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## Tarumanagara International Conference on the Applications of Technology and Engineering

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## 1st Tarumanagara International Conference on the Applications of Technology and Engineering 2018

### Preface

On behalf of the organising committee of 1st Tarumanagara International Conference on the Applications of Technology and Engineering (TICATE) 2018, I would like to welcome all delegates to the Campus of Universitas Tarumanagara (UNTAR) in Jakarta, Indonesia with great pleasure. Being held from November 22 to 23, 2018 the international conference is organized by UNTAR and technically sponsored by IOP Conference Series: Materials Science and Engineering (MSE).

Universities play an important role in facing the rapid development of technology and engineering in recent digital era. The rapid developments of technology and engineering impact various aspects of people's life in welcoming the era of Industry 4.0. The biggest challenge faced by universities due to these rapid developments is how the results of research and technological innovation can contribute to the people's prosperity. As a form of contribution from universities in responding this challenge, Universitas Tarumanagara hold the 1st TICATE 2018 with the theme of: "The Implementation of Research Results and Innovation for People's Prosperity".

This international conference activity is expected to be a forum of discussion, networking and exchanging ideas among researchers, academicians, and practitioners to work together to pursue research and technological innovation that can be used to contribute to people's prosperity.

Over 160 papers have been submitted to 1st TICATE 2018 from 6 different countries, those are Germany, France, Australia, Taiwan, Malaysia, and Indonesia. We categorized the papers under seven groups, namely Mechanical Engineering and Technology; Electrical Engineering; Industrial Engineering; Civil and Environmental Engineering; Food and Agriculture Technology; Informatic Engineering & Technologies; and Medical & Health Technology. All papers, regardless of their standing or initial classification, were available for general discussion at the committee's meeting.

Our special thank goes to our Rector, Prof. Dr. Agustinus Purna Irawan, who has initiated this conference, Dr. Svann Langguth as Head of Science and Technology Division from the Embassy of the Federal Republic of Germany in Jakarta, Prof. Dr. Mohd. Zulkifly bin Abdullah as Professor from Universiti Sains Malaysia, and Dr. Ir. Yono Reksoprodjo, DIC as Vice President Corporate Affairs of Sintesa Group, as our plenary speakers and Bank DKI, Bank Mandiri, Tarzan Photo, Hyperzone Computer, as our patrons. I would like to give special thanks to all of you for the interesting keynote speech at this international conference.

We also thank all individuals and organisations such as the members of international editorial board, the conference organisers, the reviewers, and the authors, for their contribution in making TICATE 2018 as a successful international conference and a memorable gathering event. I am also grateful for the support of publication service of IOP Conference Series: Materials Science and Engineering (MSE).

We hope that the conference could present you wonderful memories to bring home in addition to new insights and friendship congregated during the event. We truly value your participation and support for the conference. We hope that you will enjoy TICATE 2018 and Betawi culture and tradition in Jakarta.

Dr. Hugeng, S.T., M.T. (SMIEEE)



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## Children Friendly Environment in City Settlement: Study case : 'Kampung Luar Batang', North Jakarta

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# Children Friendly Environment in City Settlement

## Study case : 'Kampung Luar Batang', North Jakarta

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**Abstract.** Physically, a children safe environment can be achieved if certain environment has safe pavement, playgrounds to play and meet, open areas for plants and animals, and pollution free environment. "Kampung Luar Batang" is one of the settlements that is located in North of Jakarta. The overpopulated settlement and less open area become problems that take children's rights to have pavements and safe playing areas. This research using qualitative descriptive method to find problems in "Kampung Luar Batang" by directly going to the place and having dialog with local people. Through this paper which will give solutions and alternatives to solve problems by giving meet up area and playground to children in "Kampung Luar Batang". This study aims to give positive effect for growth of children physically and mentally.

Key words: Children Friendly Environment, Kampung Luar Batang, Playing Grounds.

### 1. Introduction

City Summit II Conference in Istanbul, Turkey, 1996, delegations from each governments met and signed Habitat Agenda, which a program to build better settlements. Paragraph 13 from the agenda, especially declare that children and youngsters must have appropriate living place; participate in decision making for their city or community; fulfill the needs of participating and playing in their community. Through the City Summit, UNICEF and UNHABITAT introduce Child Friendly City Initiative, especially for poor, to make sure that the children get their rights. [1]

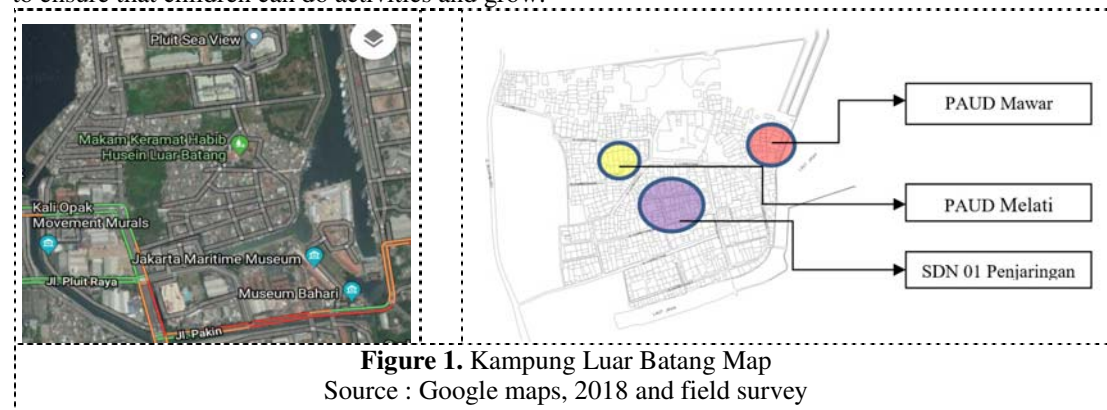
Based on the research by UNICEF, Indonesia doesn't have any appropriate Child Friendly Environment. This is ironic, because in Indonesian Law number 23, 2002, chapter 4, says that 'each child has the right to live, grow, and participate until certain point based on the human rights and get protection from violence and discrimination'. In the real condition, the rights of the children are taken, because there are no places for the children to play and grow.[2]

Government, through Laws and Regulations, must act in order to keep the rights of the children. Local Authority needs to build friendly city for children in order to ensure that children have places for playing and doing activities. The purpose of this paper is to find solutions and alternatives for populated areas to provide spaces in limited areas for children.



## 2. Material and Method

Kampung Luar Batang is the selected as the study case. Kampung Luar Batang is an over-populated environment in coastal area of North Jakarta. There are 3 RW (*Rukun Warga*)\* in this area. In RW 1, there is an early aged educational facility called PAUD (*Pendidikan Anak Usia Dini*)<sup>#</sup> Melati in which 38 students study there. In RW 2, there is PAUD Mawar with 54 students. Students in both of the PAUD have 4-6 years old range of age (Kindergarten A and B). In RW 3, there is an elementary school which named Sekolah Dasar Negeri Penjaringan 01, with 680 students, range from 1<sup>st</sup>-6<sup>th</sup> grade (7-12 years old). Based on this data, all ranges of children must be provided with appropriate facilities to ensure that children can do activities and grow.



Method of this research is qualitative descriptive, field survey, interview and literature study to collect the research required data. To analyze the condition of Kampung Luar Batang, Author use 3 theory below to find the problems and criteria of Children Friendly Environment :

### a. Friendly City for Children

To build Children Friendly Environment, then an area or settlement must fulfill needs for children. According to UNICEF, Innocenti Research Centre, a friendly city for children is the city that ensure the rights of children as citizens.[2] As citizens, then children:

1. Able to make decision for the city or place where the children live;
2. Able to convey ideas for the city or place;
3. Able to contribute in family, community, and social life;
4. Have the basic needs fulfilled such as health and education;
5. Have the appropriate clean drinking water and sanitation;
6. Protected from exploitation and violence;
7. Have a safe feeling when walking on a street;
8. Able to meet and play with peers;
9. Have open spaces for animals and plants;
10. Live in pollution free place;
11. Participate in social and cultural events;
12. Able to access all the public services aside from race, religion, wealth, gender, and disability.

In this study case, Author will give attention to point 7-10, specially to give children a proper place to meet and play and to have interaction with plants and animals.

### b. Children Playings Categories

The diagram below shows playing categories of children by Hurlock, 2003. Children need open spaces or fields for active playings.

End Note: \*RW(*Rukun Warga*) : Neighborhood council in Indonesian local environment

<sup>#</sup>PAUD(*Pendidikan Anak Usia Dini*) : Early aged educational facilities

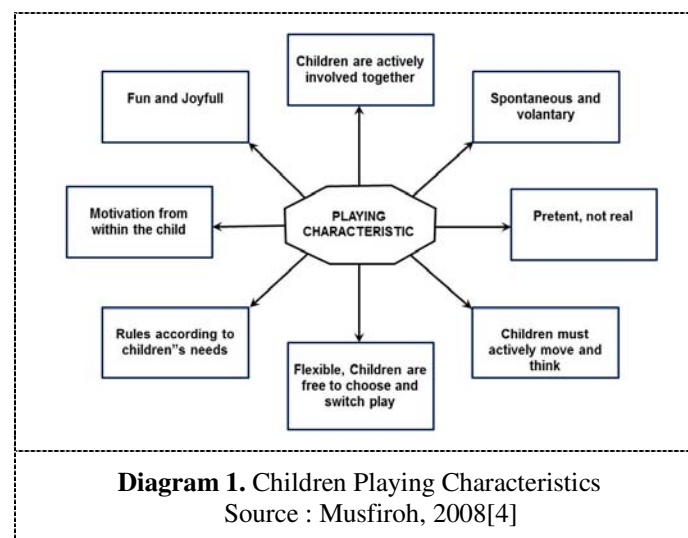


**Table 1.** Children Playings Categories

Source : Hurlock, 2003[3]

Active	Passive
Happiness comes from what the children do, such as running or making something from wax. When children become teenagers, this activity will be reduced.	Happiness comes from what other people do. Children use less energy to play. Children tend to enjoy time by reading or watching.
Active playing is often done in open spaces or fields.	Passive playing is often done inside house or indoor place.

## c. Children Playing Characteristics



The diagram above shows some playing characteristics of children. Playing is important for the children's growth mentally and physically. By playing, children may develop and train both motoric and sensory abilities. Also, children are trained to socialize with others.







From the three sources above, then as measurement tool in this research paper for Children Friendly Environment in Kampung Luar Batang, there are six important points of Children Friendly Environment Criteria, that are:

1. Have a safe feeling when walking on a street,
2. Have areas for children to play and meet,
3. Have playing grounds that provide physical activities for children,
4. Have meeting and playing places near children's daily activities,
5. Have alternatives that children can choose to play,
6. Have open space for animals and plants,

### 3. Result and Discussion

Analysis of this study is conducted by compare the theory with the empiric data in Kampung Luar Batang, here are some results that show the differences between Children Friendly Environment Criterias with Kampung Luar Batang Conditions.

**Table 2.** Kampung Luar Batang empiric analysis, from children friendly environment criteria.

No	Criteria	Condition	Problem	√/X
1	Have a safe feeling when walking on a street.		Side roads are used to park motorcycles because there is no carport in the house, streets are not in good condition because of rob flood. Streets conditions are dangerous for children when running because the streets are not flat and rocky.	X
2	Have areas for children to play and meet.		After school, children usually play with other children. However there is no field or playing ground at Kampung Luar Batang for children to gather and play. There is only street with houses on the sides. Children cannot choose to play in park or open space because there are not any.	X
3	Have playing grounds that provide physical activities for children.		Children play rollerblade in parking are near mosque and this activity is dangerous because there are many vehicles pass that street.	X
4	Have meeting and playing places near children's daily activities.		Children mostly meet and play with friends after school, however lack of facilities become problems in this case.	X
5	Have alternatives that children can choose to play.		Children who play with rough material from street which is dangerous for health. This condition shows that children need sandboxes to play.	X
6	Have open space for animals and plants.		In certain area, like PAUD Mawar, there is an effort to do "go green" effect. However, this can be more optimal to do in the limited area.	X

Legend : √ : fulfill the criteria,  
 X : not fulfill the criteria

Source : Author Analysis, 2018

Based on the above analysis, the author concludes that Kampung Luar Batang doesn't fulfill the criteria of Children Friendly Environment. In order to solve this problem, it is important to provide playing grounds and other facilities for children to meet and play. Therefore the author recommend an alternative solution to provide this facilities in a limited space inside the overpopulated area. A concept of "mix used" facilities is considered to optimize the variety of activities in one place for meeting, playing, parking motorcycles and planting some plants that will attract bird, butterfly or ladybug to fly near there. Vertical facilities can be developed for "mix used" concept between playing grounds and green area. This also can be used for parking lots in the lowest area.

**Table 3.** Alternative solutions to solve problems to create Children Friendly Environment

No	Criteria	Problem	Solution
1	Have a safe feeling when walking on a street.	Side roads are used to park motorcycle because there is no carport in the house streets are not in good condition because of rob flood. Streets conditions are dangerous for children when running because the streets are not flat and rocky.	It is a must to fix the street and plant grass in some possible areas.  In <i>mix used</i> facilities, can be built vertically for playing area on the top and parking lot on the bottom.
2	Have areas for children to play and meet.	After school, children usually play with other children. However there is no field or playing ground Kampung Luar Batang for children to gather and play. There is only street with houses on the sides. Children cannot choose to play in park or open space because there are not any.  Have playing grounds that provide physical activities for children.	Some potential spots near PAUD Melati, PAUD Mawar dan SDN 01 Penjaringan can be target are to build facilities for children in Kampung Luar Batang.
3	Have playing grounds that provide physical activities for children.	Children play rollerblade in parking are near mosque and this activity is dangerous because there are many vehicles pass that street.	Playing facilities can be made to stimulate motoric, such as climbing ladder or climbing rope.  For playing and riding bikes, mosque parking areamight be add more ways to provide this.
4	Have meeting and playing places near children's daily activities.	Children mostly meet and play with friends after school, however lack of facilities become problems in this case.	Same solution from number 2
5	Have alternatives that children can choose to play.	Children who play with rough material from street which is dangerous for health.	In <i>mix used</i> facilities, sand boxes or any other facilities can be added to give more flexible options.
6	Have open space for animals and plants.	In certain area, like PAUD Mawar, there is an effort to do "go green" effect. However, this is not optimal yet in the limited area.	With vertically designed bulding, then there will be more spaces to put some flowers or plants. Covers from the direct sunlight might be provided with this option.

Those above-mentioned alternative recommended solution may become way to make Kampung Luar Batang to be children friendly environment in city settlement. These will make children grow and

develop better in psychology and motoric aspects. Other people in Kampung Luar Batang will feel better living quality with these alternatives in their living environment.

#### 4. Conclusion

Children Friendly Environment must fulfill the needs of children, so it may help children doing activities safely, meeting and playing with joy, then has open spaces for greenery.

Kampung Luar Batang is one of the overpopulated in North Jakarta, so providing open spaces and playing grounds are difficult. This research find that with the 'mix used' concept, limited area might be used optimally as children playing area, motorcycle parking lot, and green area. This facilities is very important to fulfill the children's needs in Kampung Luar Batang.

In smaller area, simpler game modules might be used, such as wooden bricks, ropes or any unused items that can be converted into something useful. By trying to provide Children Friendly Environment in a city settlement, then that city will be a better place and more comfortable place to live in.

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## **OF ACHIEVEMENT**

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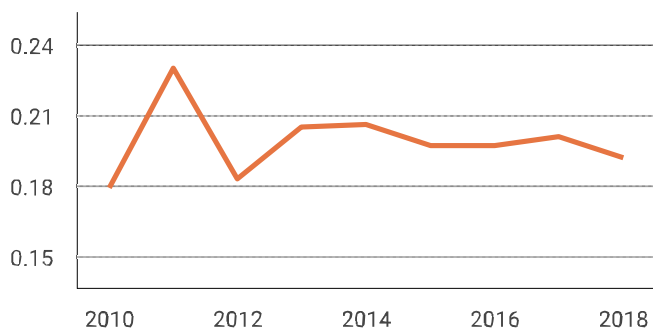
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Coverage	2009-ongoing	
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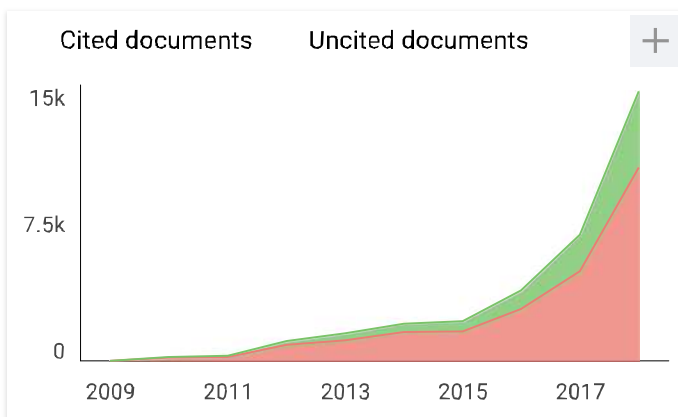
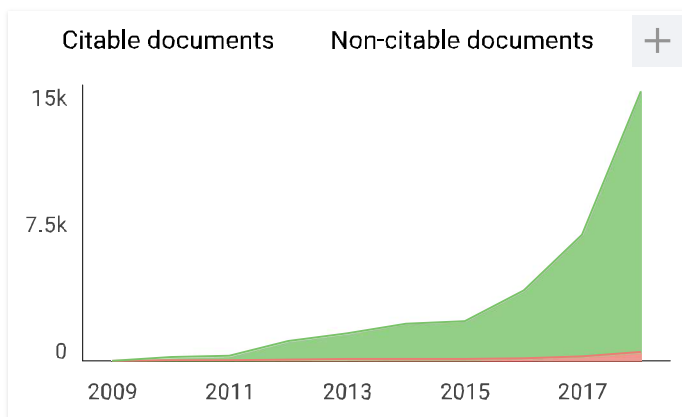
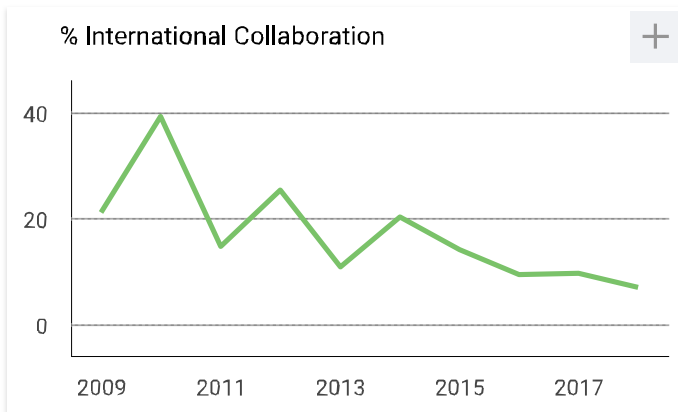
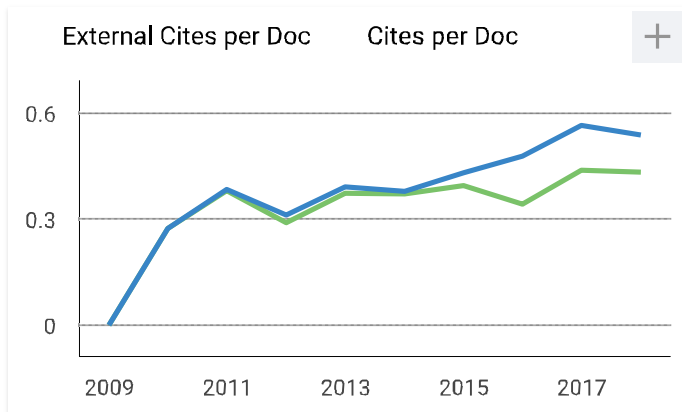
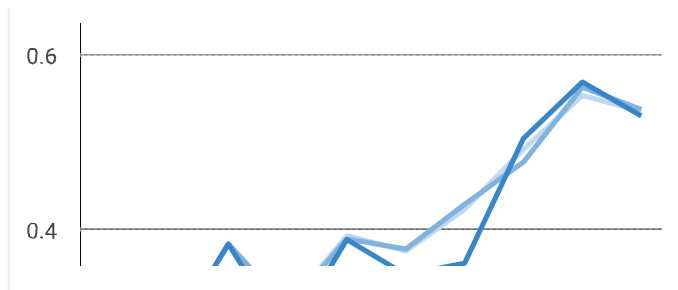
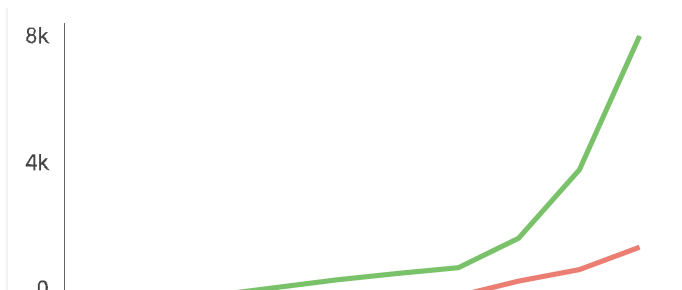
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