

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : PROSIDING

Judul Makalah : Sustainable Urban Development Strategy For Batu City, East Java Province, Indonesia

Penulis Makalah : Ida Soewarni, ST, MT

Status Penulis : Mandiri / Utama / Anggota

Identitas Makalah : a. Judul Prosiding : Prosiding Seminar Internasional ICPEU II 2015
The 2nd Internasional Conference Planning in
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c. Tahun Terbit : 2015
d. Penerbit : Universitas Brawijaya Malang
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Kategori Publikasi Makalah : Prosiding Forum Ilmiah Internasional
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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional <input type="checkbox"/>	Nasional <input type="checkbox"/>	
a. Kelengkapan unsur isi buku (10%)	0.9		0,89
b. Ruang lingkup dan kedalaman pembahasan (30%)	2.7		2,69
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	2.7		2,68
d. Kelengkapan unsur dan kualitas penerbit (30%)	2.7		2,68
Total = (100%)	9		8,89
Catatan Penilaian Artikel oleh reviewer : Pilih program kota-kota yg kate makte			

Malang, 08 September 2017

Reviewer



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Bidang Ilmu : Perancangan Kota Kultural

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	Internasional <input checked="" type="checkbox"/>	Nasional <input type="checkbox"/>	
a. Kelengkapan unsur isi buku (10%)	0.9		0,8
b. Ruang lingkup dan kedalaman pembahasan (30%)	2.7		2,6
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	2.7		2,7
d. Kelengkapan unsur dan kualitas penerbit (30%)	2.7		2,4
Total = (100%)	9		8,5
Catatan Penilaian Artikel oleh reviewer : - Komponen 2 isi prosiding dinilai.			

Malang, 06 September 2017

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Bidang Ilmu : Arsitektur Kota



ICPEU II 2015

2nd INTERNATIONAL CONFERENCE

PLANNING IN THE ERA OF UNCERTAINTY

Sustainable Development

Sustainable Urban Development Strategy for Batu City, East Java Province, Indonesia

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Abstract

Urbanization problems and sustainable development has become global issues and got a lot of attention from stakeholders in various countries. Indonesia as developing country faces their significant problem in urban management complexity. The city government take care the real impact of development problems that increasingly difficult to control. Batu City is the youngest autonomous city in East Java Province, Indonesia, located in the upper Brantas river and has steep slopes topography. Since its establishment, Batu City has experienced the rapid economic and population growth which allegedly also cause the increase of environmental degradation.

The purpose of this research is to analyze the sustainability index value of ecological, economic, socio-cultural, infrastructure and institutional dimension in assessing the development sustainability status of Batu City using Multidimensional scaling (MDS) analysis, analyzing the sensitive attributes of sustainability dimensions using leverage analysis and develop the strategies in sustainable urban development using SWOT analysis.

The results showed that the development sustainability status of Batu city, the ecological dimension in the category of less sustainable (46.90%), the economic dimension is sustainable enough (56.52%), the social dimension is sustainable enough (60.40%), the infrastructure dimensions is sustainable enough (63.31%), and the institutional dimensions is sustainable enough (72.68%). Attributes that affect the sustainability status assessment in terms of the ecological dimension are water quality, air quality and biodiversity; in review of the economic dimension are investment growth, price stability and tourism visitation; while from socio-cultural dimension are poverty, health and security; in terms of the dimensions of infrastructure are public sanitation, affordable house and clean water pipeline; and the institutional dimension are development planning, information systems and local apparatus.

Keywords : Sustainable Development, Urban Management, Sustainable City, Multidimensional Scaling (MDS)

1. Introduction

Today the world's population is concentrated in urban areas. Based on the 2005 Revision of World Urbanization Prospects, the urban population reached 49% in 2005. Since the world's population is projected continue to urbanized, 60% of the global population is expected to live in urban areas by 2030. In Asia, Indonesia has the highest annual growth rate of urban population with 4.2%. Between the years 1970-2010 was born 53 new autonomous cities. Batu City is the youngest autonomous city in East Java province and experiencing rapid economic and population growth with a strategic role in the preservation of Brantas River Basin ecological resources. Batu City with an area of 19,908.70 ha totaled, is one of the city that is successful in building the image of the region and attract investment to drive the local economy with the concept of Batu Tourism City (KWB). The success of Batu City development began to be overshadowed by a variety of issues such as environmental degradation, economic inequality and

social friction. The future of Batu City and the welfare of its citizens are determined from the development strategy that is being executed at this time.

2. Theoretical

2.1. Sustainable Development

Development is a reflection of social change process in a society, without ignoring the diversity of basic needs and interests of individual and social groups or institutions that exist to achieve better living conditions (Todaro, 1998). While the term sustainable development (Brundtland Report of the United Nations, 1987) is a development process that includes not only the territory (land, city) but also all the elements, business, society and so principled "meets the needs of the present without compromising the fulfillment of the needs of future generations", appropriate in WECD report "Our Common Future" that sustainable development was formulated as follows: "Sustainable development is defined as development that meet the needs of the present without comprosing the ability of future generations to meet reviews their own needs". Sustainable development has three main objectives (Munasinghe, 1993), namely : economic, ecological and social objectives. Economic objectives relating to issues of efficiency and growth; ecological objectives related to conservation of natural resources; and environmental quality; and social objectives related to poverty reduction and equity. Thus, the goal of sustainable development is basically located on the harmonization between economic, ecological and social objectives. The fulfillment of these needs is closely related to how to conserve capital stock. Capital stock is comprised of three types, namely : natural capital, human capital and phisical-built capital (Barbier, 1993).

2.2. Sustainable City

Urban Management is a contemporary approach to analyze urban problems. Urban Management Programme (UMP) introduces the context of urban management-oriented approach to the technocratic or handling issues, including how to achieve sustainable urban development. Brundtland report mentions that the sustainable city is a city that can perform the function and role in sustainable development. The city should be able to protect and preserve natural resources in town and in the surrounding area that can be utilized in a sustainable manner. This means that not only the city itself but also continued its regional role and functions. Sustainable urban development is a dynamic process that takes place on an ongoing basis, is a response to pressure changes in the economic, environmental, and socio-cultural. Processes and policies are not the same in every city, depending on the character and its problems. One of the biggest challenges is creating sustainability concepts, including political and institutional sustainability of the system to the making of strategies, programs, and policies so that sustainable urban development can be maintained. Urban management approach used in creating a sustainable city is a holistic approach that is comprehensive, multidimensional and systemic. The main pillar in a holistic approach to city management is economically profitable, environmentally friendly, socially and politically acceptable by community and culturally sensitive (Korten, 1996). Every city should develop its own character, and more importantly, how the city can accommodate future development while maintaining a region that serves to protect the life of the city and its people. In terms of urban planning in addition to the environmental aspects, also must understand the social system of the society, it is necessary to facilitate the approach into the community to explain what the program will be planned ahead and increase the participation of urban communities to supports the local government strategy and the policy.

3. Methodology of the Research

3.1. Scope of the Research

This research used quantitative descriptive method that is collect data and facts on the field. Material scope includes the sustainability analysis of ecological, economic, socio-cultural, infrastructure and institutional dimensions. Scope of the location is Batu City which is covering Sub-districts of Batu, Bumiaji and Junrejo.

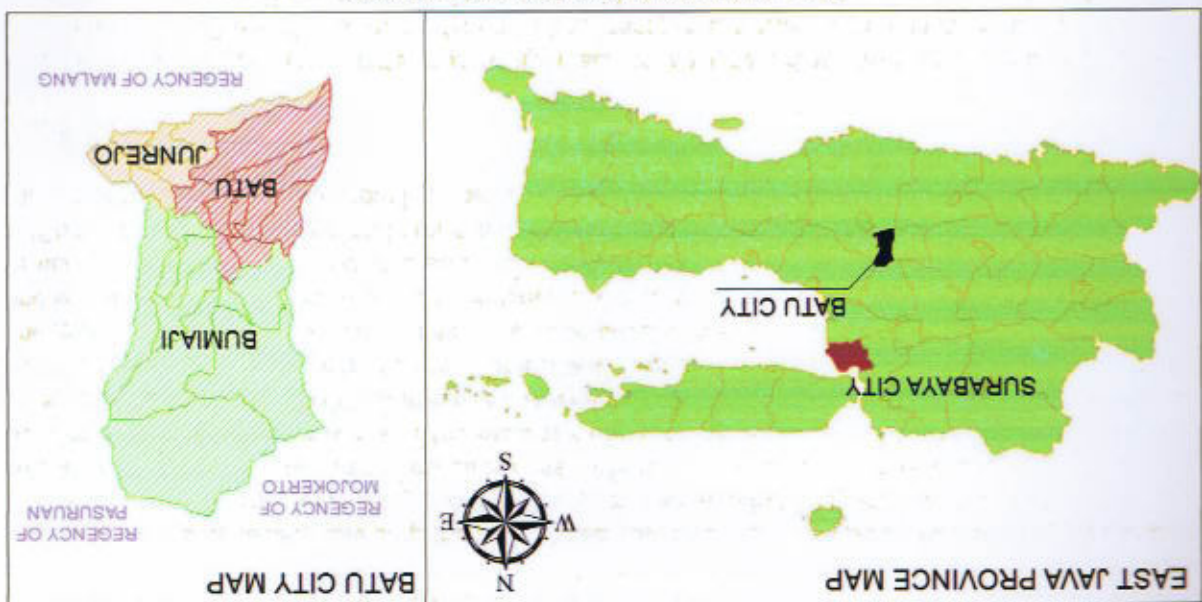


Fig. 1. (a) East Java Province Map; (b) Batu City Map

3.2. Data Collection Method

Data collection was conducted on the Primary Survey through observation of pedestrian path and disaster evacuation facilities in Central Business District of Batu City. Questionnaires about city leadership, public service and development planning to Batu citizen using proportional cluster sampling with a sample of 100 residents representing 24 Villages. Secondary survey through recapitulation of government agencies database from year of 2008 to 2012 (5 years period). The main institutions for this research are City Development Planning Agency (Bappokot), Central Bureau of Statistics (BPS), Settlement and Spatial Affair Service (DCKTR) and Environmental Office (KLH).

3.3. Data Analysis Method

The data analysis method used in this study there are two, namely (1) Ordination technique RAP-CITY, through the Multi Dimensional Scaling method (MDS) to assess the status of index and development sustainability in Batu City and identify sensitive attributes that affect the sustainability index in each dimension through leverage analysis; (2) SWOT analysis to develop sustainable urban development strategies for Batu City.

RAP-City ordination techniques through the Multi Dimensional Scaling method (MDS) is a statistical technique that tries to transform multidimensional be more modest dimensions (Kavanagh, 2001). RAP-City ordination technique is a modification of RAPFISH developed by the University of British Columbia, Canada to assess the sustainability of a system. Analysis of RAP-City ordinated with MDS method in this study, carried out in phases: Determination of dimensions and attributes, in the study there were five dimensions (ecological, economic, socio-cultural, infrastructural and institutional) that each dimension has 8 attributes; Assessment of each attribute in an ordinal scale (scoring) with a range of scores ranging from 1-3 based on sustainability criteria for each dimension; The results of the scoring and then analyzed using the software MDS in order to obtain the results of the analysis of multidimensional sustainability index and each dimension, leverage analysis results to determine the sensitive variables affecting sustainability, montecarlo analysis results to calculate the aspect of uncertainty; as well as the stress value and the coefficient of determination for determining the accuracy of the study attribute. Stress value allowed when under 25% while R² is expected to approach the value of 1.

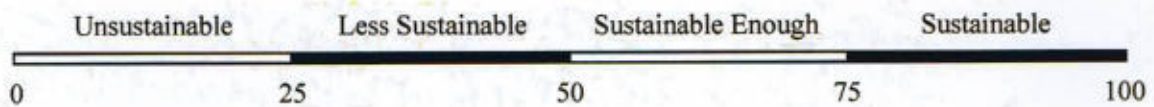


Fig. 2. Sustainability index value in ordination scale illustration

Ordination techniques (spacing) in MDS is based on Euclidian Distance that the n-dimensional space according to the equation (1). The point is then approximated by regressing Euclidean distance (d_{ij}) from point i to point j to the point of origin (d_{ij}) according to equation (2). In regressing the above equation is used technique alternately squared least based on the root of the Euclidian Distance (squared distance) or the so-called method ASCAL algorithm. This method optimizes the squared distance (squared distance = d_{ij}) to the square of the data (origin = o_{ij}) that in three dimensions (i, j, k) is called the S - stress according to the equation (3).

$$d = \sqrt{(|x_1 - x_2|^2 + |y_1 - y_2|^2 + |z_1 - z_2|^2 + \dots)} \quad (1)$$

$$d_{ij} = a + bd_{ij} + e \quad (2)$$

$$s = \sqrt{\frac{1}{m} \sum \left[\frac{\sum \sum (d_{ijk}^2 - o_{ijk}^2)^2}{\sum \sum o_{ijk}^4} \right]} \quad (3)$$

Formulation of development strategies using SWOT analysis is conducted in stages: Writing the opportunities and threats of the external factors as well as the strenght and weakness of internal factors; Conduct a SWOT analysis is a comparison between the external factors opportunities and threats to the internal factor strengths and weaknesses; The results of the analysis are then interpreted and developed into a decision that allows the selection of strategies to be implemented (Rangkuti, 2003).

4. Results Highlight

4.1. Urban Development Sustainability Status

Status of the sustainable development of Batu examined using analysis of Multi Dimensional Scaling (MDS), the stress value obtained from research on all dimensions already meet the goodness of fit due to stress value obtained is less than 25% with range of 13.9% - 14.4%. The confidence interval is quite high given that the value of R^2 close to 1 with range of 0.945 - 0.947, the results of Monte-Carlo analysis shows that the value of urban development sustainability index of Batu City on the level of 95% showing that the results do not experience any difference with the results of the analysis of MDS. This means that errors in the analysis and the data analysis process can be minimized.

Table 1. Multidimensional Scaling (MDS) analysis result

Dimension	Sustainability Index (MDS)	Sustainability Status	Sustainability Index (Monte-Carlo)	Stress	R^2
Ecology	46.90 %	Less Sustainable	46.56 %	14.3 %	0.947
Economic	56.52 %	Sustainable Enough	55.87 %	13.9 %	0.946
Socio-cultural	60.40 %	Sustainable Enough	59.75 %	14.4 %	0.945
Infrastructure	63.31 %	Sustainable Enough	61.62 %	13.9 %	0.947
Institutional	72.68 %	Sustainable Enough	70.50 %	14.0 %	0.945
Multidimensional	59.96 %	Sustainable Enough	58.86 %	14.1 %	0.946

The assessment results of urban development sustainability of Batu City in all dimensions are illustrated in the kite diagram. By multidimensional, urban development in Batu City is sustainable enough, except ecological dimension that has the status is less sustainable.

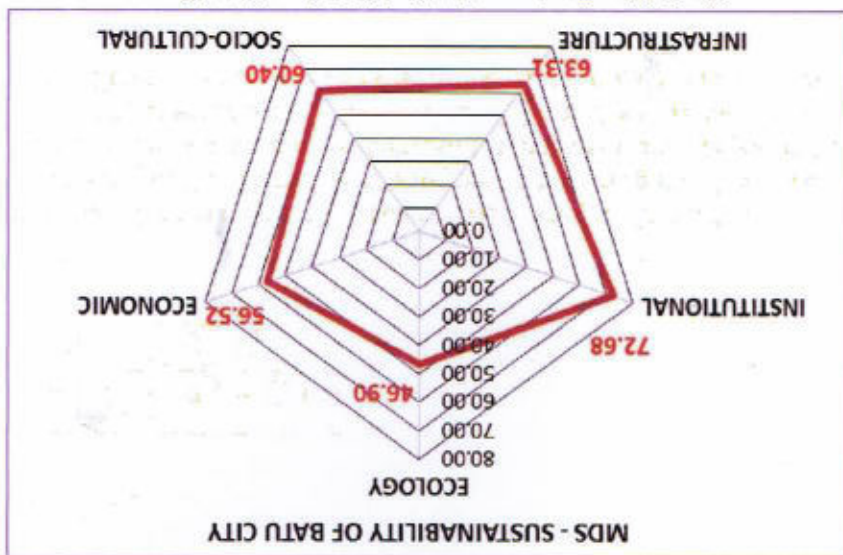


Fig. 3. Urban Development Sustainability Index of Batu City

4.2. Ecological Sustainability Aspect

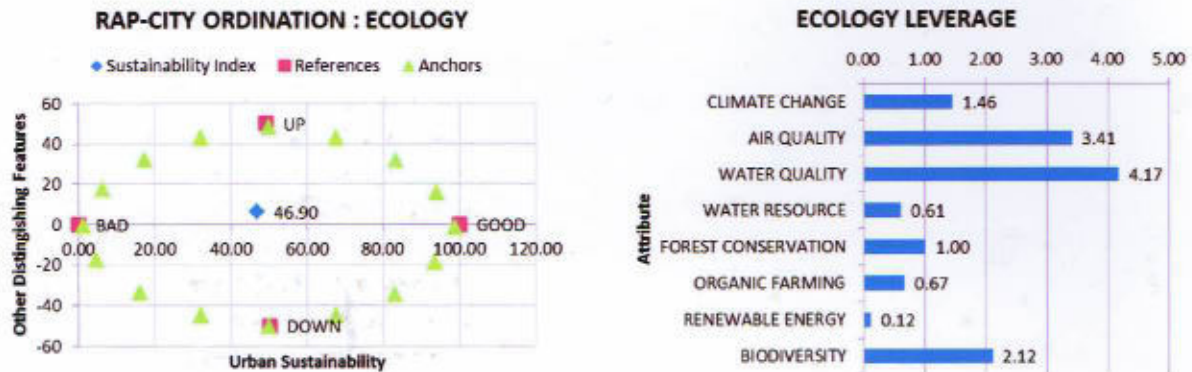


Fig. 4. (a) Rap-City Ordination of Ecology; (b) Ecology Leverage;

The sensitive attributes consists of: water quality (4.17), air quality (3.41) and biodiversity (2.12). Fresh water quality of rivers in Batu City is dominated by the Class III Quality Standard with high levels of TSS, BOD, COD exceeds the threshold quality standards. Only at monitoring points of Arboretum Brantas source and Coban Talun sources that have water quality Class I, while the city's river has been polluted caused by farmland pesticides and household waste. Air quality in monitoring point is very good with the levels of SO₂, NO, O₃, Pb far below the threshold quality standards. Air conditions of Batu City with low pollution is very safe for the health of city residents and tourist. Batu City's region is home to endemic wildlife, especially in forest areas. Forest conversion to plantations has damage the wildlife habitat and reduce 21% of Javan langur and 45% Javan hawk population in 5 years.

Climate change (1.46) and forest conservation (1.00) are quite sensitive attributes. Total CO₂ emissions generated by the activity of Batu city is 286,190 tons of CO₂ and increased 3.5% annually. The main source of greenhouse gas emissions in Batu City is the energy sector (72.5%), agriculture (23%), and waste (4.5%). Forest conservation program is hampered by the expansion of land conversion, illegal logging and forest fires which resulted widespread critical land. Critical land in Batu City within five years has increased from 101 ha to 250 ha. The main cause of degraded land expansion is conversion for the benefit of settlements, plantations and tourism reached 45.21 hectares or approximately 0.074% per year. The forest area is an active absorber of CO₂ emissions and reduce the impact of climate change. Forest area in Batu City around 11,072.1 hectares or 55.08 % of the total area, is able to absorb 287,794 tons of CO₂ per year.

Organic farming (0.67), water resources (0.61), and renewable energy (0.12) are are the less sensitive attribute. Organic farming became one of the leading economic sectors with export-oriented commodities. Batu City Government is consistent expand organic farms 3 hectares per year. Organic farming is a agriculture technique that is able to maintain soil fertility in a sustainable manner. Potential reserves of water resources in Batu from source and rain water without soil water, amounting to 101.78 x 10⁶ m³. The total consumption of water resources is 77 538 x 10⁶ m³ and still a surplus balance. Problems of water resources are shrinking the amount and debit of source every year due to deforestation. Batu City has development program of alternative energy, biogas network construction in the Pesanggrahan and Sumberejo village, and also extended to Oro-oro Ombo and Tlekung village which is located near the final waste processing site.

4.3. Economic Sustainability Aspect

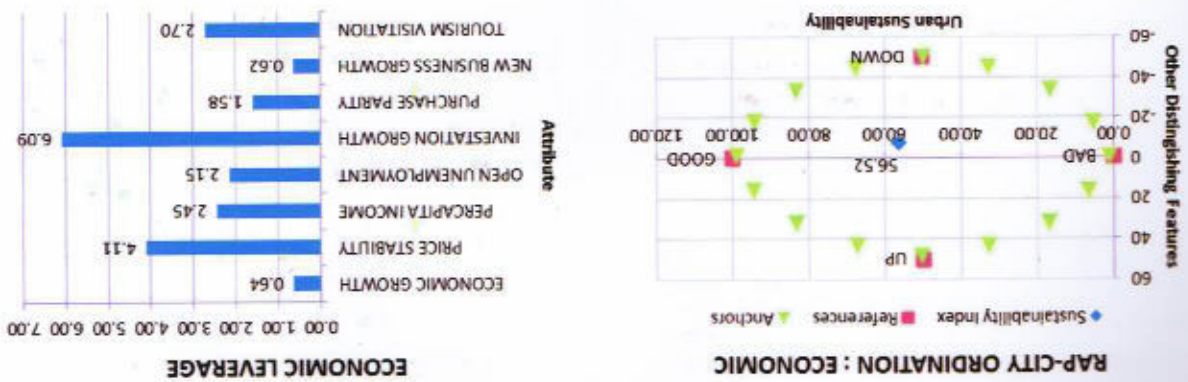


Fig. 5. (a) Rap-City Ordination of Economic; (b) Economic Leverage;

The sensitive attributes consists of: investment growth (6.09), price stability (4.11) and tourism visitation (2.7). Investment in Batu City increased average 16.61% per year, within a 5 years period. Batu City obtain investment of Rp. 9.3 trillion to the main sectors of Tourism and Hospitality. Granting investment licenses done very selective, especially with regard to spatial and scenic protection of the city. During 2008-2012, price stability or inflation rate of Batu City generally is higher than East Java, caused by increase of basic necessities prices, export of agricultural products and external economic factors, such as the price of gold and the price of subsidized fuel. Tourism Visitation in Batu City increased average 27.42% per year, above of local governments expectations and target with 2.2 million tourists visit annually. Batu City has 14 tourist attraction objects and various annual Festival.

Percapita income (2.45), open unemployment (2.15) and purchase parity (1.58) are quite sensitive attributes. Batu city residents per capita income increased by 12.7% per year, higher than East Java average (12.6%). However, the value of Batu City GDP per capita lower than East Java average, in 2012 the Batu City per capita income Rp. 17,911,381.00 compared to East Java Rp. 26.32 million. Open unemployment rate in Batu City fell consistently from 8.95 % in 2008 to 6.77 % in 2012. Despite the decline in unemployment dramatically, but still higher than the unemployment rate in East Java (4.12%). Employment opportunities that exist often makes native Batu City not compete with people from outside the city, caused by level of education. Purchasing parity index of Batu City by 65.05 %, lower than East Java average (66.06%). Per capita income and purchasing parity index in Batu City more determined by external economic situation.

Economic Growth (0.64) and New Business Growth (0.62) are the less sensitive attribute. Batu City's economic growth from 2008 to 2011 increased constantly from 6.87% to 7.38%, and decreased slightly in 2012 to 6.83%. Nevertheless, the economic development of Batu City every year is always higher than the East Java. The main economic sectors of Batu City are Trade, hotels and restaurants (49.28%), agriculture (17.68%) and Services (15.82%). Leading sectors according to the development plan of Batu City are tourism and agriculture. New business growth experienced positive, with the average advent of 1360 new business every year, an increase of 12.93% per year. During the period of 2008-2012, the growth of new business very closely with the development of tourism facility, especially the SME business which became economic equity sector. Currently Batu City has 14,570 SMEs, SME sector has accounted for 42% of Batu City's local revenue or approximately Rp. 54 billion.

4.4. Socio-cultural Sustainability Aspect

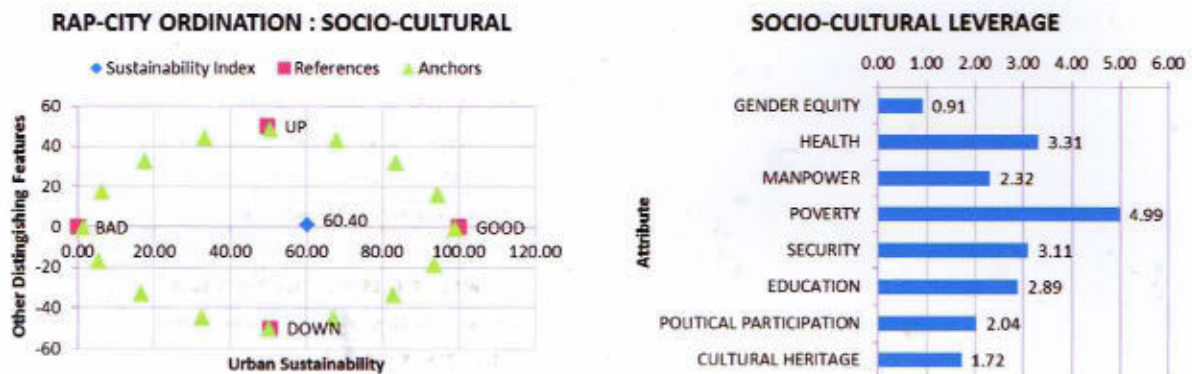


Fig. 6. (a) Rap-City Ordination of Socio-cultural; (b) Socio-cultural Leverage;

The sensitive attributes consists of: poverty (4.99), health (3.31) and security (3.11). Batu have significant poverty reduction from level of 11% become 7% in period of 2008-2012. The main cause of poverty in Batu City is access to jobs due to low levels of education and skills. The city government seeks to develop agricultural sector, since most of the urban poor are farmers. In Health sector, Life expectancy index in Batu City increase from 68.87 to 69.66 year in period of 2008-2012. Increased life expectancy showed improvement of public health, but the government must be more vigilant in anticipation of heathcare and treatment of the elderly. Ratio of criminal case that have been solved in range of 33%-43% varies each year. Security threats and conventional crime, caused by economic pressures. Weak handling of crime also caused by individual law enforcement officers who use the case to take advantage.

Education (2.89), manpower (2.32), political participation (2.04) and cultural heritage (1.72) are quite sensitive attributes. In education sector, the progress of compulsory education can be review from high schools net enrollment rate, it has increased over the period of 2008-2012, from 49 % to 54.2%. The rate classified as medium, this is caused by direct desire to work in agriculture and the informal sector due to economic pressures. Comparison between productive and non-productive age population or dependency ratio, Batu City residents increased from 39.08% to 49.04% in the period 2008-2012. The economic burden of the labor force has increased and more compete with workers from outside the city to fill existing jobs. In the field of political participation, during the period 2008-2012, recorded voter turnout at 2008 Governor Election = 70.24%, 2009 legislative elections = 77.40 %, 2009 Presidential Election = 78.98%, 2012 Mayor Election = 76.30%. The level of political participation varies greatly, in general is in the middle position. Important factor of people's political participation in Batu City is an emotional connection, primordialism and popularity of the candidate. In the field of cultural preservation, the Batu City has a cultural heritage Bantengan, which is a cotemporary performing arts of dance, magic, music, and poetry. Batu City consistently fostering traditional cultural arts groups and continues to develop up to 74 arts groups. Gender equity (0.91) is the less sensitive attribute, the number of female labor force in the formal sector range increased from 3,244 into 3,256 during the period 2008-2012, but the proportion is very small, only 3.2 % of the total labor force. Low female equality in the formal sector is caused of education and cultural matter. There is a chain of connected issues between education, poverty, manpower, women's equality, security and political participation. Social assistance is needed to direct the marginalized communities to basic public services and alleviate social matter.

4.5. Infrastructure Sustainability Aspect



Fig. 7. (a) Rap-City Ordination of Infrastructure; (b) Infrastructure Leverage;

The sensitive attributes consists of: sanitation (5.47), affordable house (4.77) and clean water pipeline (4.16). The number of household that have sanitation, increase with a percentage of 36% become 81% in period of 2008-2012. Most are onsite sewage treatment for domestic use as well as communal. Sanitation ownership ratio greatly affect the level of public health and the environment. Local government has facilitated affordable housing development, revitalize and decrease the number of unappropriate house to 11.6%. Appropriate housing has a minimal element of space adequacy criteria, adequacy of living space, and the affordability of the price. The level of home ownership is strongly influenced by income levels. Clean water instalation of Batu City increase from 21,889 to 28,880 household or 31.39% in period of 2008-2012, but it only serve about 59.03% of all household. The slow expansion of water services is disputed source exploitation with Malang City and Malang Regency, so the construction of clean water pipeline installation is also inhibited.

Waste processing (3.66), technology coverage (3.12), pedestrian path (2.59) and mass transportation (1.39) are quite sensitive attributes. The ratio of urban waste management decreased during the period of 2008-2012, from 52.02% to 38.10%. The low capacity of waste treatment system caused the distribution system of trash and garbage arrangement in the Tlekung landfill. In 2016, an estimated waste in the Tlekung landfill will full and Batu hit by the problem of garbage crisis. Electricity and telecommunications technology infrastructure supports economic development of the city. All villages in Batu City has reached 100% electrification ratio. The largest proportion of electricity users are households with low power 450 watts at 58.22%. Batu City reached by telematic networks, especially cellular networks with the establishment of BTS Tower by various telecommunications providers. Pedestrian path is a public space that support the activities of citizens, especially in the central business district. Based on observations, the condition of pedestrian path is quite safe and representative, but still less aesthetically and not provided with the means of supporting such a bridge crossing and seating for rest and shade. Public transportation (angkota), has been connecting accessibility to the entire village in Batu City. The City required public transport that was cheap and convenient, especially to cater to the tourists attractions. Disaster mitigation (0.71) is the less sensitive attribute, Batu City has a lot of public open space that could be used as muster point in emergency condition. However, the provision of information placard safety and disaster evacuation paths, especially in public places is still very minimal. awareness of the importance of signs and evacuation facilities is needed to increase.

4.6. Institutional Sustainability Aspect

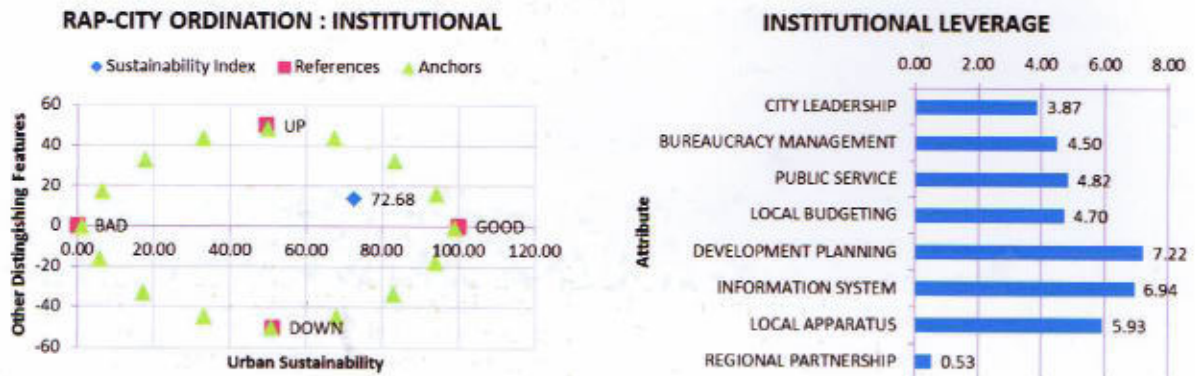


Fig. 8. (a) Rap-City Ordination of Institutional; (b) Institutional Leverage;

The sensitive attributes consists of: development planning (7.22), information systems (6.94) and local apparatus (5.93). Public participation in “musrenbang” is low and the dissemination of the results are limited only to village apparatus. Musrenbang is public discussion and advocacy for development plans initiated by various elements of the community and facilitated by government. Musrenbang is a bottom-up planning implementation, but is merely ceremonial activities, since the approval of the development program is returned to the government to be carried back by the community. Use of information systems has been carried out for internal administration, but limited in public service. The availability of reliable information systems help people to gain access to public disclosure. In local apparatus aspect, number of officials already accordance with operational needs, some have received scholarships of higher education and training, but lack of work innovation.

Public service (4.82), local budgeting (4.70), bureaucracy management (4.50), city leadership (3.87) are quite sensitive attributes. Public services in Batu City judged by the public with the satisfaction index of 78.87% is included in the category of "B" or performance of "Good". Public services in Batu City supported by a reliable officer, clarity of procedures and costs, as well as prompt delivery, and on schedule. The level of budgetary independence of Batu City is quite good, with ratio of 5.17%. Batu City increased the local revenue of Rp. 19.3 billion to Rp. 38.7 billion during the period of 2008-2012, or increase 20.01% per year. Good governance is also applied in Batu City, by providing all the standard operating procedures in city’s agencies. The availability of SOP is not enough to realize the organizational culture that leads to the development of professionalism, productivity and innovation. The city leadership is important factor in the formulation of city’s vision-mission and goals, directing and evaluating the targets of bureaucracy and development progress. Mayor plans in development strategies with the concept of Tourism and agriculture, assessed by the public has a clear vision, mission, and programs that can be accepted. Public communication between the mayor and the community are also intertwined. Regional Partnership (0.53) is an attribute that is less sensitive, this aspect gives a lot of great opportunities for the development of Batu City through the expansion of cooperation agreements with various elements. Batu City has established a variety of partnership programs with other local governments, domestic and foreign NGOs, private sector and other countries. The partnership program includes research and development, community empowering, and economic investment.

4.7. Sustainable Urban Development Strategy

SWOT analysis is used as consideration to establish a sustainable urban development strategy for Batu City. The analysis results of internal factors (IFAS) and external factors (EFAS) of urban development in Batu City shows the value of $X = +0.80$; $Y = +0.24$, therefore use aggressive strategy.

Table 2. Internal and External factors of Batu City

Internal Factor $\rightarrow X = +0.80$		External Factor $\rightarrow Y = +0.24$		
Strength (+)	Air Quality (0.2) Renewable Energy (0.06) New Business Growth (0.08) Tourism Visitation (0.15) Education (0.06) Health (0.12) Poverty (0.2) Political Participation (0.08) Cultural Heritage (0.06) Mass Transportation (0.06) Affordable House (0.16) Clean Water Pipeline (0.09) Sanitation (0.2) Technology Coverage (0.08) City Leadership (0.08) Bureauarcy Mgr. (0.06) Information System (0.06) Local Apparatus (0.06)	Climate Change (0.06) Water Resource (0.04) Price Stability (0.06) Percapita Income (0.09) Open Unemployment (0.09) Purchase party (0.04)	Threat (-)	
Weakness (-)	Water Quality (0.12) Forest Conserv. (0.09) Biodiversity (0.12) Manpower (0.08) Security (0.09) Gender Equality (0.2) Pedestrian (0.04) Waste Processing (0.09) Disaster Mitigation (0.08) Devl. Planning (0.15)	Organic Farming (0.08) Economic Growth (0.08) Investment Growth (0.2) Public Service (0.08) Local Budgeting (0.08) Reg. Partnership (0.1)	Opportunity (+)	

Table 3. Sustainable Urban Development Strategy Matrix

EFAS	Strength (+)	Opportunity (+)	Threat (-)
		Increase the capacity of supporting infrastructure to develop the investment in tourism and organic agriculture as basis leading sectors with synergy to empower local manpower and the small-medium enterprises.	Expand the access to affordable house, the education programs, health care and social assistance to alleviate urban poverty.
IFAS	Weakness (-)	Expand the public participation in the planning and controlling of development, including giving feedback on the local government performance.	Improve the quality of forestry and water resources conservation by preventing from degradation and pollution.

5. Conclusion

The development sustainability status of Batu city is sustainable enough, only ecological dimension is less sustainable. Attributes that affect the sustainability status assessment in terms of the ecological dimension are water quality, air quality and biodiversity; in review of the economic dimension are investment growth, price stability and tourism visitation; while from socio-cultural dimension are poverty, health and security; in terms of the dimensions of infrastructure are public sanitation, affordable house and clean water pipeline; and the institutional dimension are development planning, information systems and local apparatus. The priority of sustainable urban development strategies of Batu City consist of: Improve the quality of forestry and water resources conservation by preventing from degradation and pollution; Expand the public participation in the planning and controlling of development, including giving feedback on the local government performance; Expand the access to affordable house, the education programs, health care and social assistance to alleviate urban poverty; Increase the capacity of supporting infrastructure to develop the investment in tourism and organic agriculture as basis leading sectors with synergy to empower local manpower and the small-medium enterprises. Statistical analysis showed that RAP-CITY method is good enough to be used as one tool to evaluate the sustainability of urban development by rapid appraisal.

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Room Schedule 01 – Environment, Infrastructure and Information System (EIS)

Date	Time	Authors	Title Paper	Presentator	
3-March-15	11.15 – 11.45	Authors 1&2	Analysis of Modal Choice In Mode of Transportation Tram Planning In Denpasar City	DearaPuspaninggara	
			The Strategy In Promoting Renewable Energy in Indonesia; case of Biogas from Tofu-Wastewater in Banyumas	Reba AnindysjatiPratama	
	11.45 – 12.15	Authors 3&4	The Relation Of The Balance Inter-factor of CO2 Emissions In The Ecological Deficit System in Gresik Urban Area	AchmadGhozali	
			Indicator of Coal Mining Sustainability And Alternative Sectors As Regional Development Strategy In The Post-Mining Period	Devi TriwidyaSitaresmi	
	Break				
	14.45 – 15.15	Authors 5 & 6	Micro Hydro Power Plant as Realization of Electrically Independent Village of Hargowilis, KokapSubdistrict, KulonProgo Regency	Zulfikar Dinar Wahidayat	
	15.15 – 15.45	Authors 7 & 8	Development Study of High Rise Building On Transportation and The Environment	Sri Hidayati Djoeffan Jr.MT	
			Coastal City Public Health Problems in Indonesia (Case Study on Manado City, North Sulawesi, Indonesia)	OksfrianiJufriS.	
	15.45 – 16.15	Authors 9 & 10	The Immobilization of Thorium Radioactive Waste Generated From Nuclear Fuel Fabrication Using Matrix Material Of TitanateSynroc For Disposal Preparation	Drs. Gunandjar, MSc. APU	
			Removing of Chromium Heavy Metal Pollutant From Industrial Waste Water Utilizing Immobilized Extracellular Polymeric Substance On Polyester Polymer Matrix	Prof. Ir. ZaimusSalimin, Msi	
16.15 – 16.45	Authors 9 & 10	The Effect of Elements in The Waste-Glass and Environment To The Chemical Durability Of Vitrification Product For The Disposal	Wati		
		Spatial Data Analysis in Determining Land Suitability Using Fuzzy System	DeviyaMuthoharohA.		
			Determination Of Ecosystems Of Coastal Area With Bigger Damage Based Shoreline Change Detection Use Temporal Data And Gis Technology	ArizalSina Putra	
4-March-15	10.15 – 10.45	Authors 12 & 13	Benefits of Biogas Application in Argosari Village, JabungSubdistrict, Malang	SitiNuriska	
			Utilization of Plastic Waste for RDF in TegalAsri Landfill, Wlingi Sub-District, Blitar Regency	Dian IndraRini	
	10.45 – 11.15	Authors 14 & 15	Measurement Vulnerability of Unconfined Groundwater Based On Drastic Method for Future Groundwater Management Case Study: Groundwater Basin Of Yogyakarta-Sleman-Bantul	IndraAgusRiyanto	
			Study of Flood Risk Level In The Area of Brantas River, Malang	AffrizaEkaSutria P	
	11.15 – 11.45	Authors 14 & 15	Relationship Between Characteristics Of Pedestrian Way With Convenience Of User Perception	Endratno Budi Santosa	
Landslide Risk Assessment Using Geographic Information System (Gis)			GhefraRizkan		

Room Schedule02 – Regional Planning and Public Policy

Date	Time	Session	Title Paper	Presentator	
3-March-15	11.15 – 11.45	Authors 1&2	Local Site Effect Analysis by Microtremor and Its Relationships to Regional Planning (A lesson learned from Bantul, Jetis, Imogiri and Kretek)	AriGunawan	
			Quo Vadis The Foodscape Goliath? "Jokowinomics" food sovereignty policy Against Foreign Fast Food Chains Emergence	AstridaFitriNuryani	
	11.45 – 12.15	Authors 3&4	Impact Of The Development In North Bandung As Water Catchment Area To The Environment and Surrounding Communities	DindaDewinta	
			The Identification of Suitability Sister Village Concept as a Disaster Management in Indonesia Toward Sustainable Development	KhusnulIntanDwiFajar	
	Break				
	14.45 – 15.15	Authors 5 & 6	Commodities Strategy Development Vegetables Leading In The Agropolitan Of West Lampung	Muhammad IrfanAlfandi	
	15.15 – 15.45	Authors 7 & 8	Sustainable Urban Development Strategy for Batu City, East Java Province, Indonesia	Rama Permana Putra	
			National Spatial Planning Policy: The Third National Medium Term Development Plan's Background Study	Aswicaksana (TRP Bappenas)	
	15.45 – 16.15	Authors 9& 10	Analyzing Policy Alternatives for Balancing Economic Growth, Sustainable Resource Use, and Social Equitability of Palm Oil Biodiesel Through Agent-Based Model	YosefManik	
			Analysis of Community Based Drinking and Clean Water Facilities in Yogyakarta City	TetyWidyaningrum	
16.15 – 16.45	Authors 11 & 12	Flood Modeling and Zoning Determination of Eco-Drainage and Agro-Forestry Concept of Ciliwung Watershed	AndikaPutriFirdausy		
		Borobudur Sustainable Eco-Culture Tourism Village: Agriculture and Culture Based Management Strategy for Borobudur Tourism Village as Propeller of Local Economy (Study Case Borobudur Village, Magelang District, Central Java)	KresnaBhayuAdhinugraha		
		Disaster Preparation Knowledge of Urban and Rural Students at Solo Region	R. Muh. Amin Sunarhadi		
4-March-15	10.15 – 10.45	Authors 13& 14	The Development Of Ciawi Dam: A Collaborative Approach Between Stakeholders	AryRahmanWahyudi	
			Modeling of Physical and Non-physical Distance to Income of Poor in Sidoharjo Village, Ponorogo Regency	AnindaDisiUtami	
	10.45 – 11.15	Authors 15& 16	Community Impact Training Through The Use of Improving Economic Water Hyacinth Lauwona Village In District DistrictTilangoGorontalo	Abdul Rahmat	
			Happiness Index Society in Poverty Reduction Program PNPM Mandiri In Pagak District, Malang, East Java	ImasDayana	
	11.15 – 11.45	Authors 17 & 18	The Level Of Community Readiness in Development Potential of Tourist Attraction Puger	DiahArifinaFebriyanti	
			Challenges in Managing RiamKanan River for Barito Delta Cities, Indonesia. A New Paradigm	Krisdianto	

Room Schedule03 – Urban Studies

Date	Time	Session	Title Paper	Presentator	
3-March-15	11.15 – 11.45	Authors 1&2	Sustainable Urban Development in Pekanbaru, Indonesia; Issues and Challenges	ApriyanDinata	
			The Linkage of Zoning and Growth Controls Theory With The Kevin Lynch Theory Efforts Against Reducing Congestion, Improve Welfare, Health and Safety In Jakarta	DanangRivadhonni	
	11.45 – 12.15	Authors 3&4	Connect Riverfront and Open Spaces to Create Vibrant Public Spaces	DianingPrimanitaA.	
			Creative - Sustainible Traditional Market Design in Malang	GunawanT., ST., MSc.	
	Break				
	14.45 – 15.15	Authors 5 & 6	The Effect Of Corridor's Scale to The Visitor's Perception (Case Study: ABC Street and Braga Street Commercial Corridors, Bandung City)	DindaPrihatshandita	
			A Readiness Study of The Implementation Creative City Of Design In Surakarta	AmestaKartikaRamadhani	
	15.15 – 15.45	Authors 7 & 8	The Role of People-Centered Community Planning Towards Sustainability of Urban Kampung: Case Study Cluster Industries of KampungKauman and Sondakan, Surakarta City	KusumaningdyahNurulHandayani	
			Innovation Of Green Open-Space In The City Through An Early-Stage Urban Farming Education Based On Environmental Development	Linda DewiR.	
	15.45 – 16.15	Authors 9& 10	Policy Support On Walkability In Malang City	Erna Winansih	
Green Comercial Design in Tunjungan Surabaya			GunawanT., ST., MSc.		
16.15 – 16.45	Authors 11 & 12	Utilization Concept of Kridosono Stadium Area	SuciCisikaPutri		
		Modelling Factors That Affect to The Preservation Concept of KebonAgung and Kreet Sugar Factory with Structural Equation Approach	ElriestaAnugrahani		
4-March-15	10.15 – 10.45	Authors 13 & 14	Arrangement of The Centre Government In Denpasar City, Indonesia	UzzaDewanti	
			Visual Protection of Historical Building (Case Studi Corridor of JalanPemuda, Semarang)	IwanIndraRizzyawan	
	10.45 – 11.15	Authors 15 & 16	Returning Utilization Lost Space in ex-Central Karesidenan of Besuki, Bondowoso County	EkaAgustiningrum	
			The Influence of Restorative Function of Public Green Open Space Toward Urban Stress in Surabaya City (case study : Bungkul Park, Surabaya)	HestinaFauziah	
11.15 – 11.45	Authors 17 & 18	Instruments for Development Controls in Gerbang Kertosusila	AdjiePamungkas		
		Coastal Geomorfology Influence On The Development Of Banda Aceh City Form	Ir. ElysaWulandari, MT		