

A MEASUREMENT TOOL FOR ANALYZING FACTORS INFLUENCING THE URBAN QUALITY OF LIFE: A CASE STUDY FROM BANDUNG INDONESIA

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Abstract: Bandung is a city that become one of the largest growth in Indonesia. Bandung is also one of the centers of economic, social, political, and national administrative activities. The population growth rate reaches 3.5% per year and the total population is predicted to reach 4.1 million by 2031. This becomes a more serious challenge for Bandung in growing urban development and maintaining the quality of life of its citizens. Some of the issues that become serious problems for Bandung City are to build a sustainable urban facilities such as transportation, city cleanliness (including free from garbages, flood, slums, clean water), satisfaction rate of facilities and services, and infrastructure developments. The existence of smart cities provides an appropriate solution to the urban quality of life for its citizens. This paper intents to propose measurement tool to test the model of urban quality of life in a city. The study found 4 variables and 22 items which are valid and reliable to be used for further study.

Keywords Urban Quality of Life, Life Satisfaction, Bandung, Indonesia

1. INTRODUCTION

The total of the registered population is about 2.5 million people, Bandung City is the city with the third largest population after Jakarta and Surabaya. The city serves as the capital of the West Java Province and is located about 140 km from the country capital, Jakarta (see Figure 1). Located at 768 m above sea level, Bandung was originally developed as a resort city in the 1800s by the Dutch Indies government, partly due to its rich natural setting and comfortable climate (Voskuil, 2007). Bandung has become a large-scale city with an area of 168 km² and is one of the most important centres for political, economic, and social activity in Indonesia. Over the last few decades, in developing public infrastructure as well as generating local businesses such as tourism, manufacturing, textiles and apparel, pharmaceutical, financial, food, entertainment, and services, a large amount of investment both domestic and foreign has been successfully done by the city of Bandung (Firman, 2009a). Bandung has brought many rapid growth opportunities in the commercial, industrial, and educational fields that can be linked to economic drives, rapid population growth and urban (Tarigan, et al., 2015).

conference in 2015, and 25 mayors from Asian and African cities signed the Declaration of the Smart City, committed to the development of Smart Cities through knowledge, technology and investment. This declaration, initiated by the current mayor of Bandung, Mr. Ridwan Kamil, it is one of the efforts of government to actualize the vision of Bandung to be a good example of Smart City in Indonesia (Tarigan, et al., 2015).



Figure 1 Bandung City in West Java Province and Indonesia

Source: Tarigan et al. (2015)

Tarigan (2015) stated that during the time of the colonization, the Dutch undertook development in Bandung that had a positive effect on business and military affairs so that it attracted the attention of many people to come and settle and trigger economic activity. After Indonesia gained its independence in 1945, Bandung still became a great city and has big power and importance roles in politics as host of the first Asian-African Conference. Bandung again held a



Figure 2 The position of Bandung City with its neighbouring cities and regencie
Source: Tarigan et al. (2015)

Tarigan et al. (2015) determine, Indonesia has one of the most important cities and has grown into a center because of its development which shows a higher rate of economic growth than the national average, it is the city of Bandung. In recent years, the city of Bandung has made good development improvements, however, Bandung also found many challenges to be solved due to rapid urbanization, including slums, basic infrastructure, and floods. The heavy traffic and congestion that occurred in the city of Bandung is getting worse because of rapid urban mobility and it is predicted in the future will get worse with the number of trips per day reaches 193% in 2030. Bandung city also should create new solutions and strategies to overcome the problem of waste production that has worsened and exceeded the capacity of garbage collection services. Poor attitudes of Bandung citizens impact on the seasonal floods that occur in Bandung. Poor attitudes of littering the drainage channel is the biggest contribution of Bandung citizens to the seasonal flood disaster in Bandung. Bandung has become the second largest city in terms of population living in slum areas. It affects poor drinking water, mediocre of solid waste, and suffers from limited sanitation. The total population of Bandung citizens is about 2.5 million and only 1.6 million people who get clean water distribution from Perusahaan Daerah Air Minum (PDAM). This means there are still many households of Bandung who still do not have access to clean water. Sometimes the water pressure at a particular location is also often unstable and causes the water flow stop completely. It has an impact to the high population growth. The population growth rate reaches 3.5% per year and the total population is predicted in 2031 will reach 4.1 million people. This becomes a more serious challenge for Bandung in growing urban development and maintaining the quality of life of its citizens. Some of the issues that become a serious problem for Bandung City to build a sustainable urban environment are transportation, cleanliness of the city such as free from garbage, flood, slums, clean water, satisfaction rate of facilities and services which are given to residents of Bandung city, and infrastructure development. (Tarigan, et al., 2015).

Bandung has undergone many dramatic changes such as, urban infrastructure, service provision, housing, land converted into housing, these are problems in Bandung quality of life that are happening and need to be solved as soon as possible. In addition to problem in Bandung quality of life, other quality of life issues in Bandung are rapid land-use changes, uncontrolled traffic conditions, uncontrolled population growth, and environmental damage in the city center. Government of

Bandung itself has not been able to provide maximum handling, solution, and adequate responses (Arifwidodo, 2012).

Based on the explanation above, the author would like to conduct a research that proposes a new modified model to analyze factors influencing the urban quality of life. The proposed model of this study has not been tested yet. Therefore, the objective of this research is to propose measurement tools to test the model.

2. RESEARCH OBJECTIVES AND QUESTIONS

As far as this study doing literature reviews, this study cannot find any convincing indicators to be used for measuring the urban quality of life in a city, especially the city that fits with city of Indonesia characteristics. Citizen's characteristics, social and economic background of Indonesia have quite different from other countries. A model or indicators which can be implemented in a city of a country might not be able to be directly implemented well in the city of other countries. Therefore, the objectives of this study are to find out the variables, indicators, and items which fit to be used for measuring the urban quality of life in a city. In line with the objectives the research questions that want to be answered are: a) Based on the literature result, what are the variables and indicators to measure the urban quality of life in a city?, b) Based on interview result, what are the variables and indicators to measure the urban quality of life in a city?, and c) What items that can be used to measure the urban quality of life in a city?

3. RESEARCH METHODOLOGY

In order to achieved the research objectives and answer the research questions, this study applies two steps in identifying the indicators of the urban quality of life, first step is literature review and second step is depth interview. In doing the first step, literature review, this study uses primary literature such as articles from journals and conferences proceedings which are available online in the internet and modern electronic search engines, as well as electronic data bases as suggested by Zikmund, Babin, Carr, and Griffin (2009), and Indrawati (2015). Besides primary literature, this study also uses secondary literature such as books, review articles, indexes and abstracts, and also uses tertiary literature, such as encyclopaedias and dictionaries. The process of literature review was done by reading all related literatures with the object of this study, compare one literature to others to find out the similarities, contrast one literature to others to find out the differences, and finally summarize what the literatures say about indicators of the urban quality of life.

The second step which is done in this study is interview. In doing depths interviews, the researchers ask many questions and follow up each answer with probes for additional elaboration. An open ended interview format used to ensure that the information obtained would be related to the objectives on the study. Open-ended questions were prepared and were given to the respondents. The interviewers adusted the sequence of the questions given and added questions based on the responses of the respondents (Creswell & John, 2009). During the interview the researchers recorded the interview and transcribe edit after the interview finished.

To enhance confidence of the information, this study conducted and selected several people from each sector who are considered to have the capability to answer research questions based on Quadra Helix Model. Based on Quadra Helix there are the main pillar that contributes to the growth of creative industries covering four sectors of government, business, academia, and civil society. Quadruple Helix is a development of Triple Helix by integrating civil society, innovation, and knowledge (Afonso, Monteiro, & Thompson, 2012). The expectation of the four sectors of the Quadruple Helix work in an integrated manner, so it can play their respective roles optimally. Concluded of the population in this study is divided into 4 sectors, namely:

1. Government – Among executives in municipal / regional governments as regulators / policies and managers associated
2. Business Player – The entrepreneur who has business
3. Academia – The expert of the scientific sector and universities who understands about topic
4. Civil Society – Citizen or immigrants

During the interview, this study applied at least two interviewers who make research notes and put the codes on every meaningful statement of interviewees. The interviewers check the interpretation against the interviewees and peer interviewer to reduce bias of a single interviewer and for confirmation of the collected textual data.

The respondents for depth interview were selected, which are chosen by using purposive sampling technique. In purposive sampling technique the sample is selected when the sampling is confined to specific types of people who can provide the desired information, either because they are the only ones who have it or because they conform to some criteria set by the researcher (Sekaran & Bougie, 2010). Table 1 shows the respondents of this research.

Table 1 Respondents based on Quadruple Helix Model

Category	Respondents	Number
Government	Bandung Government worker	4
Business Player	The entrepreneur who has run the business in Bandung city more than 3 years	4
Experts	The experts who understand Bandung smart city and the concept of urban quality of life	4
Civil Society	Bandung citizens or immigrants in Bandung	4
Total		16

The collected textual data were processed and analysed following the six steps of analysing textual data from (Creswell & John, 2009), namely organizing and prepare the data for analysis, read through all the data, detailed analysis with textual data coding process and segments the text, use the coding process to generate a description of the setting or people as well as categories or themes for analysis, advance

how the descriptive and themes are represented in the qualitative narrative and in this research are also in descriptive percentage, and the last step is making interpretation of the data.

4. RESULTS AND DISCUSSION

4.1 Urban Quality of Life: Literature Review Result

There are four main fields were identified that have dealt with satisfaction and urban quality of life – physical features, features of social nature, environment features, and institutional features.

Table 2 Definition of Variables

Variable	Definition
Physical Features	Is a “place” when personal, group, or cultural processes have been given meaning through it (Białowolska, 2016)
Social Nature	Individual’s non-conscious or automatic evaluations of his or her life in contrast to explicit life satisfaction, being a conscious or controlled evaluative judgment of one’s life (Białowolska, 2016)
Environment Features	As with other people or objects, it is possible to create emotional and close bonds with places (Białowolska, 2016)
Institutional Features	Operate in a few advanced contemporary countries and only in recent times (Białowolska, 2016)

Based on the literatures related to urban quality of life, this study makes a table to summarize the urban quality of life variables and indicators as shown in Table 3.

Table 3 Variables and Indicators based on Literature Result

Variable	Indicator
Physical features	Public transport, for example the bus, tram or metro
	Health care services
	Doctors
	Hospitals
	Cultural facilities (concert halls, theatres, museums and libraries)
	Sport facilities: sport fields and indoor sport halls
	Availability of retail shops
	Public spaces such as squares
Features of	Pedestrian ares
	I feel safe in Bandung

Social Nature	Generally speaking, most people in my city can be trusted
Environment Features	Green spaces - such as parks and gardens
	Quality of the air
	Cleanliness
	Noise Level
Institutional Features	Administrative services of Bandung help people efficiently
	Generally speaking, the public administration of Bandung can be trusted

4.2 Urban Quality of Life: Based on Interview Result

In order to make the variables and indicators of the urban quality of life fit with Indonesia's situation, this study finds out the variables and indicators from Indonesia's government, business players, civil society, and experts. Based on the result of interview with 16 respondents, this study found that the variables of the urban quality of life are as shown in Table 4 below.

Table 4 Variables of Urban Quality of Life based on Respondents agreement

Variables	% Respondents Agree
Physical Features	90%
Social Features	83%
Environment Features	88%
Institutional Features	85%

Table 4 shows that 90% respondents agree that Physical Features as variable of urban quality of life in a city, 83% respondents agree that Social Features as variable of urban quality of life in a city, 88% respondents agree that Environment Features as variable of urban quality of life in a city, and 85% respondents agree that Institutional Features as variable of urban quality of life in a city.

Based on the result of interview with 16 respondents, this study found that the indicators of the urban quality of life in a city are as shown in Table 5.

Table 5 Indicators based on Interview Results

Variable	Indicator	% of Respondents Agree
Physical features	Public transport, for example the bus, tram or metro	73%
	Health care services	62%
	Doctors	69%
	Hospitals	69%
	Cultural facilities (concert halls, theatres, museums)	60%

	and libraries)	
	Sport facilities: sport fields and indoor sport halls	74%
	Availability of retail shops	60%
	Public spaces such as squares	77%
	Pedestrian ares	71%
Features of Social Nature	I feel safe in Bandung	75%
	Generally speaking, most people in my city can be trusted	66%
	Most people in my city are politeness	78%
	Most people in my city are love each other	71%
	Most people in my city are gentle	65%
	Most people in my city friendly	82%
Environment Features	Green spaces - such as parks and gardens	85%
	Quality of the air	80%
	Cleanliness	87%
Institutional Features	Administrative services of Bandung help people efficiently	85%
	Generally speaking, the public administration of Bandung can be trusted	90%
	The public administration of Bandung is responsive	75%
	The public administration of Bandung uses optimal resources	85%

5. CONCLUSION

Referring to the literature review results and interview result, this study find that both of results suggests the same four variables, but in term of indicators the findings are different since based on interview result some indicators have been added and few indicators have been removed. Therefore,

model for measuring the urban quality of life in a city is presented in figure 3.

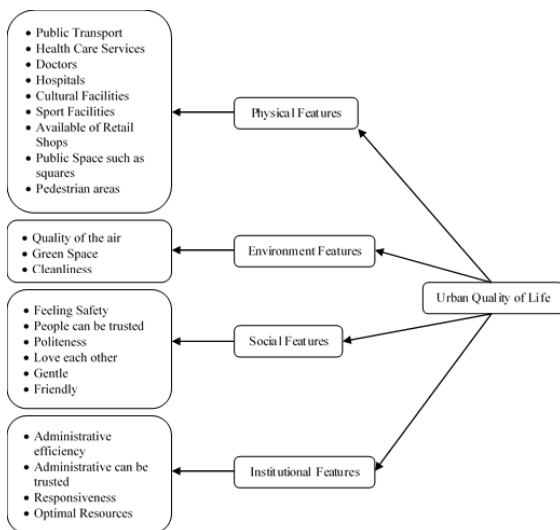


Figure 3 Proposed Model of Urban Quality of Life

The next process that will be done by the writers are testing the variables and items through a pilot test. Once the measurement tool is valid and reliable, it will be used to collect main data to test if the proposed model can be applied to measure the urban quality of life in a city of Indonesia.

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