on the human physical activities. When an initiative program about green open space is about to launch, it is therefore necessary to inform the limitation for human activities and give portion of land for tree plantation (minimum 30%). For effective result, attention must be given to educational aspect, such as public hearing, community based action plan and trainings [10]. Indeed, the green open space exists to serve the community needs of interaction and gathering activities, but the proposal behind is also to reduce the air pollution potential from surrounding activities and to protect the environment towards sustainability.

6. Reference

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