ADAPTATION OF THE PUBLIC SPACE TO THE CHALLENGE OF LIMITED INDOOR SPACE BY THE IMMIGRANT: A CASE OF INFORMAL SETTLEMENT AROUND THE RAILWAY TERRACE, SURABAYA, INDONESIA

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ABSTRACT
Illegal settlements development indicates the number of middle to low class immigrant coming to the city. It's a reflection of the city progress which advantages in its tourism, economy, and environment, making it delectable to the job seekers. Unfortunately not many immigrants can afford illegal housing, which then pushes them to occupy spaces around riverbanks, railway terrace, and empty slots around the city. The limitedness of the space in the housing area makes household activities overflow to the outdoor spaces. The purpose of this study was to analyse the potential needs and the characters that occurs to improve the living quality and the public space itself. So that it would give safety for the people around the platform. This research use behaviour observation to record activities and habits formed by the people to list the particular characteristic happens in this railway terrace settlement. The result shows that people have habit to use the outdoor, especially areas around the railway terrace and the track. This is as consequence from the limited indoor spaces.

INTRODUCTION
Surabaya is interpreted as parts consisted from pockets of village settlements, known as kampong which stands and fill various section of the city (Silas, 1996). Some of the public space has been developed in line with the city government effort to develop the city's infrastructure, both in the form of human settlement and other supporting facilities. However, the advent of immigrants coming from middle to low class economy can't afford to have the housing that has been provided. It's as affected by the high price and limited availability of the facilities. This phenomenon makes informal settlement emerges from some parts of the city. Immigrant hopes to have a changed fate and adjust to the life and mentality of urban life (UN Habitat, 2005). Some of the locations picked by the newcomer are by the riverbank, railway terrace, and abandoned space spreads around the city.

This differs from the kampong term, which is the origin of the development happened at the Surabaya city. Informal settlement is the result of the very rapid growth of urbanization, especially at the third world country. As stated by Davis: the differences between them (kampong and informal settlements) are informal settlement is not formally designed and regulated by the government, usually classified as illegal (Davis, 2007). Pasar Turi region is one of the study case seen as particular informal settlement. It developed near by the train terrace, as seen in the picture below. Some parts of this region was named kampong Mesigit.

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Figure 1. Study case location, Pasar Turi settlements with its various facilities nearby: yellow circles indicates the illegal settlements, blue is the commercial area, green meant to be the public park, red dots shows the railway tracks, and black lines are the main road that crosses the study area. (source: googlemap.com, 2016)

Pasar Turi informal settlement is popular among immigrants because of its strategic location, adjacent with many trade centres, main boulevard/street, and Pasar Turi train station (figure 1). Pasar Turi market located in the centre of North Surabaya commerce area, its included Kembang Jepun, Pasar Besar, and Dupak. Supervised by the government's unit which managed the shopping complex and market section, it is one of many famous icon of Surabaya capital. Yet, it is quite unfortunate due to the lack of government attention to the availability of the settlements for incoming citizen who are interested to stay and work in that area. This events causing regression on the living standards of people that lived in the surrounding area. Many caused by the lack of well-designed or the unavailability of the public facilities, including the availability of public spaces, shown as at the figure 2.

Figure 2. Public spaces that cross directly with the train. (Left) The early-morning market activities around railway terrace (source: authors, 2016). (Right) The island formed by the empty space around the train tracks (source: authors, 2016)

Pasar Turi citizen mostly use the area which crossed directly with the train track to do their household activities, such as laundering, cooking, and playing. This accounted as a very hazardous thing to do because of the high intensity of train traffics passing through the area. The border around the East track doesn't meet the regulation by the government (UU RI no 23, 2007). Whereas, the space used by the people for early-morning market. At that time the space is full of tables for trading as shown in the figure 2-left. The meeting of two train track formed an island space shaped, used as the settlement.

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In contrast of how it should be, the informal settlement surrounding Pasar Turi train tracks shows inverse condition with the definite meaning of a house. The lack of legal living space is causing various problems to the housing arrangement. The main issue is the availability of space itself. The citizen cumulate around one small area, so generally each housing scaled very small, around 15 m2. With those limitation comes the second problem, where it's very difficult to provide a well-organized space making each of the family members can't do their activities inside the house.

Activities transpired in the informal and formal settlement have similarity, related onto the needs and activities of the humans. Although practiced differently, each own has different structure and organization. Public space is somehow a form of clear boundary to understand the phenomenon develops in the informal settlement at the railway terrace. It is as caused by their visibility, which making it easy to see the boundary. Furthermore, established it as one of the main factor of slight inside about urban life.

Railway Regulation (Government Regulation PU 05/PRT/M/2008) states that the railway terraces are classified as green public space, functioned for specific order. Corresponding with the same statement also revealed from the office of rail regulation (2005), supposedly train track should have a clear border whether it's a fence or some form of enclosure. It should be lock and given a hazardous location sign. This time the environmental condition around the Pasar Turi train track controvert with the space theory and railway regulation. Where upon the people claims and privatised the railway terrace. Those are functioned as the extension of their house. Thus, the railway itself shared onto their public space. For these reasons, it's necessary to have a study against the character of the public space related with informal settlement located around the train track area. The study could be a feasible solution towards the provision of public space guidance by the specific needs and unique characteristic. It's to be expected that it would give insight to regulate the policy in term of structuring the area around the tracks as a part of missions to achieve sustainable city.

LOCATION OF RESEARCH

The research which is conducted in residential areas that are located at the kampong Mesigit, chosen according to its representation of settlements around the rail edge in Surabaya. Consequently, the research study could be more comprehensive. Those are marked by the character of the supporting factors which are encouraging immigrants to stay at a long time. It's caused by their strategic location adjacent to working places and affordability. The character of the research study area is settlements that are flanked by railway forming an island in the centre. The location also has slightly different elevation between housing and the railway tracks see figure 3.

Figure 3. The location of settlement around Pasar Turi (Source: wikimapia, 2016); yellow shows the illegal settlements area namely kampong Mesigit

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METHODS

This research is explorative and descriptive using qualitative mind-sets to describe systematic, factual, and accurate information on the facts about the properties of populations in specific areas. This research begins with a descriptive study of the data of the social culture and settlement railroad potency. Taking notes on the habits of citizen using behaviour observation techniques. Behaviour observation will record by both mapping and movement chart, interaction between the users in the public space and the built environment. The results of the observations provide a better understanding of habits and characteristic that can help provide immediate recommendations for developing or changing the quality of space. Observation can be done by registering the types of activities, time, and the image/illustration of society movement.

RESULTS AND DISCUSSION

Surabaya is the second biggest metropolis in Indonesia. This caused a massive development on growth both in the infrastructure and economy aspects, making impact onto its various layer of Surabaya's citizen. This statement is supported by the fact that Surabaya has its own sea and air gate, which are Perak harbour and International Airport Juanda, making the access easy for either international or regional transaction. These facilities makes people from surrounding area outside the city interested in making fortune in this capital of East Java, causing many local immigrant to stay and live within the heart of the city. To achieve the needs of human settlements, people tend to occupy licensed land without permission, such as the area around of the railway terrace. Those areas in particular are regulated by the security and safety of the nation Train Company, by the local terms called PT KAI. But, alongside the compaction, the development of the city is not supported by an adequate settlement for citizen. The limitedness and quality of space digressed drastically causing resident to use space around the railway terrace as an extension to their housing, to meet their necessary household activities. That led to hazardous habit that could harm life.

Informal settlement in the area around the railway terrace located at the Surabaya city precisely in the Pasar Turi region, kampong Mesigit in district Bubutan. This region is directly crossed by the railroad that categorized as the Surabaya operating area VII. At this stage, it safe to recognize the division of the public space occurring. It's a consequence from informal settlement or squatter formed in the railway terrace. Surabaya city has a high potential in terms of its economic aspect, therefore making certain area to be the urbanization destination for many immigrants. PasarTuri region has a lot of employment and labour whom are not too particular about extensive education. The appeals of the urban life are easy accessibility, prestigious location, many public facilities and services. It makes big flows of migration onto the city. Their low income leads to limited fund which then, they cannot afford legal housing provided at the city. For this reason, they want to stay near by their workplace utilizing abandoned space and building without permission.

Vacant land that are scattered in the downtown area is a strong pulling factors for newcomers to build their residence in the area. This happened because citizen can't meet the market price that sets by the formal settlement. Amidst the limitation of land availability, immigrant crowds to build houses in area around the railway terrace. It then impacts the dangerous level of building density. However, they don't perceive it as a trouble because their priority is the distance between their house locations to the workplaces. While the clarity of legal status of the land, shapes and building condition are considered not too important factor about the living wellness. Inadequate size of the house causing residents to divide activities that should be carried inside of the house onto outdoors, as seen at the illustration bellow.

Figure 4.Lay out and street picture of the research area: It shows schematic division of space that occurred on the informal settlement around the railway terrace in the Triangle settlement Mesigit Surabaya (source: authors, 2016)

In the illustration it is shown that there are clear division at the public space, which identified as the railway itself, transition area between railway and public space, the individual or shared outdoor space of each resident, and their private housing. The white part is the area adjacent to the railroad track, the distance between railway and citizen public place only sized about 1 – 2 m. It's commonly used as a pedestrian way for local resident to hop onto their neighbourhood village and as a direct access to their each shelter. Meanwhile, the green blocks indicates the outdoor space used as a public space by the local resident who live there. The yellow shade is to identify each of the houses. As seen on the illustration above, the boundary between each housing is quite clear because the wall separate each other from being mixed. It is in contrast with the outdoor space, the ownership seemingly vague because there's no sign of individual claim. Public facilities such as electricity, water, sewage and waste treatment, and public toilet are scattered in several location. A simple concept to ride alongside on the villages (kampong) adjacent to them.

Along with the matter of space, families can't decorate and certain furniture can't fit inside the house, it was then relocated onto the outside area. More problem overlap with each other, the function of particular area of the house such as, the terrace changed onto multifunctional room. From all of the issues mentioned above, it can be concluded that activities inside the house can't progress well. For this reason, citizen tends to shift those activities at the outside space. The issues make people mostly use their terrace and narrow space around the train tracks. Activities mentioned are laundering, cooking, socializing, children playing around, interaction between neighbours, and to keep some furniture that can't be kept inside. Therefore the quality of the public space changes as affected by this phenomenon. All of those activities could be accessed through the visual of the furniture in the area. These unique events occur due to limited housing space which approximately only scaled around ± 15 m2. The average housing usually sized about 3 x 5 m which led to some activities need to be done outside of the house as seen as the picture bellow.

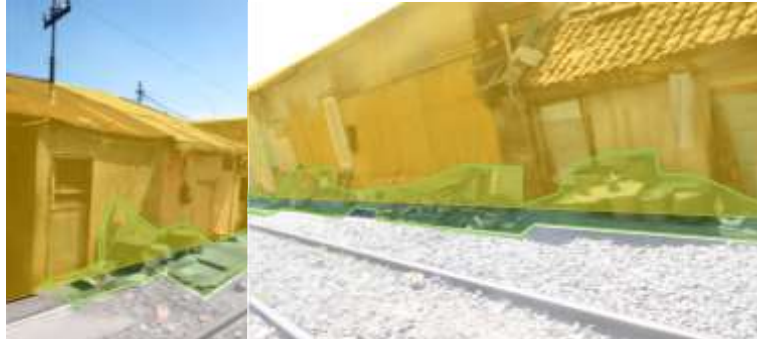# Global Journal of Engineering Science and Research Management

Figure 5. Building Appearance : the furniture which was scattered in the outdoor space due to limited space inside of the house. (source: authors, 2016)

The furniture seen in the outside area are cooking utensil, bath supplies, and clean water barrels, laundering tools, drying area, as well as relaxing area usually in the form of cots or small chair. All of the furniture is positioned either leaning or mounted on each their front houses, there are lightweight plastic chair that can be moved, usually functioned as a drying racks for clothes and leftover rice. The seating area itself is an extension of the terrace of the house, it interact directly with their front and only door access. The opening sized around 70-80 cm extend towards the edge of the railway bank. All of the furniture was built as a non-permanent, given the average resident in the area are mostly lived temporarily so that the concept is very practical in efficiency and saves cost.

It seems that activities and the existence of the furniture is a proof that there are particular characteristic occurs in the research area. Some of these characters are identified as a part of phenomenon from spacing consequences that comes from limitedness of housing space. Those characters can be studied from the activities shown at the tables highlighted by the red circle at the photo.

Table 1: List of characteristic based on activities happens at the outdoor space, railways terrace in site

No.	Illustration	Characters	Information
1.		Laundering/ Washing and Drying Area	Laundering and drying activities in the region is not only limited to clothes, but it also include dishwashing and drying particular food (crackers, leftover rice, salted fish, etc.). The character from this area are water basins stacked neatly close to their walls. Drying rack hangs around the roof ceiling of each houses.
2.		Cooking Area	Cooking area in the region will only be visible in the morning and afternoon, adjusting to the schedule of train traffic. The cooking utensils are hidden in a closet in front of each - each house and will only be removed when the activity takes place.

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No.	Illustration	Characters	Information
3.		Relaxing and Socializing Area	The relaxing and socializing area of each citizen located nearby their own terrace. Resident prefers to nap outdoor due to the condition of very hot temperature inside their houses during the day. The furniture used are called divan with wood or bamboo material. When the train passed, citizen will moved away to their house because the distance is very close, around 1, 2 m to the train.
4.		Playground area	Children do not have public playground, therefore their activities usually carried out on the porch of one of the resident. Due to the unavailability of the cycling track, children rides near by the railway tracks
5.		Clean Water Storage	Each citizen has clean water storage. This area could be recognized by the row of blue barrels that can hold 200 l of water. These water supply is obtained from the neighboring kampong and water vendors whom often sells around this area
6.		Gardening	The existences of the park as well an area for planting are proof of the citizen effort to maintain their environment. The plant usually planted in a pot medium and spread out in front of each houses. The height of the plant follows regulation by PT KAI so it won't endanger any train traffic

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No.	Illustration	Characters	Information
7.		Keeping Pets	Citizen usually owns a pet, the cage placed outdoor adjacent to the shelter. Animal that are kept are pigeons, chickens, and cats.
8.		Vehicle Storage	Vehicles which mostly stored outdoor are normally bike/bicycle, while the motorcycle are being kept by residents indoors when night time.
9.		Public bath and toilet	Public bath in the region lies in the neighboring village settlements on the banks of these rails. Activities likes bath and so on is done in accordance with the schedule of work / school each - each occupant

Based on the analysis conducted of the public spaces at the area around the railway terrace in PasarTuri. There is connection between the need of public space and housing space limitedness on the local resident. Therefore, the phenomenon in which the outdoor/public space formed as a consequence of limited indoor space occurs. Some of the characteristic arising from the spatial requisite is the needs of laundering/drying space, cooking space, socializing/relaxing space, playground area, clean water storage space, public bathroom, and vehicle storage space, space to nurture pets and plants, in form of a garden or park. There were a group of children running on the street, playing a kite and other traditional games. These activities show similarity with settlements in the riverbank area(Darjosanjoto, Nugroho, Widya, 2014). In the case of railway terrace, the high flow of the train also causes air pollution and decreases the value of urban health.

CONCLUSION
The research is a study about squatters that commonly emerges around Surabaya City. Squatters around the railway terrace happen because many immigrants moved to the city to get a job. Part of the main reason is the high price of legal settlement, as well as the lack of enforcement of the policies and rules of legality space by the government. Squatter that occupy around the railway terrace has its own characteristic in utilizing their spaces. Their development of space is intended to be able to accommodate all the necessary household activities in limited space. Those particular characters identified that they use the maximal potential of space around the railway terrace as a part of their attached dwelling. Many people assume that the outdoor space is a form of extension of the interior of their houses. In a way, it makes the citizen feels that they have the right to occupy that space to complete their activities. Researcher may give two recommendations which are short and long term. The short term recommendations are to give away a public space that can connect with groups of dwellings. The public space should be able to meet the necessities of the local citizen needs, basing by the character founded by the study done above. It's to prevent citizen from using the railway terrace and the railway tracks itself onto accommodate their daily chores. The long term recommendations are to encourage government to provide more low income housing that are affordable for the people. So immigrant can avoid settling on an illegal area. These things will help to improve the image and physical areas of the city.

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