



## The Urban Sustainability Index in Urban Agglomeration

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### Abstract

The regional autonomy positively impacts regional development in terms of competitiveness. Each area tries to have advantage from other areas. One of the parameters of city competitiveness is the concept of sustainable cities. This study aims to identify cities based on sustainable urban development indices in six urban agglomeration area of Semarang: Semarang city, Semarang regency, Kendal regency, Grobogan regency, Demak regency and Salatiga city. Methods of data collection with questionnaires, interviews and documentation. Respondents in this study were the general public, policy makers, and academics. The results showed, based on the sustainable urban development index of the Sustainable Urban Development Indonesia Forum, six districts in urban agglomeration area of Semarang are categorized as less sustainable in 2016. The regencies in the urban agglomeration areas of Semarang indicate the index result of 103,00 - 127,83. The average contribution of the urban leadership, the urban governance, the urbanization and population, the housing and settlements variables are high, while the disaster risk and the climate change, the waterfront areas, the mass transportation, the local economy and informal sector, the preservation of cultural Heritage, the natural heritage and the local Wisdom, the green Open Spaces, the emissions and energy variable are still low.

**Keywords:** urban agglomeration, urban sustainability index, environmental economics, Indonesia

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## INTRODUCTION

The urban growth exceeding the capacity of urban areas will cause various problems in economic, social, cultural, political, and environmental fields. Related to the environment, the urban growth negatively affects the environment. This conclusion is in line with the results of research the impact of mining development and urban infrastructure on environmental ecosystems (Xu, et al., 2016), the impact of urban growth on biodiversity (Zeng, et al., 2016), (Coles, et al., 2010), (McCarthy, et al., 2010), the impact of urban growth on the climate change (Ahmad & Choi, 2010), the social equity and environmental conditions have been marginalized by the rapid economic development (Fan & Qi, 2010), the satisfaction with neighborhood attributes decreases with increasing urbanization (Oleyar, et al., 2008), (Jiang & Hardee, 2009), and (Zheng, et al., 2010). The phenomena of negative impact of the urban growth on the environment generally occurs because it only promotes the short-term interests of the economy. It is very contradictory to the development goals of achieving the social prosperity, not only in the economic aspect but also in all aspects, and of paying attention to the long-term interests.

Development that pays attention to the long-term interests, which is often called the sustainable development, must fulfill the economic, social, and environmental aspects. Even though sustainable development is a fluid concept and various definitions have been put forward, the definition by the Brundtland World Commission on Environment and Development in 1987 remains valid and timely. One of its key principles is that sustainability should promote understanding and foster the integration of the complex

interconnections that exist between the environment, economy and society (Grafakos, et al., 2016). These three variables must be synergistic, but in reality in many countries economic and social development is superior to the environment. This can be seen from the results of research from (Dijk & Mingshun, 2005) conducted a research in four intermediate cities in China (Qinhuangdao, Maanshan, Taizhou, Wuhai). The results of research of the economic conditions are negatively and significantly associated with the environmental index, which means that there is a tradeoff between the environment and economy. Compared to the economic conditions, social conditions have a stronger and positive relationship on the urban sustainability. The same thing is also expressed by (Lee & Huang, 2007) who conducted a research in Taipei. The social and environmental indicators show that there is always an increase towards sustainable development, while the economic indicator shows slower increase towards sustainable development. (Fauzi & Oxtavianus, 2014) conducted a research on the measurement of sustainable development in Indonesia by using a composite index. The results of research have not been balanced between the economic, social, and environmental developments. The development gives more pressure on the environment.

Based on preliminary studies proving that sustainable development in various countries has not been implemented in accordance with the concept expected. Sustainable development is a necessity to be implemented as well as for the regional development (regency/ city). One way to see whether an area has already implemented the sustainable development is by measuring

the urban development index with various variables of economy, social and environment. (Xiao, et al., 2010), the factors affecting the performance of a sustainable city is a commitment to the environmental sustainability from the planning, implementation, monitoring, and evaluation, whether carried out by the government, the private, and the society, and there is no relationship between the economic growth and the performance of sustainable cities. Therefore, it needs to prepare such a condition, planning that the goals of sustainable development will be successful (Widhianthini, 2016). In this case, the policy or the program must consider both the technical and non-technical sides to be easily implemented. (Pujiati, et al., 2013) conducted a research on the determinants of green and non-green cities in the agglomeration of Semarang and Yogyakarta by using the logistic regression analysis tool. The results of research show that government's spending affect the classification of the green and non-green cities. This means that the government's role is crucial to the realization of sustainable development. The role of government can take the form of leadership, governance or expenditure policy.

Sustainable Urban Development –Forum Indonesia (SUD, 2013) found the measure of the index of Sustainable Urban Development (SUD index) by using a composite index. The key indicators are: the urban leadership, the urban governance, the urbanization and population, the housing and settlements. The first indicators are: the disaster risk and climate change, the waterfront area, the mass transportation. The second indicators are: the local economy and the informal sector, the preservation of cultural heritage, the natural heritage and the local wisdom, the green open spaces, the emissions and energy. The main indicator will be an indicator that

must be fulfilled by a city or an urban area so that the ongoing development can be sustainable, whereas the first and the second supporting indicators can be gradually fulfilled when the main indicator has been fulfilled. But the index is still limited to the formula has never been implemented so it needs a review how the implementation of sustainable city index generated by SUD-FI. The level of competitiveness is one of the parameters in the concept of sustainable cities. The higher the level of competitiveness of a city, the level of welfare of the community is higher. One way to find out a competitiveness by means of ranking. It is therefore important to undertake a study of regional rating based on the index of sustainable development.

This research will be conducted in urban agglomeration area of Semarang which is one of the urban agglomeration areas in Indonesia (Badan Pusat Statistik, 2000). The urban agglomeration area of Semarang consists of Semarang City, Semarang Regency, Grobogan Regency, Kendal Regency, Demak Regency and Salatiga City. The more densely populated areas the potential for environmental damage is higher (Pujiati, 2015.) Semarang urban agglomeration area is chosen because it is located on the Java Island, in which the Indonesian population is concentrated. Other consideration is that this area or better known as Kedungsapur is one of the leading areas in Central Java Province that may contribute to encourage the economic growth for the area itself and its surroundings. This study aims to identify cities based on sustainable urban development indices in six urban areas of urban agglomeration in Indonesia: Semarang city, Semarang regency, Kendal regency, Grobogan regency, Demak regency and Salatiga city.

## METHOD RESEARCH

This research is descriptive studies . The analysis unit of regencies/cities is in the urban agglomeration area of Semarang. The data used is primary and secondary data. The primary data is sourced from the perception data of the urban people opinion, the questionnaires to the respondents, the interviews, and the Focus Group Discussion (FGD) with the local government. The respondents in this context is the general public as the beneficiaries of the implementation of development in each regency/city, each of which consists of 100 respondents from the general people, the community leaders, and the policy makers in 2016. The secondary data is sourced from the Central Bureau of Statistics (Badan Pusat Statistik) with the Regional Body for Planning and Development (Bappeda), districts, and sub-districts. The variables of research used 10 variables : (1) the urban leadership, (2) the urban governance, (3) the urbanization and population, (4) the housing and settlements, (5) the disaster risk and the climate change, (6) the waterfront area, (7) the mass transportation, (8) the local economy and the informal sector, (9) the preservation of cultural heritage, the natural heritage and the local wisdom, (10) the green open spaces, the emissions and energy. All variables are measured based on the value of the composite of indicators based on the objective data (secondary data) and the perceptual data (primary data) each with a scale of 1-4. The measurement is the same as done (Pujiati, et al., 2017). The measurement Sustainable Urban Development Index (SUD) is as follows:

$$f(x) = a.X_1 + b.X_2 + c.X_3 + d.X_4 + e.X_5 + f.X_6 + g.X_7 + h.X_8 + i.X_9 + j.X_{10} \quad (1)$$

$$f(y) = a.Y_1 + b.Y_2 + c.Y_3 + d.Y_4 + e.Y_5 + f.Y_6 + g.Y_7 + h.Y_8 + i.Y_9 + j.Y_{10} \quad (2)$$

$f(x)$  = the value of index composite based on the objective data

$f(y)$  = the value of composite index based on the perceptual data

$a, b, \dots$  etc. = the weight on each item

$X_1, \dots, X_{10}$  = the total value of index on each item from the variables of research based on the objective data

$Y_1, \dots, Y_{10}$  = the total value of index on each item from the variables of research based on the perceptual data

The composite values that have been obtained from each measurement will be added by using the following formula from Sustainable Urban Development –Forum Indonesia (SUD, 2013) :  $F(SUD) = 70\% f(x) + 30\% f(y)$ . As for the category of sustainable development index score is very unsustainable ( $<101.6$ ), less sustainable ( $101.7 \leq F(SUD) < 203.2$ ), self-sustained ( $203.3 \leq F(SUD) < 304.8$ ), sustainable ( $\leq 304.9 F(SUD) < 406.4$ ), very sustainable ( $F(SUD) \geq 406.5$ ). The indicators and the weight of pillars of sustainable development can be seen in Table 1.

## RESULTS AND DISCUSSION

The measurement result of SUD in the urban agglomeration area of Semarang showed the scores between 103.00-127.83. The urban development index of Semarang City occupies the first rank based on SUD with a score of 127.83. The lowest rank is achieved by Semarang Regency. The scores obtained by all regencies/cities in the urban agglomeration area of Semarang are categorized as less sustainable.

**Table 1** The Indicators And The Weight Of Pillars Of Sustainable Development

Indicator	Sub Indicator	Weight
Main indicators	The urban leadership	3
	The urban governance	3
	The urbanization and population	3
	The housing and settlements	3
Supporting indicators 1	The disaster risk and the climate change	2
	The waterfront area	2
	The mass transportation	2
Supporting indicators 2	The local economy and the informal sector	1
	The preservation of cultural heritage, the natural heritage and the local wisdom	1
	The green open spaces, the emissions and energy.	1

Source: SUD-FI (2013)

This indicates that not all urban regencies in the urban agglomeration area of Semarang have fulfilled the criteria of sustainable cities. The complete results of the measurement and rating of regencies/cities can be seen in Table 2.

Semarang City gets the highest score of SUD in the urban agglomeration area because Semarang City has an advantage in the main indicator that is the main requirement as a sustainable city, which is on the urbanization and population indicators. The high score of urbanization and population is based on the public perception because of the participation of the Harmonious Neighborhood (RT), the

Harmonious Citizens (RW), the team of movers of Family Welfare Program (PKK), the youth organization (Karang Taruna), the Institute of Urban Community (LMK) and Organization Self-Supporting Community (LKM) or Body of Public Self-Reliance (BKM) in running programs of population/community; and also the existing and functioning of the Resilience Development Program and the Family Welfare (PK3). The high score is supported by the objective data as follows (a) the territorial division of responsibility of the district and the citizens including the supervision of the integrated land use with the green system management, waste management, social facilities, disaster

**Table 2** Sustainable Urban Development Index and Rating of Regencies/Cities Based on the Urban agglomeration Area of Semarang

Regency/City	Index	Criteria	Rating
Semarang city	127.83	Less Sustainable	1
Grobogan regency	120.65	Less Sustainable	2
Salatiga city	120.3	Less Sustainable	3
Kendal regency	117.41	Less Sustainable	4
Semarang regency	106.66	Less Sustainable	5
Demak regency	103.00	Less Sustainable	6

Source: Processed Primary and Secondary Data, 2016

risk management system (b) the clear and firm administrative map of the area including the limits of territorial division of responsibility (c) Standard Operating Procedures (SOP) for the officers in the district and sub-district (d) The organizing of the citizens who occupy the critical areas and the border to participate in the supervision and control of spatial regions. The indicators of housing and settlements in Semarang based on the highest public perception are because there is no slum area in the district of respondents' houses. The high variable of housing and settlements in Semarang city is not supported by the available objective data.

The score of SUD in Semarang City on the first supporting indicator is also high that is the indicator of the waterfront area. The supporting indicator is not a prerequisite towards the sustainable cities, but it should gradually be made to obtain a high score to gain an entry to the sustainable criteria. The high score of the waterfront area is because the entire waterfront areas in Semarang City are clean from the slum settlements although the high score based on the public perception is not supported by the objective data. The second supporting indicator in the index of sustainable development for Semarang City is also the highest those are the preservation of cultural heritage, natural heritage and local wisdom, and also the green open space, emissions and energy. According to the public perception, there is a protection on the cultural heritage buildings by the government. The data based on the public perception for the indicators of the preservation of cultural heritage, natural heritage and local wisdom is not supported by the objective data.

The green open space, the emissions and energy for Semarang City are good either

according to the public perception or the objective data. According to the public perception, the high score in Semarang City in terms of green open space, emissions and energy is because many people in the city use horticultural plants as the shade trees. The supporting objective data are the high percentage of the number of green community in the urban area and the diversity of the points set out in a policy that guarantees the existence of the quality and quantity of the green open space, which should include: the quantity, quality, planning, use, maintenance, and management of the green open space. There are only two indicators with the highest score in Semarang City in which between the public perception and the available objective data support each other those are the indicators of urbanization and population, and the green open space, the emissions and energy.

The result of calculation of SUD in Semarang City is in accordance with the results of research of (Dijk & Mingshun, 2005), which explained that there is a tradeoff between the environment and the economy. The social condition has a strong and positive relationship towards the urban sustainability compared to the economic condition. The sustainable urban development economically advanced is still low. The results of research also support a research conducted by (Xiao, et al., 2010), which explained that the determinant of the sustainable urban performance is a commitment to the environmental sustainability, in this case, a policy that guarantees the quality and quantity of the green open space. This research does not support a research conducted by (Fan & Qi, 2010), which explained the positive correlation between the urbanization and the environmental damage. The running time of the economic

development has a negative impact on the environment, but in Semarang City, the high urbanization indicator has a positive correlation with the index of the sustainable urban development.

Based on the calculation of SUD, Demak Regency has the lowest score. It is because many of the establishment indicators of the sustainable urban development index are the lowest among the regencies/cities in the urban agglomeration area of Semarang. According to the public perception, the indicators of waterfront area and the preservation of cultural heritage, natural heritage and local wisdom have the lowest score compared to other regencies / cities in the urban agglomeration area of Semarang. While from the objective data, the lowest indicators are governance, housing and settlements, the risk of natural disasters and climate change, and the waterfront area. This means that in the waterfront area, according to the public perception, there are many slums settlements. The indicators of preservation of cultural heritage and natural heritage are low, which means that people have less appreciation, are lack of protecting and revitalizing of the cultural heritage, natural heritage, and local wisdom. The waterfront area with many slums settlements are supported by the objective data that is the little percentage of the total area of the waterfront space used for public activities. The results of research support the research of (Fauzi & Oxtavianus, 2014), which explained that there is no balancing among the economic, social, and environment developments. The development gives more pressure on the environment. The use of SUD as a measure of sustainable development has not been optimal yet. It is proved by the use of primary data obtained from the questionnaire public perception with

secondary data (objective) provided that is not always mutually supportive.

The interesting thing about the rating of regencies/cities based on the sustainable urban development index is Grobogan Regency. Viewed from the economic standpoint with one measure of per capita income that is low and the structure of the economy that is still agrarian, Grobogan Regency occupies the second position in the urban agglomeration area of Semarang. According to the public perception, Grobogan Regency has a high score in the indicators of urban leadership, urban governance, disaster risk and climate change, and local economy and informal sectors. The urban leadership and governance are the main establishment indicators of SUD. There are some changes in the economy that is the increase in the social welfare. Good urban leadership based on the public perception is also supported by the objective data that have high scores as well. Good leadership is able to change the environment to be cleaner of scattered waste; more smooth drainage, no clogged gutters or rivers; smooth traffic; better air quality, because there are more trees and less polluting fumes.

Grobogan governance also has the highest score within the urban agglomeration area of Semarang. Grobogan Regency has the highest score in terms of urban governance based on public perception in terms of: the management of identity cards and permits is easy, fast, and without any charge, the presence of LKM /BKM that is especially useful for the community. The citizens become more participatory and care about the efforts of planning, improvement, and control of the spatial management in the settlements. The disaster risk and climate change are the supporting indicators in the

establishment of SUD. Although supporting, Grobogan is able to achieve the highest score based on the public perception in terms of understanding the system of emergency response when a disaster occurs. Understanding means to know, learn, and practice. The public perception is also supported by the objective data provided that is people know, understand, and practice the emergency response system in times of disaster. The last indicators as a supporting establishment of SUD are the local economy and the informal sectors. This means that the urban government is actively involved in the local economic development and the informal sectors. The results of research support the research conducted by (Dijk & Mingshun, 2005), which explained that there is a tradeoff between the environment and the economy. From the economic standpoint, the per capita income or Gross Domestic Product is low, but from the environmental standpoint, the SUD is high.

From the measurement results based on the people's perception in regencies / cities in the urban agglomeration area of Semarang, Salatiga City got the third highest score. The high score is supported by the reliable mass public transport services existing in Salatiga City. Seen from the achievement in terms of mass transportation, on average the regencies / cities in the urban agglomeration area of Semarang belong to the good criteria. This means that the mass public transport services are reliable and the bike lane facilities are well equipped in all regencies / cities in the urban agglomeration areas of Semarang.

Mass transportation indicator encourages the development of an integrated urban transport system to support the accessibility and mobility of the urban

people. The objective of mass transportation is to realize efficient, energy saving, and low-cost urban transport services. The targets to be achieved are the efficient aspect represented by the existence of an adequate mass public transport network whether based on REL or Road and the public transport operating system should be done in integrated way (seamlessly) so that interchangeable modes can be done easily and comfortably. The energy saving aspect is described through the use of renewable alternative energy such as BIO-DIESEL or vehicle technology using Fuel Gas (BBG). The low emission aspect is represented by efforts to encourage the use of non-motorized vehicles such as BICYCLE or environmentally friendly low emission LCGC (low cost green car) vehicles. Implementation measured by people's perception is the existence of well-equipped bike lane facilities and reliable mass public transportation services. For the objective data, the ownership of two and four-wheeled vehicles per capita in Salatiga City is measured as the good criteria although it is not the highest in terms of achievement between target and reality.

Salatiga City has the highest index in the indicators of local economic and informal sector based on the objective data. The high score in Salatiga is due to the increasing number of small industries (creative industries and / or home industries) to the total number of industries in the city. Seen from the average index, the regencies / cities in the urban agglomeration areas belong to less good criteria, which means that there is still a limited percentage of small industries (creative industries and / or home industries) and of public space for the informal sector.



From the measurement results based on the objective data available in each regency / city in the urban agglomeration areas in terms of preservation of cultural heritage, nature heritage, and local wisdom, the highest score is achieved by Salatiga City. The high score in Kota Salatiga is due to the percentage of the number of communities of preserving cultural heritage, natural heritage, and local wisdom compared to the total number of communities of conservation of nature and high culture. The regencies / cities in the urban agglomeration areas of Semarang are on average less good in terms of cultural heritage preservation, heritage, and local wisdom indicators. This indicates that there are still a limited number of communities of cultural heritage conservation, natural heritage, and local wisdom, and also the percentage of tourist agencies, tourism trip, and the like that offer tourism packages related to the cultural heritage, natural heritage, and local wisdom.

According to the people's perception in terms of urbanization and population, Kendal Regency got the lowest score. This is due to: a) The lack of regular preventive efforts by yustisi operations (ID card raids, KIPEM – seasonal ID cards, KIK – Occupation Identity Cards, etc.), and NIK Based Population Registration, b) The lack of effective efforts in rural development and empowerment of rural communities around the city, c) The lack of effective efforts in building public facilities, social facilities, environmental facilities in rural areas in the area around the city, d) The lack of effective efforts to diversify farming in rural areas, urban areas, e) The lack of effective efforts of villages with cultural potential that is actually able to be appointed as a tourist village, f) The lack of effective efforts to

strengthen the institutions of rural communities in the area around the city.

Criteria for achievement of indicators based on the people's perception in each regency / city in the urban agglomeration areas of Semarang are quite good in urbanization and population. Urbanization and population is one of the main indicators in the measurement of sustainable urban development index, therefore, with the result of people's perception that on average is only good enough, each regency / city should increase its efforts to encourage the urban population control efforts and to prevent the uncontrolled spread of physical development (urban sprawl). This can be done by increasing the public institutional role in gaining success in the programs of population and the efforts to improve the human quality such as efforts to increase the family income, the 'calistung' (reading, writing, counting) education, and the skills training. The improvement of human quality can also be done by the programs of toddler, teenagers and elderly. .

From the measurement results based on the objective data of cultural heritage preservation, natural heritage, and local wisdom, Kendal Regency is the lowest. The low score of Kendal Regency for cultural heritage preservation, natural heritage, and local wisdom based on the objective data is due to the low number of percentage of tourism agents, tourism trips, and the like that offer tourism packages related to the existing cultural heritage, natural heritage, and local wisdom or the total number of travel agencies. The regencies / cities in the urban agglomeration areas of Semarang are on average achieve less good criteria in terms of cultural heritage preservation, natural heritage, and local wisdom indicators. All the

regencies / cities in the urban agglomeration areas of Semarang indicate that there are still a limited number of communities of cultural heritage conservation, natural heritage, and local wisdom, and also the percentage of tourism agencies, tourism trips, and the like that offer tourism packages related to the existing cultural heritage, nature heritage, and local wisdom.

The indicators of objective data in green open space, emissions and energy are related to the existence of green communities in the urban areas and the existence of policies that ensure the existing quality and quantity of the green open space. From the measurement results based on the objective data available in each regency / city in the urban agglomeration areas of Semarang, the highest score is achieved by Kendal Regency. The high score in Kendal Regency is due to the existence of policies that ensure the existing high quality and quantity of the green open space.

Semarang Regency has the lowest score based on the people's perception and the objective data in the variable of side area because many waterfront areas in Semarang regency are not clean from the slums and because the narrow waterfront area is used as the active open space. The lowest score is also in the preservation of cultural heritage, natural heritage, and local wisdom. According to the people's perception, the low score of preservation of cultural heritage, nature heritage, and local wisdom is because the people is lack of appreciation, protection, and revitalization on the cultural heritage, nature heritage, and local wisdom. In quality the people's perception of the preservation of cultural heritage, nature heritage, and local wisdom in regencies / cities in urban agglomeration areas of Semarang is good. This

indicates that according to the people's perception, on average the people in regencies / cities in the urban agglomeration areas of Semarang actively protect and revitalize the cultural heritage, natural heritage, and local wisdom. All the regencies / cities throughout the urban agglomeration areas of Semarang also protect and care for the building of cultural heritage well.

From the measurement of housing and residential indicators based on the objective data in each regency / city in the urban agglomeration areas of Semarang, the lowest score is Semarang Regency. This is due to the small percentage of families with low income that receive the housing loans. The quality of the achievements obtained by each regency / city in the urban agglomeration areas of Semarang based on the objective data on average indicates the less good criteria. It indicates that on average, in regencies / cities in the urban agglomeration areas of Semarang, there is still a large percentage of families with low income that live at habitable home and there is still a large percentage of families with low income that have not received the housing loans yet. The other low score in Semarang Regency is the percentage of long roads that are quipped with bike lanes.

Based on the people's perception and supported by the objective data, Demak Regency has the lowest score in terms of city leadership. The worst assessment is in terms of the close relationship between the leadership and the community and the changes in the environment that is concerned very low. In terms of city governance, according to the people's perception, the urban agglomeration areas of Semarang got the lowest score, but objectively it got the highest score. Likewise in terms of housing

and residential and mass transportation. The three variables indicate that potentially Demak Regency is lack of potential exploration to support the existing objective data. It becomes a long-term challenge for the city government to increase the achievement of the three variable indicators. In general, based on the people's perception, Demak Regency only has the lowest score in two variables from ten scores those are the urbanization and population and the side area. Thus, Demak is a regency in the urban agglomeration areas of Semarang that has the most difficult challenge to become the sustainable city.

Based on the sustainable urban development index, the regencies / cities in the urban agglomeration areas of Semarang indicate the index result of 103,00 - 127,83. It means that all regencies / cities in the urban agglomeration areas of Semarang have not belonged to sustainable category yet. The average score of the main indicators in the regencies / cities in the urban agglomeration areas of Semarang, which are leadership, governance, urbanization and population, and also housing and settlement, is good enough, while the supporting indicator is less good. Based on the sustainable urban development index, the ranks of regencies / cities in the urban agglomeration areas of Semarang are Semarang City, Grobogan Regency, Salatiga City, Kendal Regency, Semarang Regency, and Demak Regency.

The public perception greatly depends on the definition they use, the profile of respondents of both economic and non-economic standpoint. The different levels of education will have a different perception in assessing indicators of sustainable development. Therefore, the public perception data cannot only be the sole

measurement of the index but also should always be synchronized with the objective data. The urban sustainable index used in this research is the result of the Sustainable Urban Development-Indonesia Forum (SUD-FI), an expert team in their respective fields. Sustainable Urban Development Indonesia Forum is a means for stakeholders, whether individuals or institutions, in building a caring community and build synergies in the quest to achieve sustainable urban development in Indonesia that began active in 2008. SUD-FI it has produced 10 bali initiative or Sustainable Urban Development Index (SUD). As a follow-up, the The Ministry Of Public Works Setup has set the green city development program (Program Pengembangan Kota Hijau/P2KH) that its application in the cities of Indonesia since the year 2011 till now. However, further research is needed to examine the validity and reliability of the instrument of measurement The results of this study can be used as input for districts / cities by looking at each deficiency of each indicator in realizing a sustainable city either from the public perception or objective data.

## CONCLUSION

The urban agglomeration area of Semarang showed the result index 103.00 – 127.83. The results of the index showed city/regency in the metropolitan area of Semarang entry category less sustainable. This shows there is a trade off between economic development and the environment. Ranking of city/regency in the metropolitan area of Semarang based on sustainable urban development index is Semarang city, Grobogan regency, Salatiga regency, Kendal regency , Semarang regency and Demak regency.

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