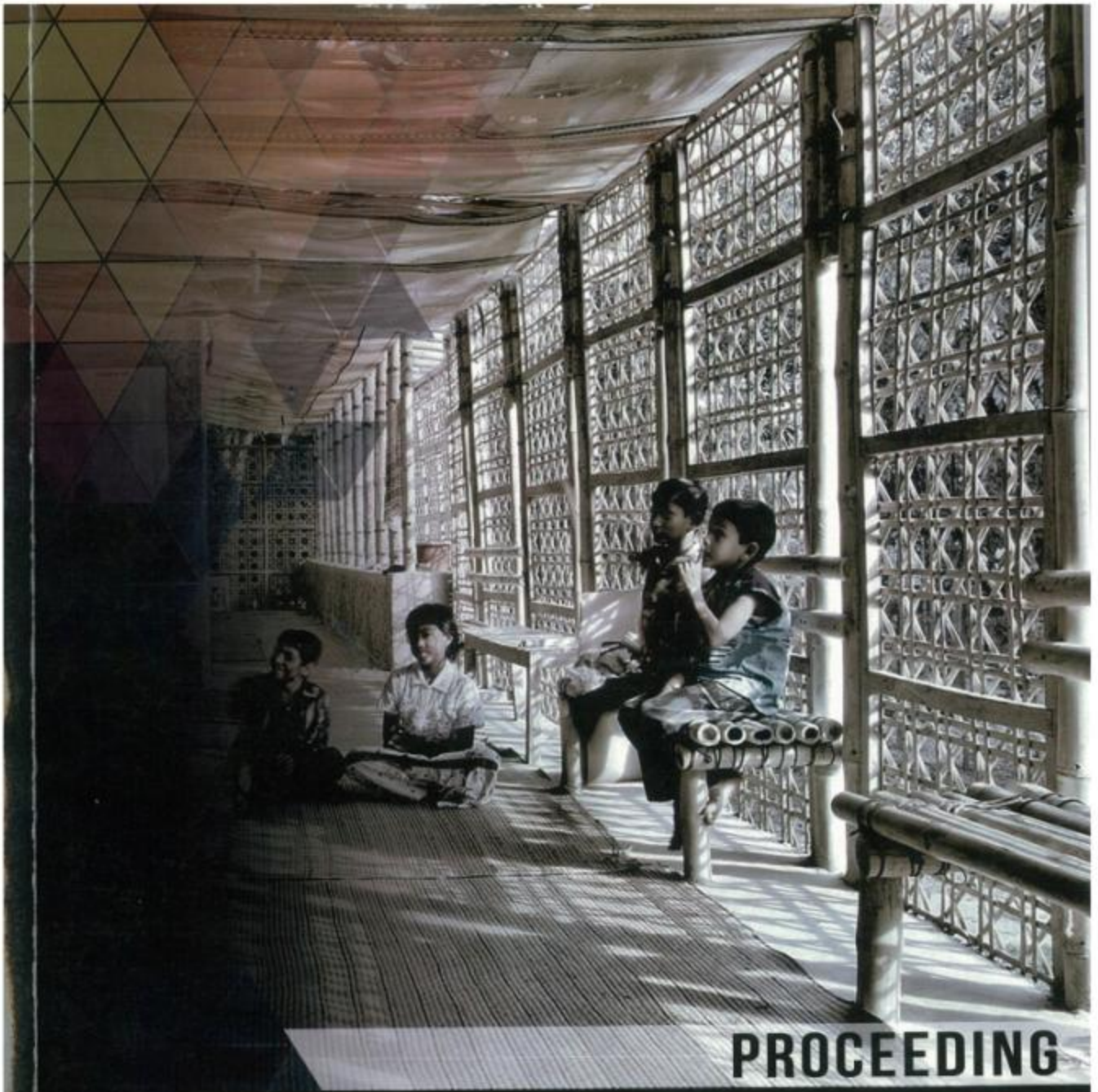

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LEARNING FROM SPACE EXPERIENCE OF THE OLD SURABAYA: AN URBAN ECOLOGY PERSPECTIVES

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ABSTRACT

Most humans now live in cities, and urban design is a powerful tool of adaptation. No matter how well one understands a city's history, its ecosystems, and its enduring context, no matter how carefully one tries to anticipate the future, there will always be unforeseen circumstances to which a city must adapt. Architect and Planner must be aware how to integrate nature, historical value, people's memory through space experience with the rapidness of technology. The interconnectedness between biotic, abiotic and manmade elements in the city can push it to be a comfortable place for living. This study shows the role of space experience of Surabaya from royal time until nowadays with focus both on story and ecological perspectives, can contribute as a determinant for creating city identity.

Keywords: *Space Experience, old Surabaya, urban ecology.*

INTRODUCTION: History of Surabaya City

Cities always have their own spatial organization and distinctive patterns of change through time, which result in patterns of community behavior and dynamics that are specific to the urban environment. Learning from history, time to time, a big city started with small settlements close to the river. Some of them had famous stories about their old kingdom which was told from generation to generation without written fact.

Surabaya as the second biggest city in Indonesia has many version of stories. Sukadana (1983) wrote from an anthropological ecology point of view that the Surabaya settlements was developed nearby the 'Brantas' river. At the beginning people built their homes on the stilt housing and slowly move to the landed housing.

The changing occupation from fishing and hunting to gradually become merchants comes along with the arrival of traders from other continents. It was mentioned in the Trowulan inscription in 1358 that Surabaya is quite an important Kingdom because it was a trading center. In the 16th century the role of the Brantas river was gradually diminished and the transportation moved to the land. Entering the 19th century, Surabaya has become a metropolis city that ignored the potential role of urban ecology and experience. The issue of natural environment was less important than technology in city development.

Nowadays, urban ecology research is less concerned with nature conservation. In many ways, research on urban ecology was focused on sociological investigations under the heading of "human ecology". These investigations are conducted by sociologists and psychologists. Sukopp (2002) stated that in Japan, relatively, natural environments have been created by constructing of "native" forests with native trees, integrating research on the potential natural vegetation and traditional Japanese methods of creating "chinju-no mori" (shrine and temple forests).

STEP OF THE STUDY

The study started with compiling the secondary resources of the birth of Surabaya city, both stories and legends of mouth. The second step was looking for patterns of old neighborhood/ kampung and open space or urban park historically. The last step is defining urban park and old neighborhood that contribute to the identity of Surabaya city.

SPACE EXPERIENCE AND CITY DEVELOPMENT

Space experience is defined in terms of the ways that people activities in the neighborhood scale always interact with nature. This is not just a matter of imitating or echoing the *shape* of natural features or of using indigenous materials, but of adapting urban history to natural elements. By focusing on the relationship of people activities and nature, this study adapt the urban ecology view that analysis space and time. The vision of urban ecology is to create vibrant neighborhoods by listening to communities.

On the next chapter, we review some previous research about human relation with nature and how its experience can elevate city

identity. Then we analysis Surabaya map history to learn the existence of the village that survived until now and open green spaces that help provide an identity for the city of Surabaya.

a. The Relation of Human and Nature to sustain a city

The twentieth century's scientific and technological advances enabled a whole new level of living that brought quality of life in terms of vastly improved medical care, transport, energy availability, and communications. In our time we have come to take all of this for granted.

Nevertheless, in parallel with these developments, human kind lost a timeless connection to the world that did not involve science, because this connection is not quantitative (Alexander, 2001-2005). We tend to forget and dismiss our inherited socio-ecological patterns whenever they cannot fit into the mentality created by advancing technology. This loss of patterns has caused the loss of essential aspects of human ecology, and it has profound implications for energy use (Salingaros, 2000).

We have lost part of our sense of attachment to a place as part of the earth, even if we normally do not notice it consciously. We have grown accustomed to buildings that emphasize the look and feel of technology. Architects and planners ignored evolved urban codes that had proved themselves through the centuries. Instead, they built monstrous blocks. These architects showed incredible arrogance in their approach to design, believing they could force their will on both people and urban functions and override forces that shape urban form and human use. They constructed dwellings and neighborhoods devoid of any intimate contact with nature. Their quality of life drops. (Alexander et. al., 1977).

The Roman architect Vitruvius described how the layout of streets and the orientation and arrangement of buildings should respond to seasonal patterns of sun and wind. Architect Leon Battista Alberti's *On Architecture*, wrote in the mid fifteenth century, expand these recommendations, advocating that the siting of cities and the design of streets, squares, and buildings should be adapted to the character of their environment so that cities might promote health, safety, convenience, dignity, and pleasure.

Lewis Mumford was one of the first to ask ecological questions about cities and their sustainability. His 1965 article, "The Natural History of Urbanization," is precisely on the ecology of urbanization. He noted the dependencies of cities on their hinterlands, and the steady extension of their influences aided by the growing power of transportation technology. He pointed out that the city story, from Nineveh to New York, is one of increasingly substituting the artificial for the natural. Technology rearranges environments so that nature is never experienced directly. In losing connections with Earth within the city, inhabitants also lose track to their Earth-relationships. An illusion of complete independence from nature is fostered, and the phrase "urban sustainability" is no longer recognized as urban ecology.

To Mumford, this new urban form "must include the form-shaping contributions of nature, of river, bay, hill, forest, vegetation, climate, as well as those of human history and culture, with the complex interplay of groups, corporations, organizations, institutions, personalities" (Mumford 1968: 164).

For Lynch, the city is first and foremost a human habitat, and he judged "good city form" by how well it sustains human life (Lynch 1981). Lynch stressed the importance of how people perceive the city, proceeding from human perception to understanding the sense of place. He explored the role that natural features play in enhancing the identity, legibility, coherence, and immediacy of urban form from the scale of the street to that of the region. His last book, *Wasting Away*, takes an ecological approach to managing resources and waste (Lynch 1990).

Therefore, urban ecology must be integrated in the master plan of the city. Abiotic factors are an important component of the ecology of plants and animals. The earliest studies showed that urban climate differed between cities and the surrounding countryside (Howard 1833).

b. The potential of human experience to elevate city Identity

Civilizations and governments rise and fall, and traditions, values, and policies change. However, the natural environment of each city remains an enduring framework within which the human community builds. A city's natural environment and its urban form, taken together, comprise a record of the interaction between natural processes and human experience over

time. People who have interaction and experience in a garden/ park may reduce stress (Ulrich, 1981), enhance contemplativeness, and provide a sense of peacefulness and tranquility (Kaplan, 1983).

The hypothesis about the restorative function of natural environments has been tested in many empirical studies. Ulrich (1984), for example, founded that hospital patients who could look out on trees and nature from their windows recovered more quickly than those whose views where restricted to buildings. Later studies have led to similar results, strengthening the assumption that natural environments have a positive influence on psychological and mental health. Contemporary research on the use of urban parks and forests, for example, verifies beliefs about stress-reduction benefits and mental health (Hartig et al., 1991; Conway, 2000).

The natural environment in urban life is not only located in spaces that communicate through open space, but life is performed also in a temporal porosity is experienced while eating in the street, taking a nap in a shady corner, or drinking a quick espresso standing in a 'warung' (small café). It is as if acts are both separated and connected through temporal space that represent the momentary experience of occasion. Everyday occasions thus seem to shift and rearrange rhythms and programs of use.

In contemporary metropolitan experiences, urban life define the quality and meaning of spatial as well as social borderlines. In today's partitioned cities (Marcuse 2002, Marcuse and Van Kampen 2002) neighborhood are rapidly being replaced by check-points, control areas that regulate encounters and discriminate between users. Most people want a kind of sanctuary for their living environment, a place where they can bring up children, have privacy, sleep, eat, relax, and restore themselves. This means a well-managed environment relatively devoid of nuisance, overcrowding, noise, danger, air pollution, dirt, trash, and other unwelcome interferences.

People should feel that some part of the environment belongs to them, individually and collectively, some part for which they care and are responsible, whether they own it or not. The urban environment should be an environment that encourages people to express themselves, to become involved, to decide what they want and act on it.

SPACE EXPERIENCE OF SURABAYA: AN URBAN ECOLOGY VIEW.

a) The History of Surabaya Old settlements

With the advancement coastline about 15 cm per year (Meyer, 1910; Bemmelen, 1949 in Sukadana, 1983) the process of silting occurred since the time of Airlangga kingdom in Surabaya. Chronologically, Sukadana (1973) made table:

Table 1. The Sedimentation of Surabaya Beach Line.

Predicted Century	The Location of Sedimentation	Predicted Location on the recent Map
19	2 km	Citadel Fortress
18	2.5 km	Ampel, Nyamplungan
17	3.5 km	Krembangan, Slompretan
16	4.5 km	Semut, Pecindilan,Pasar Besar
15	5.5 km	Kabupaten, Kranggan
14	6.5 km	Gubeng, Embong
13	8.5 km	Keputran
12	9.5 km	Dinoyo

Source : Sukadana (1983)

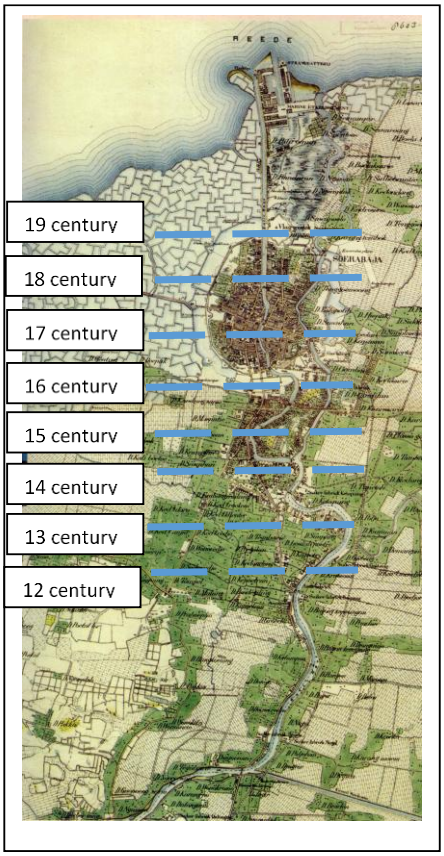

Figure 1. The Location of sedimentation History

The sedimentation is occurs due to the accumulation of a number of tectonic processes that shape the delta between two split small rivers from the main Brantas river. In the sedimentation process essentially move bays slowly into the mainland.

Historically, some villages name indicate the presence of the wetland area like 'Kedungdoro', 'Kedungsari' ('kedung' means the lake which is trapped in the middle of the mainland) is still be present now.

Ying-Yai Sheng-Lan in 1416 (in Sukadana, 1987) wrote Surabaya is a major interchange of the ship towards a small boat trip to go to Canggu, near the Mojokerto port (capital of Majapahit at the time). This transportation by river has strengthened the evidence that sedimentation occurs in the delta of Surabaya. Ying-Yai also mentioned that the delta presence seems like an island with dense vegetation in which inhabited by monkeys. Thus this delta was seen by local people as a sacred place. (Groeneveld, 1960 quoted from Sukadana, 1983). The above situation can be seen on a map of Surabaya in 1677 and 1787, where the settlement gathered around the delta between Kalimas river and Pegirian river.

From secondary data about the family tree of Surabaya kingdom and Surabaya ancient maps, it can be predicted that location of the Surabaya Kingdom was not far from Kalimas river. Supported with the names of villages that still exist until nowadays, Surabaya Royal Palace is surrounded by royal advisers like, Patih (Prime Minister) is on Maspati village, Praban (Prabu/ King) is on Praban village etc.

Historically, Surabaya city is established with antrophomofis concept, like many cities in Java island. According to Santosa (2006) and Silas (1983) noted if research on city morphology viewed from economic perspective thus the city will be looked from the trading development. In Javanese concept, the spirit of ancient city may not be set up on the place where the heart of city lives. The spirit of city must be placed on sacred area at the south of the city. Based on this believe, the ancient city will be divided into four area according to the spirit of microcosmic of the earth. At Northern will be used as the symbol of the kingdom which representative of the head. At the Southern will be functioned as the private area of family kingdom which representing of leg and fertility organs. At the eastern part is the area of sunrise, as a representative of right hand which hand for working, thus it is zoned as work place. And the Western side representative of left hand is used for intellectuality education. And at the center is the place which the heart for spirit of life. We can still recognize the zone divisions by looking at the name of each villages, as shown at the picture below,

Figure 1. Kampung/ villages that representative the Surabaya old city arrangement

Fig.1.a.The Kampung emerged during Kingdom era on 13 century still exist on 16 century

Fig.1.b.The Old Kampung on the 19 century still exist when Surabaya starting the development to the Southern part.

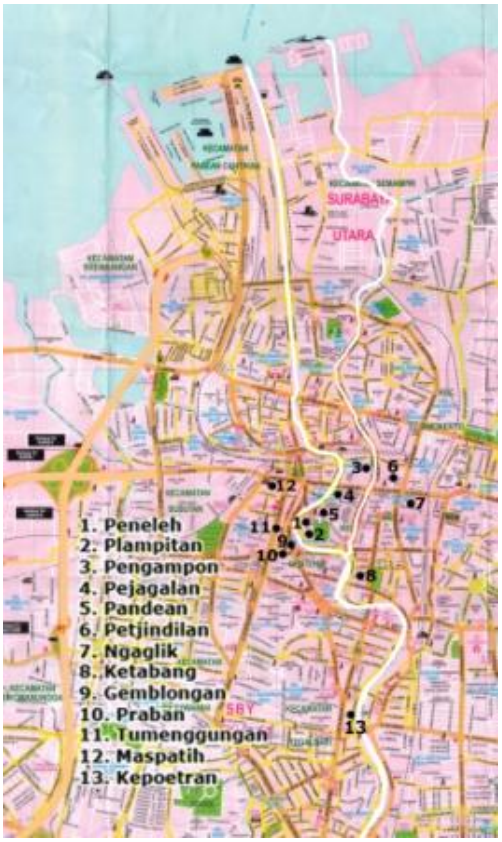

Fig.1.c..Entering the 20 century, the old Kampung still there, even though the generation have changed their occupation.

From Surabaya map history, we can recognize the actuality of the old Kampung of Surabaya, like Pandean village is a dwelling for Black smith (Pande = Black Smith); Plampitan village is a place where the expert mat makers of Bamboo live together (lampit = bamboo mat) ; Pecindilan village is a group of old weaver of cloth with floral patterns (cinde = floral fabric); Pengampon village is a place for previous potter experts (ampo = red clay); Pejagalan village is a place for slaughter house (Jagal = slaughter) (Santosa, 2006; Purwono, 2006).

b) ***The History of Surabaya Open Green Space***

Based on geomantic view, most Asia settlements believe in harmony between people and nature. So that why people build their houses according to balance the law of nature. People be aware of the presence of mountain, sea, land characteristics including the flow of groundwater. City is the small scale of the universe.

Silas (1991) wrote that the open space in Surabaya nowadays, is a heritage from Dutch government. The biggest urban forest in Surabaya

is Surabaya zoo. Learning from the old Kingdom of Surabaya, we have lost some green areas, like 'kebun rojo' (huge park) and alun-alun (city park).

Learning about space creation during the Surabaya Kingdom will give us some inspiration. According to the Hindu value, city was developed in harmony with nature. City is a place which give experience about how we must respect to the mother of earth. Like other Javanese Kingdom in Java Island, Surabaya Kingdom has two big park called 'Alun-Alun' too. These Alun-Alun was placed one at the North of palace and the other at the South. The North Alun alun is the front part of palace and a place for people who want to meet the King. In this place usually some ritual activities or festival were conducted and celebrated. The South Alun Alun is the backyard of palace, is a private place for the royal family, and there is a place where the King can has his personal meditation. On each alun alun was planted a row of Banyan trees and at the center always placed the pair of big Banyan trees. Until 1950s, Silas stated that Surabaya has still its water transportation and cool climate. In Pemuda street, is covered with the morning dew and the temperature is around 26 degree celcius (Silas, 1990).

Figure 2. The open Space from Time to Time

Fig.2.a. Alun Alun on 16 century.
Kebon Rojo is a big park belong to the Kingdom.
Gemblongan is the Kingdom port.

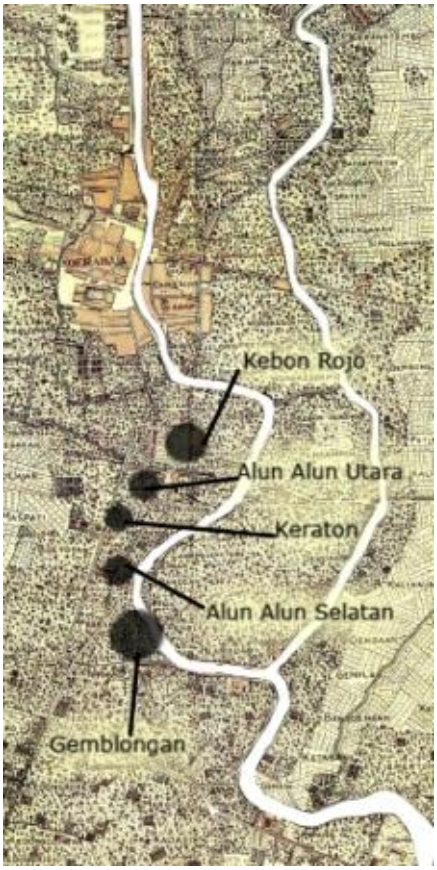

Fig.2.b.Alun Alun, Kebon Rojo and Gemblongan port were still exist on 18 century

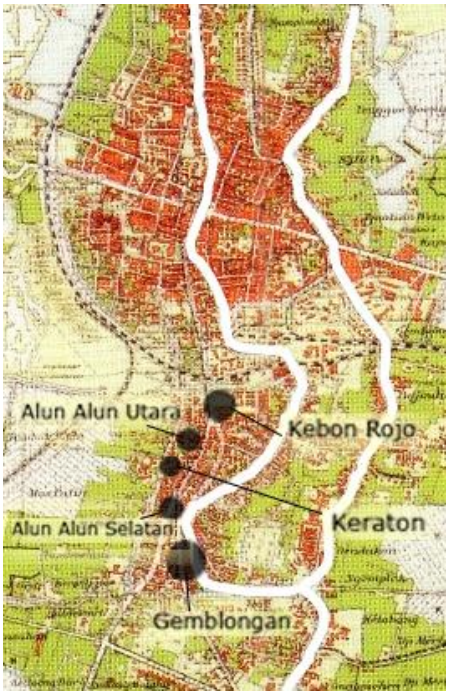

Fig.2.c.The missing Alun Alun on the 19 century and only the South AlunAlun still exist called Alun Alun *Contong* (Contong= triangle). Kebon rojo had been used as Post Office, no more park. Gemblongan is not the Kingdom port anymore, it had been changed to commercial area.

Fig.2.d.All the alun-alun has gone. Surabaya Zoo was built during the colonial era.
Six years after the independence of Indonesia, on 1951 Surabaya built "Tugu Pahlawan" Park.

Learning from old Surabaya city, we can detect how environment took the important role and has been giving good ambience green space in the city center. This condition was reinforced by the dominant of river transportation, thus the harmony with nature give a feeling of comfort for the residents. Actually the word 'ecology' is taken from the word 'oikos', the Greek language meaning 'household'. Oikos is a place where a group of people live together and perform division of labor based on expertise. Thus our ancestor by their belief have gained the congruence of green space and space experience to reach the harmony.

During Surabaya Royal age, people had used to living close with nature. The government hierarchy had given impact to the growth of several villages which showing the symbioses mutualism of the 'oikos' wealth. Even though, people belief has been changed but those villages are still survive until nowadays. Such as, Pandean, Plampitan, Pecindilan, Pengampon, Pejagalan.

During the pre-industrial era, city dwellers have the recreational activities in the square and city parks such as 'Alun-Alun' and Surabaya Zoo. But now, in the 21st century city dwellers prefer to have leisure in the Mall. There were changes in the relationship between people and their natural environment, because the concept of city comfort is not measured from the comfort of city open space area, but is dignified from the comfort of shopping centers in the city. Comfort is not achieved by regulating the balance of the environment, but by using air cooling technology. If Lewis Mumford said that there is nothing new to the emergence of a city just like the presence of a village, then is there a chance for Surabaya to learn from its own history to achieve ecological city that comfort and fresh?

The answer is yes, Surabaya will be a comfort city for their dwellers if urban design development of Surabaya can adapt a city's history both from story and its ecosystem. The history of Surabaya does not just seen as the emerging of Surabaya as a name but at once, we look at how people create their experience with their habitat that is called kampung; together we look at how people create space experience with their environment that is called alun-alun.

Therefore, we can consider two things in making a comfort city:

a. The Relation of Human and Nature must be created not just as outdoor space anymore but as indoor space, so that citizen in the mall can still recognize and having an experience with nature.

b. The potential history of old neighborhood should be presented again in the form of landscape elements in the city.

CONCLUSION

Learning about the city means we learn about a civilization, where people make and use a space, a life experience, a culture and a belief. With technology influence, now the city concept is changing from micro cosmos into trade order. As consequence, the space experience in the city is gradually shift from outdoor activities to indoor activities.

Architect and Planner must to be aware

how to integrate nature, historical value, people's memory through space experience with the rapid of technology. The interconnectedness between history, biotic, abiotic and manmade elements in the city can push city to be a comfort place for living.

REFERENCES

Alexander, Christopher (1977). *A Pattern Language: Towns, Buildings, Construction*. Oxford University Press, USA. p.1216.

Alexander, Christopher (2001–2005). *The Nature of Order*, Books 1---4, Center for Environmental Structure, Berkeley, California.

Conway, H (2000). *Parks and people: the social functions*. In: Woudstra, J., Fieldhouse, K. (Eds.), The Regeneration of Public Parks.

Hartig et al. (1991) . Restorative effects of natural environments experiences. *Environ. Behav. 23, 3–26.*

Howard, L. *(*1833*), The Climate of London: Deduced From Meteorological Observations Made in the Metropolis and Various Places Around It,* Harvey and Darton,, *London*.

Lynch, K (1981).*Good City Form*, MIT,USA
_____ (1990). *Wasting Away*, Sierra CLub Books, San Fransisco.

Marcuse, P. and Van Kempen, R. (eds.), (2002) *Of States and Cities. The Partitioning of Urban Space*, Oxford: Oxford University Press.

Mumford, L. (1968), *The Urban Prospect*, New York: Harcourt Brace Jovanovich.

Santosa (2006) *Kota Tanpa Warga*, Kepustakaan Populer Gramedia, Jakarta

Salingaros, Nikos A (2000) "The Structure of Pattern Languages", *Architectural Research Quarterly*, volume 4, pages 149–161. Reprinted as Chapter 8 of: Salingaros, N. A. 2005. *Principles of Urban Structure*, Techne Press, Amsterdam, Holland

Silas (1983) *Surabaya antara Dongeng dan Sejarah*, Surabaya Post 30 Mei s/d 1 Juni, Surabaya.

Silas (1990) *Mengembalikan Surabaya Yang Hijau* , Surabaya Post 10 Juni 1990, di dalam Buku Johan Silas: Kampung Surabaya Menuju Metropolotan editor Hotman Siahaan dan Tjahjo Purnomo W, 1996.

Sukopp H. (2002): *On the early history of urban ecology in Europe*. – Preslia, Praha, 74: 373–393

Ulrich, R.S. (1981). Natural versus urban sciences: Some psycho-physiological effects. *Environ. Behav. 13, 523–556.*

Ulrich, R.S (1984). View through a window may influence recovery from surgery. *Science 224, 420–421.*

Kaplan, R (1983). The Analysis of perception via preference: a strategy for studying how the environment is experienced. *Landsc. Urban Plan. 12, 161–176.*

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