The behaviour architectural approach on children public space in Jakarta to create sustainable environment

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Abstract. In recent years the city government of Jakarta has built Child Friendly Open Public Spaces (RPTRA) throughout the Jakarta area. In order to create sustainable environment in public space, study about existing condition of RPTRA in Jakarta is needed. The study conducted through descriptive method. Result of the study showed that the existing conditions of RPTRA are still inadequate, so a re-design of this public space is needed. The RPTRA re-design project aims to provide a playroom in accordance with the needs of each age group, as well as provide space for non-formal education facilities for the surrounding community as one of the fulfillments of educational programs in the RPTRA. The concept of the design is a playground design that fits the needs of each age group of children and a flexible learning space.

Keywords: behavior architecture, child friendly open public space, community learning center.

1. Introduction
Referring to the issue in the UN The Habitat Agenda concerning Environmentally sustainable, healthy and liveable human settlements in action number 142 states that development aims to increase the level of livability in settlements [1]. The government is advised to cooperate with other parties in promoting efforts:
(a) Full participation of all interested parties in spatial planning, design and practice that supports sustainability, efficiency, comfort, accessibility, security, aesthetics, diversity and social integration in human settlements.
(b) Interaction between several social groups through the development and maintenance of cultural facilities and communication infrastructure.

Liveable human settlement can be realized through the development of facilities and infrastructure that support the creation of social interaction, one of which is the Child Friendly Integrated Public Space (RPTRA). This child-friendly integrated public space is an effort to fulfill the child-friendly city development agenda by the DKI Jakarta government in 2013-2017. Not only aims as an embodiment of the development of child-friendly cities, the RPTRA is also a center for the fulfillment of the PKK (Family Welfare Development) program. Based on the ten PKK programs, education is one of the important programs in fostering family welfare.

To the RPTRA you can add the Community Learning Activity Center (PKBM) facilities to facilitate non-formal education programs. So that the surrounding community especially school age children can enjoy education. Activities in the PKBM include empowerment activities to hone life
skills such as sewing, cooking, handicraft courses and community activity units. In addition there is a pursuit program package equivalent to elementary school, package B is equivalent to the first school, and package C is equivalent to high school for people who want to continue their education.

One of the RPTRA that will be developed with the addition of PKBM facilities is the RPTRA Manunggal which is located on Manunggal Street, Meruya Selatan - West Jakarta. To create a sustainable built environment, this study discusses the application of a behavioral approach to the development of the PKBM and RPTRA Manunggal, using the manual “public playground safety handbook” by the US Consumer Product Safety Commission [2], as well as the RPTRA Management Guide in accordance with Governor Regulation no.123 of 2017 [3], in order to facilitate the need to play for every age group.

2. Methodology

The study of the behaviour architectural approach on children public space in Jakarta to create sustainable environment was conducted using descriptive method.

Collecting data was done through literature studies on children behaviour concept; public playground safety handbook, including precedents from similar projects, and field observations. The analysis is carried out by observing the user aspects, the environmental aspects, and the building aspect.

3. Result and Discussion

RPTRA Manunggal is located on Jalan Manunggal, Meruya - West Jakarta. In the integrated child-friendly public space there are supporting facilities for child and community service activities such as children's libraries, playgrounds, cooperatives which are part of the community activity units, lactation rooms, and children's sports areas. But for children's playground facilities are not designed based on the age group of children.

In accordance with the guidebook “public playground safety handbook” by U.S Consumer Product Safety Commission, playgrounds must be designed to meet the needs of playing every age group. Playgrounds currently available are only intended for children aged 3-5 years. For children aged 10-12 years, playing and exercising are carried out on the futsal court. As for children aged 7-9 years, they play in the park and amphitheater area (see figure 1). What is lacking is an additional playground for children aged 7-9 years, so it is necessary to add a playroom for children of this age group.

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Figure 1. The conditions of the existing RPTRA Manunggal.
The analysis shows that the division of playroom zones in RPTRA Manunggal is as follows (see figure 2):

![Figure 2. Existing condition of Manunggal RPTRA playground zone.](image)

Figure 2. Existing condition of Manunggal RPTRA playground zone.

Based on observations from the activities of RPTRA Manunggal users, the activities that many children do are play activities that involve outdoor activities. For boys they like soccer, while for girls they play in the playground and amphitheater areas. For boys aged 9-12 years, they work in the futsal field. In-room activities are mostly done by children in classrooms and multipurpose halls. Non-formal teaching and learning activities begin at 07.00 in the morning until 2:00 in the afternoon, and thereafter are extracurricular activities.

Based on the theory of child development quoted from the book The Psychology of the Child by Jean Piaget [4], the stages of child development begin from toddlers to pre-teens, which go through a process of cognitive, sensory, physical, social, verbal and language interaction (see figure 4).

![Figure 4. Stages of children's development and development process.](image)
The development of children starting from the age of 3-5 years is the child is able to communicate and express using images. Motorically they are very active in playing activities, especially games jungle gym, bicycle, ball, and running. They also can recognize colors and recognize the concept of numbers.

In the next stage the memory has developed, children can recognize the concept of time, socially they already understand how to negotiate and communicate with their peers and have been able to express their feelings. Motorically at this stage children become more active and like outdoor play activities that involve physical activities such as running, climbing, playing ball and jumping.

From the results of the analysis of children's play spaces according to age, the following is the proposed play space concept that can accommodate children's play activities according to their age group and stages of development (see figure 5).

![Figure 5. The concept of a child's playroom based on age and behavior: (a) children, and (b) adolescents or teenagers.](image)

For the behavior of users entering preadolescent and adolescent cognitive development, they have developed the capacity to think abstractly and deepen understanding of morals. In socializing they have a desire to be independent and tend to spend time with their peers. The concept of outdoor space for teenagers to do various socialization and sports activities is provided by taking into account the needs of a more active and dynamic movement, as well as a wider area for conducting activities.

4. Conclusion
Development of Child Friendly Integrated Public Spaces (RPTRA) which is equipped with Community Learning Activity Center (PKBM) facilities is advised to follow informal learning standards and the needs of play spaces according to the age of children up to teens according to their growth and development. Children and young people can learn and increase their skills in the facilities that have been provided.
5. References

[1] United Nations Habitat. Retrieved from http://www.un-documents.net/ha-4c.htm#C-11

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