

Urban Parks as a Part of Urban Design Implementation towards Healthy Cities: What Can Be Achieved through the WHO's Healthy Cities Model?

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Abstract: Rapid urban growth and massive urbanization are continuing occurrence in most of the cities around the world. In 2008, more than half of the global population were living in urban areas and was predicted will be increased to 70 per cent in 2050 (UN-Habitat 2009, p.8). Indonesia as one of the biggest countries in Asia also contributes to this rapidly changing. This condition has created numerous environmental consequences due to high demand for space that is not aligned with the carrying capacity of place. This paper aims to review evidence related to the extent of implementing urban parks which can play a partial role in applying urban design in the direction of healthy cities. The method adopted to address the objective of the paper is content analysis. Content analysis is based on the academic and professional literature, with a focus on the open space, urban parks, healthy cities, urban planning and design fields. The paper concludes that regardless of some contradictory evidence, many studies have confirmed that good urban design can be achieved and one of which is through the application of attractive urban parks by providing various supporting facilities to encourage physical activity for people. As such, it could help improve the built environment of neighbourhoods in relation to healthy cities.

1 INTRODUCTION

Most cities around the world still continue to experience massive urbanization and rapid urban growth, not least in developing countries such as Indonesia. In line with UN-Habitat (2009, p.8) more than half of the global population was forecast will be increased in 2050 to 70% and were living in urban areas. Indonesia is one of the largest countries in Asia which also has contributed to this rapid changing. This condition has created numerous environmental consequences due to high demand for space that is not aligned with the carrying capacity of place. Moreover, urban health problems that are very complex as a result the issues that has been mentioned above, in which the matter has been influenced by several aspects, ranging from social, economic, and environmental. In line with WHO (2010), environmental pollution; inadequate health services; homelessness; traffic congestion; disease such as HIV/AIDS, narcotics use and urban poverty; slum areas up to social and economic problems such as street children and singers; are a number of urban

concerns that occur not only in developing countries likely Indonesia but also in developed countries including Europe countries and Australia. Putting this into consideration, Healthy City that promotes healthy living for people, develops indicators in environmental dimension where principles of urban design play a significant role.

Healthy City is a broad program which aims to provide an environment for healthy, convenient, and safe living. To achieve these outcomes, implementation of design features into the life of the community needs to be done in cooperation with the local government as a facilitator and instructor. As presented by de Leeuw (2009), the healthy city program entails integrating and empowering communities and services via city forums which are facilitated by the government. These forums have a role to determine clear directions and priorities for regional development planning that integrate various aspects of life, so that the region can achieve a healthy and comfortable city for residents to live.

Such a program requires a thorough understanding of the various parties, the community,

stakeholders and government on the importance of the impact of development on health, then positioning the health aspects of the planning policy as a priority in each region, across sectors and communities. This is an effort to promote the importance of health in people's lives. In connection with this, the concept of a healthy city is one of the programs that have been successfully applied in various cities around the world to anticipate urban health issues.

This paper will discuss studies related to the role of urban parks as a part of urban design towards healthy cities. First, it describes the healthy city conception and its indicators that related to urban parks and open space provision, then discusses the benefits of urban parks and open space in health aspects follows by aspects influence the use of urban parks and open space.

2 METHODS

The method adopted to address the objective of the paper is content analysis. Content analysis is based on the academic and professional literature, with a focus on the open space, urban parks, healthy cities, urban planning and design fields. In line with the WHO (2010), the healthy city program has been running for more than 20 years, and it has undergone evaluation for the improvement and advancement of a healthy city member. Following this evaluation, several documents have been published that provide a complete picture of what is necessary to create a healthy city (WHO 2014).

Then this was structured into specific areas in an effort to explain the multitude of research studies to present that related to urban design in the direction of healthy city. At the outset, it describes the concept of healthy city and its implementation methods that associated to urban design elements. Then review the WHO model for healthy city and lastly describes healthy city in Indonesia.

3 DISCUSSIONS

3.1 Healthy City

Healthy city, that emerged in 1986 and was initiated by World Health Organization (WHO), has long historical background. Originally, it was motivated by urban health issues such as poor sanitation, pollution, crowding, slums and epidemic infectious disease experienced by industrial cities in the late

19th century (Ashton 1992, p. 1). Along with its development, the scope of public health became wider and shifted from sanitary ideas into ecological consideration. This refinement has implications on the way we living in urban areas and policies underpin it (Ashton 1992, p. 7). World Health Assembly in 1997 developed Health For All strategies that implemented in local, national and international levels (WHO Regional Office for Europe 1997, p.5).

Healthy city movement tries to encompass whole aspects of healthy living. This is reflected from its definition and its objectives. According to WHO (1998, p.13), healthy city refers to:

'One that is continually creating and improving those physical and social environments and expanding those community resources which enable people to mutually support each other in performing all the functions of life and in developing to their maximum potential'.

This idea accommodates city or community vision on health into strategic plan that includes social, environmental, economic, political and technological environments (Hancock 1992, p 28; and Haqi et al 2018). The Healthy City objectives are to create a health-supportive environment, to achieve a good quality of life, to provide basic sanitation & hygiene needs, and to supply access to health care (WHO 2014).

Well-defined determination of health and aspects that influence it in order to achieve healthy city goals and advantage an effective action is essential. The WHO European Healthy Cities Network developed 53 indicators gained from working group in local level to determine health dimension in cities. After its early implementation, these indicators revised by excluding unreliable measurements and produced 32 indicators that are used until recent day (Healthy Cities Taipei 2010). Webster & Sanderson (2012) evaluate the 32 Healthy City Indicators (HCIs) and argue that current 32 indicators not provide a holistic approach in assessing health in city (p.S60). Each city has unique circumstances and indicators to measure and to evaluate health should be based on local perceptions (Taher & Haqi 2017; Hancock 1992, p.23; Werna & Harpham p.633).

HCIs are divided into four main categories which are health indicators, health and service indicators, environmental indicators and socio-economic indicators. Among these categories, environmental indicators directly connect with physical quality of

cities. It includes air pollution, water quality, sewage system, household waste, green space, derelict industrial sites, sport and leisure, pedestrian, cycling, public transport and living space (Healthy Cities Taipei 2010).

Based on HCIs, the role of parks and open space in achieving healthy city is substantial since almost half of environmental indicators rely on parks and open space availability. According to Healthy Space and Places (2009), parks and open space means a reserve of land for sport, leisure, natural preservation, green space provision and/or storm water management purposes. In this sense, greenery or green open space includes as a part of open space. Based on this definition, parks and open space encompass various activities that give benefits for communities.

3.1.1 Health Benefits of Urban Parks

Parks and open space contribute to enhance a healthy environment particularly in urban areas. It contributes to mental healing process. Grahn & Stigsdotter (2010) found that green open space might attribute to stress healing through eight dimensions which were: experience of nature, contact with open area with a view or prospect, sense of silent and calm surrounding or serene, experience of spacious, rich in species, experience an enclosed and safe environment or refuge, human culture, and social activity. Social and culture were less preferred for people who under stress. The authors interpret that creating an area with nature and refuge dimensions would be more favoured for individual experiencing stress (pp. 270-272).

Parks and open space are places for physical activity such as walking, running and cycling which directly give impact on human health (Kaczynski, Potwarka & Saelens 2008; Cohen et al. 2007; Schipperijn et al. 2010). Study in Dutch urban parks by Chiesura (2004) concludes that urban natural environment has many social and psychological benefits for citizens such as place for relaxation, escape from daily routine, express positive feeling like freedom, unity with nature and happiness (p. 137). Green open space contributes to enhance public health by reducing side effect of car dependency. Combination of vegetation in green space areas was effective to reduce the noise more than 12.25% and to decrease air temperatures up to 8.18% in Waru-Sidoarjo highway (Pudjowati et al. (2013, pp. 463-465).

3.1.2 Factors Influence the Use of Parks and Open Space

Many factors such as gender, motivation, age, socioeconomic and demographic of population

influence the extent of health perceived among citizens. Study conducted by Cohen et al. (2007) at City of Los Angeles found that males used public parks more than female and they were two times become vigorously active (p. 512). In motivation factor, the most common reason to visit parks is enjoying the weather and getting fresh air (Schipperijn et al. 2010, p.135). The motivation and activity in using parks were varied among age-groups. Thus, all target groups should be considered in recreational requirements (Chiesura 2004, p.137). Haqi (2016) and Gehl & Gemzoe (2003) further suggests that public spaces and green spaces should include in sustainability indicators with parameters such as satisfaction and perception of residences. Maas et al. (2006) found that there were positive relationship between quantity of green space and perceived general health. Young, elderly and secondary educated people tend to gain more benefits of the presence of parks in their surrounding environment rather than other groups in large cities (p.591). Mitchell & Popham, (2007) found that higher provision of green areas was related to better public health and was varied among combination of income and urbanity. However, for higher income suburban and higher income rural areas, there was no significant correlation. Worse health perceived was found in low income areas with higher proportion of green space. This might be caused by the poor maintenance of green space.

Physical factors like distance, size, and facilities also contribute to the preference of people visit parks and open space. Residents who lived within a mile of parks were four times more likely to visit the parks once a week compare with those living further away (Cohen et al. 2007, p. 513). Schipperijn et al. (2010) found that people who lived within 300m from green space tend to visit the parks at least once a week (p. 135). Giles-Corti et al. (2005) found that higher level of walking was encouraged by attractive large size of public open space as well as close proximity distance to access it. This study also found that park size impact on higher walking levels was equivocal because users tend to use public open space with attributes such lighting, adjacent ocean or river, present of water feature and present of birdlife even if in small size of parks (pp. 173-174). Kaczynski, Potwarka and Saelens (2008) found that parks with attributes more attractive for physical activity while size and distance had limit influence. Facilities provides in the parks were more important for visitors rather than parks amenities. They suggest that park planning that consider the provision of attractive features might encourage physical activity (p. 1454).

People in each place has its own uniqueness in perceiving parks and open space. Several investigators Ibnul Haqi and Pieters (2019), Hakim (2007), and Pudjowati et al. (2013) who have conducted studies on the urban context in Asia. They conclude that people who lived in varied neighbourhoods have varies preferences for open spaces. These variations were based on local ecology and local government finances, level of management and maintenance, and control of issues related open spaces utilization. People in all three cities were perceived open space as recreation venues, religious places, social and political celebration (p161-162). The uniqueness of each neighbourhoods found in this study leads to the meaningful contribution to open space planning and design which should consider local culture, climate, social values and people's needs.

Achieving health environment by the utilization of parks and open space involves many considerations, not only in physical aspects but also in social and cultural contexts. Gender, motivation, age, socioeconomic and demographic of population as well as physical factors like distance, size, and facilities, influence the perception and preference of people to visit parks and open space. Local culture, social values, climate and people's need that varied from one place to others also give significant contribution. Taking these factors into consideration in planning and designing process might generate a better health environment.

3.2 Urban Design and Health

There are many and varied definitions of "urban design" for example Schurch (1999), Carmona (2010) and Rowley (1994). This research will adopt the definition of urban design by Kozlowski (2006).

'Urban design is multifaceted discipline dealing with a range of social, economic, transport, infrastructure and cultural aspects that have an ongoing impact on the functioning and form of the urban environment'.

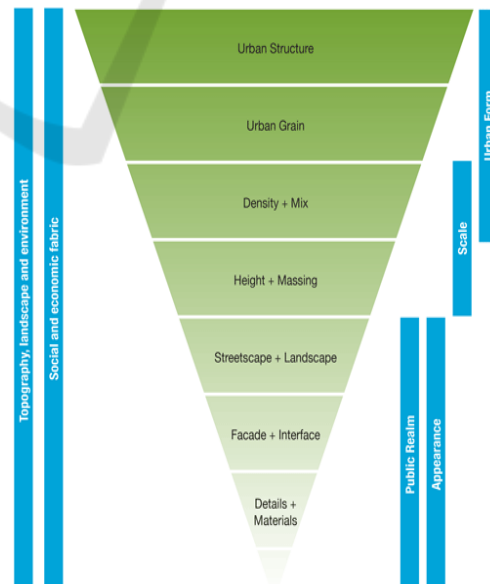
Urban design principles have the potential to deliver high level strategic direction to guide the future development of towns and cities. When planners think about urban design, they design and build the communities that can affect human physical and mental health (Liptay 2009). It is also supported by Day (2003), who states that urban design and planning elements are something that is very considered in forming an urban settlement which put more emphasis

on sustainable environment, a sense of community, and the identity of a place. Academics and researchers in the field of urban planning have been recognising that urban form can affect public health, environmental condition, and social wellbeing. There is a lot of work to be done by the leaders of the city to reduce these issues, so required a cross-sector collaboration toward the goal for a healthy city. The question arises why urban design can improve of population health, and what is great from these principles so it can achieve a healthy city predicate?

Urban design be able to considerably affect the environmental, economic, health, social and cultural results of a place:

- ✓ Physical scale (building and natural form), space, and the atmosphere of the place is largely determined by urban design. Therefore, it has influenced the balance of natural ecosystems and built environments, and their sustainability outcomes.
- ✓ The socio-economic composition and the economic success of a region are determined by successful of urban design. The successful of urban design has encouraged people to do business and local entrepreneurship in their region.
- ✓ Urban design can influence health and the social and cultural impacts of a locality: how they use a place, how they move around, and how people interact with each other.

Figure 1 shows the approximate hierarchical relationship between the elements of urban design



Source: Adopted from urbandesign.org.au

Figure 1: Elements of urban.

The built environment encompasses a range of physical and social elements that may probably influence healthy city and make up the structure of a community (Northridge, Sclar & Biswas 2003). One of the central goals in public health is creating healthy living. The connection between the health and physical environment that has long been recognised but it has been inadequately addressed. Hence, urban design approach delivers general context to guide government initiatives in planning, policy development, infrastructure provision, creating a liveable neighbourhood and private development. It addresses long term planning focus, vision and character of the place, land use structure, improves permeability and legibility of the place and fosters people for doing physical activities. Urban design is concerned with both the structure of the cities and the function of the cities. There are many urban design principles which help to improve the built environment and encourage physical activities. Some of the urban design principles are identified to improve the built environment and encourage physical activities, such as:

✓ Permeability / access

According to Schiller and Evans (2006) permeability promotes the connection within the spaces as well as linking to environs with more than one route. In order to encourage people for cycling and walking, the street layouts are really essential, streets and paths which connect to multiple destinations.

✓ Vitality

Through open space and public realm, this principle encourages people to participate in the social activities. This will allow social interaction for everyone in different ages and backgrounds, allows intensity of activity, and will build ups the social capital. In order to obtain the vitality, Schiller and Evans (2006) emphasise that design need to have diverse activities throughout the day to attract people.

✓ Legibility

Good legibility encourages people to walk and to do physical activities as related to good streetscape. To make built environment legible, there is need to consider following design elements, for example as stated by Schiller and Evans (2006, p. 3) "clear street pattern and urban structure, with elements to aid the recognition of uses and orient movement".

✓ Richness

According to Schiller and Evans (2006) richness refers to the capacity of the layout pattern to

accommodate complementary urban activities with mix uses. In order to encourage people to walk and ride, normally the mix land use offers commercial and social activities within walking distance. It is also supported by Gehl (1987), he stated that there is a strong relationship between walk and ride as a part of physical activity and the quality of public realm.

✓ Open Space

Utilization of open space that accessible for many people have been encouraging them to participate in community activities. Community activity and social inclusion will help to reduce the risk of the urban health since it will encourage the physical activity.

Table 1: Design Principles to encourage physical activities.

The Principles of Urban Design	Encourage Physical Activities		
	Walking	Cycling	Exercise
Permeability/ Access	✓	✓	
▪ Pedestrian friendly	✓		✓
▪ Layout pattern with alternative	✓	✓	
▪ Legible Street and road layout	✓	✓	✓
Vitality	✓	✓	
▪ Constant activity throughout the day	✓		✓
▪ Diversity of activity	✓	✓	
Legibility	✓	✓	
▪ Good accessibility	✓	✓	✓
▪ Location of public space	✓		
▪ Access to social infrastructure and open space	✓	✓	✓
▪ Good streetscape	✓	✓	
▪ Massing and scale of the building	✓		
Richness	✓	✓	
▪ Mix land use	✓	✓	✓
▪ Quality of pedestrian walkways	✓		
▪ Housing diversity and choice	✓		
Open Space	✓	✓	✓
▪ Activity	✓		✓
▪ Location	✓	✓	✓
▪ Safety	✓	✓	✓

Source: Montgomery 1998; Bentley et al., 1985, and Schiller and Evans, 2006.

Moving onto urban health, the initial notion of healthy city has been introduced by the World Health Organisation (WHO) around the period of 1987-1992 in Europe as a pilot project to response a variety of urban health issues. Urban health problems are very complex and affected by many factors, ranging from social and economic to environment and living conditions. The need for refinement has implications on the way we living in urban areas and policies underpin it (Ashton 1992, p. 7). Along with its improvement, the range of urban health turn out to be

varied and altered from sanitary ideas into ecological consideration. World Health Assembly in 1997 developed health for all strategies that implemented not only in international levels but also in local and national (WHO Regional Office for Europe 1997, p.5). The idea of a healthy city is determined by equitable access to basic prerequisites for health: a safe physical environment, easy access to transportation, adequate resources, clean water and air, food, education, income, social supports. The WHO defines a healthy city as:

- A high quality of physical environment which clean and safe
- Ease of access by the public to a variety of experiences, resources with the chance for a wide variety of interaction, communication and contact
- An environment that is sustainable at the present and sustainable in the long term future
- A community of mutual support and strong

The WHO has been central to the development of the Healthy City concept and to its promotion both in the west and the east. Healthy city program tries to cover whole qualities of healthy living. This is indicated from its objectives and its definition which in line with WHO (1998, p.13).

As it is known that the World Health Organisation (WHO) has been a main development of the healthy city and has a clear concept of healthy cities (WHO 2010). During its development, the European countries have introduced the initial WHO healthy city projects around the period 1987-1992, as a result the definition of a healthy city was completed.

“The concept of a healthy city is one that offers us an interesting new perspective on the city and an exciting opportunity to enhance health and well-being. We believe that the city is the vital center of our industrialized civilization, that health is a result of the complex interactions of people with each other and their physical and social environments and that the city has a crucial role to play in the health and survival of humanity” (Ashton, Grey & Barnard 1986)

The essential within the definition of a healthy city is that a 'healthy city' is one program that is continuously kept trying to improve public health (WHO 1986). As such, in order to enhance control over people health, enabling them to do the planning, implement of the concept and principles of health promotion at the community level. The fundamental

to the Healthy Cities approach is achieving the integration of activities and city programs. The effectiveness of efforts to improve urban health can be achieved if the program and integration in the region run successfully. This is because cooperation and coordination among the parties involved in accordance with the track and make it efficient. In terms of resources sharing, integration will lead to substantial benefits, synergy between activities, and cost-effective solutions. Key players whose efforts may need to be coordinated in a Healthy Cities project such as local, provincial/state and national politicians; government service providers from a variety of sectors; nongovernmental organizations; local, provincial and national government authorities; and community members.

According to Dannenberg, Jackson, et al (2003), health policies related to urban planning include urban form factors; network street connectivity, land use mix and density, site design, and street design can play a substantial part in shaping the health and well-being of the residents of the community. Cities should also become greener for humans who inhabit them and for the sake of many species, and as a model for future cities (Ritchie et al 2013).

3.3 The WHO Model's Healthy City

A healthy city commits to a process of trying to attain social environments and better physical. Any city can start the process of becoming a healthy city if it is committed to the development and maintenance of physical and social environments which support and promote better health and quality of life for residents. Building health considerations into urban development and management is crucial for healthy city. The movement of healthy city model in several countries both developed and developing countries demonstrates that there are significant variations in the implementation of a healthy city that conducted in each region. These differences have reflected the differences in local history and culture, economic, and political development of a country.

The program conducted by healthy city models differ significantly in countries with different levels of development. As an example of this is in developing countries, the development of basic urban infrastructure, the provision of sanitation and clean water are paramount. Different to what happens in developed countries as the WHO model's healthy city, such as Japan, New Zealand and Australia, the main concerns are protection of the environment, crime and injury prevention (Takano 2003).

Figure 2 presents the essential steps in the development of a healthy city. As stated WHO (2000, p.14), the steps in the development of a healthy city model are divided into three phases. Phase 1 begins with awareness raising and established the formation of cross-sectoral task force for a healthy city and will eventually gaining a firm commitment from the local government. Phase 2 works to develop organizational structure, working mechanisms, city health profile, plan of action, and capacity for the model. Phase 3 implementing the action plan that has been planned and established.

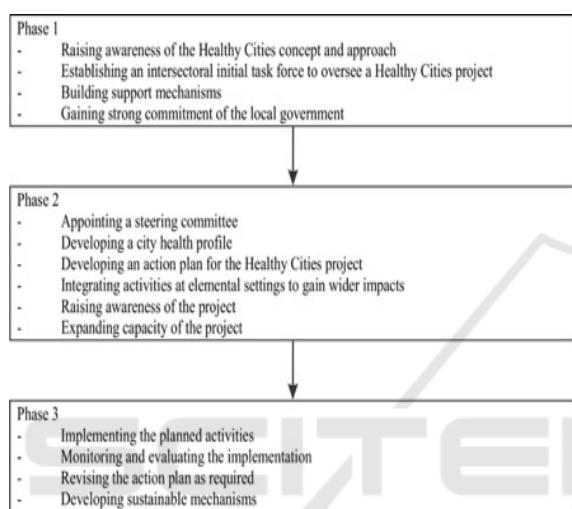


Figure 2: the steps in the development of a healthy city model (WHO 2000).

Involving community-based organizations and non-governmental (NGOs) from the commencement of a healthy city development is essential. The process needs resources and time as effective inclusion of community interests is a developmental process. Public participation can take place at all steps of a healthy city development, including preparation of a local action plan, specific activities and task groups, establishment of a vision for the community, needs assessment, and management of and guidance to the overall healthy city model.

4 CONCLUSIONS

Urban parks and open space play an important role in healthy city concept. It provides many benefits in social and health dimensions. Achieving these advantages needs consideration in aspects such as gender, motivation, ages, socioeconomic and demographic of population as well as physical factors

like distance, size, and facilities. In addition, local culture, social values, climate and people's need are also important.

Based on an extensive literature discussion, urban parks could be significantly influence urban design implementation towards healthy cities. The built environment encompasses a range of physical and social elements that may probably influence healthy city and make up the structure of a community. Furthermore, the concept of healthy city has been introduced by the World Health Organisation (WHO) has the objective to response a variety of urban health issues. Healthy city program tries to cover whole qualities of healthy living. In addition, a healthy city model by WHO commits to a process of trying to attain physical and social environments which support and promote better health and enhance quality of life for people.

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