STRATEGIES OF URBAN DEVELOPMENT BASED ON ENVIRONMENT

by Amin Pujiati

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(Abstract) Sustainable development requires a balance system towards the development results in social, economic and environmental areas. However, it is very contradictory in Indonesia. There are 57% provincial urban regions is characterized by a high of social and economic factors but environmental factors tend to be ignored. Sustainable development is very important because the deteriorating environmental conditions will harm the society in the long run. This paper aims to formulate the appropriate of development strategy to improve the urban development based on environment. Study was conducted in Semarang agglomeration which consists of 7 districts and cities. Data was taken based on a joint analytical and assessment approach between stakeholders, goverment and spatial planner the districts/ cities. After all data (eksternal- and internal) is obtained, then the development of strategic factors can be determined with the SWOT (Strenght, Weakness, Opportunity and Threats) matrix. The results showed that creating multiple functions and high quality public space, as well as integrated polycentric development, are identified as useful strategies to maintain quality of life in dense areas. Moreover, Urban planning measures a new approach to classify the land use are currently under development, which includes soil characteristics, exposure rates of sun and irrigation, creating opportunities to promote economically and environmentally sound production. Then increasing the area of parks and other public open spaces and isolation from pollution sources for housing

Keywords: development, environment, strategies, urban

1. INTRODUCTION

Sustainable development is a conscious and planned effort that combines the environmental, social, and economic aspects into a development strategy to ensure the environmental integrity and safety, capability, welfare, and quality of life of the present and future generations. Until today it is difficult to implement the sustainable development that basically should consider the environmental elements in the development. The difficulty is especially found in the densely populated cities.

Based on some researches, there is a negative correlation between the growth of the city and the environment (Fan & Qi, 2010), (Cracolici, et al., 2010), (Zheng, et al., 2010), (McCarthy, et al., 2010) , (S & J, 2010) (Khatun, 2009), (Dutt, 2009), (Jat, et al., 2009), (Ma, et al., 2008), (Todaro & Smith, 2006). The research result is in line with the conditions of the achievement of sustainable development in Indonesia. According to Damayanti & Purhadi (2014), it is concluded that in 57% provinces in Indonesia, the urban areas are characterized by the high social and economic factors but the environmental factor tends to be ignored. The average of the social, economic, and environmental variables shows the imbalance among these three so that it can be concluded that the development in Indonesia has not realized the sustainable development yet.

The sustainable development is important but has not been realized yet, so it requires an urban development strategy based on the environment. To support this, the research aims to determine the strengths, weaknesses, opportunities and threats faced on the urban development based on the environment and to formulate the appropriate development strategy to increase the urban development based on the environment.

2. METHOD OF RESEARCH

This is an explorative research, which is a research that conducts no hypotheses test (Khuzaini & Suwito, 2006). As the unit of analysis in this research, there are seven regencies/ cities in the agglomeration area of Semarang urban region consisting of Semarang City, Semarang Regency, Kendal Regency, Demak Regency, Salatiga City, Demak Regency, Grobogan Regency, and Temanggung Regency. The data used in this research

are the secondary and primary data. The secondary data is sourced from the Central Bureau of Statistics (BPS) and the city government. The primary data is sourced from the key person through interviews. The analytical tool used is the SWOT analysis to determine the urban development strategy based on the environment.

3. RESULT AND DISCUSSION

Identification of Strengths and Weaknesses

Table 1 indicates that the average total score for the strength factor is 1.66 while the average total score for the weakness factor is 0.70. This shows that the strength factor of the urban development based on the environment is greater than the weakness one so that the local government can utilize the strengths to implement the urban development based on the environment.

Table 1 Factors of Strength and Weakness

	Strength	Weight	Rating	Score	Ranking
A	Most regencies/cities have the cultivation land area above the average	0.18	3.5	0.62	1
B	People decide to have the settlement in the suburb area because it is much cool and calm	0.15	3.2	0.47	3
C	The whole regencies/cities have quality index of environment above the average	0.17	3.3	0.57	2
	Average Total Score of Strength	0.49		1.66	
	Weakness	**Weight**	**Rating**	**Score**	**Ranking**
D	The greatest cultivation land of the regencies/cities is the farms	0.17	1.67	0.29	1
E	The average of clean water production is still a little	0/16	1.33	0.22	2
F	There is no measuring standardization of Environmental Quality Index in the level of regencies/cities	0.17	1.17	0.19	3
	Average Total Score of Weakness	0.51		0.70	
	Total	**1.00**		2.36	

Source: primary data processed

Table 1 indicates that most of the regencies/cities have the land area of cultivation above the average. This strength is the greatest one in implementing the urban development based on the environment. The greater the land area of the cultivation a city owns, the greater the land area of the non-construction will be. This condition makes the quality of the environment is getting better because the availability

of the open space can be utilized as a green open space both by the public and private ownership.

Meanwhile, the greatest use of cultivated land in the regencies/cities is in the form of farms and the little part of it is in the form of fields and community forests. It becomes the biggest weakness because the agricultural crops in the fields are less effective in improving the environment. The agricultural crops in the farms seen from the nature of vegetation are less capable in absorbing the pollution, in resisting the erosion, or in storing the water in the soil. The most effective part of cultivated land in improving the environment is the plants that exist in the fields such as the field crops or the perennials that exist in the community forest.

The matrix total score in Table 1 of 2.36 indicates that the urban development based on the environment is in the average conditions. These conditions require the local governments in seven regencies/cities in the Agglomeration of Semarang to optimize the strength to overcome their weaknesses.

Factors of Opportunities and Threats

The external identification is conducted to determine the opportunities and threats that affect the urban development based on the environment in seven regencies/cities in the Agglomeration of Semarang. The rating given depends on the high or low response that is indicated by the seven regencies/cities in the Agglomeration of Semarang towards the opportunities and threats. Table 2 indicates that the average total score for the opportunity factor is 1.61 while the average total score for the key factor of threats is 1.77. This indicates that the key factor of opportunities is smaller than the threat factor, so the seven regencies/cities in the Agglomeration of Semarang should be able to optimize the existing opportunities to overcome the threats. The total score of the matrix value is 3.39. This indicates that the local governments in seven regencies/cities in the Agglomeration of Semarang have the high ability to utilize the external opportunities and to avoid the threats faced in the urban development based on the environment. The determination of the green open space area of 30% of the land area of the urban areas becomes the main opportunities and motivation for the local governments to continue implementing the urban development based on the environment. An obligation to make the targets and the attachment of the green open space area in general and detailed plans becomes the great opportunities for the cities to implement a development based on the environment. The biggest weakness faced in implementing the urban development based on the environment is the utilization of the urban land that is not in accordance with the land function that can damage the environment. This factor is a threat that must be anticipated because it can hinder the development. Each total score obtained from the evaluation of internal and external factors is mapped in a matrix called the external internal matrix This mapping is

important for selecting the more detailed strategic.

Table 2 Factors of Opportunities and Threats

	Opportunities	Weight	Rating	Score	Ranking
A	The green open space area of 30% of the land area is determined for the urban areas	0.19	3.17	0.60	1
B	There is a utilization of the green open space in the urban areas with vegetation of local specific plants	0.17	2.83	0.48	3
C	There is the provision of incentives in the arrangement of the green open space in the urban areas	0.15	3.67	0.54	2
	Average Total Score of Opportunities	0.50		1.61	
	Threats				
D	The utilization of the urban land that is not in accordance with the land function can damage the environment	0.18	3.83	0.70	1
E	A lot of water is not distributed as the production number due to the loss/depreciation	0.14	3.33	0.47	3
F	A tendency of centralization of the urban growth in the core city (Semarang City) makes the imbalance among the regions	0.17	3.50	0.60	2
	Average Total Score of Threats	0.50		1.77	
	Total	1.00		3.39	

Source: Primary data processed

alternatives in facing the competition and changes in the urban development efforts based on the environment. Referring to Figure 1, the strategy pursued is the growth and building strategy. The urban development strategy based on the environment is the intensive growth and building strategy by improving the sustainable urban development through the urban management by optimizing the land use.

Formulation of Development Strategy

Strategy S-O

Strategies to do are as follows: 1) Arranging the environment to create the settlements and housing that are healthy and livable in accordance with the carrying capacity of the environment, and the social economic conditions of the local, 2) Improving the urban development by optimizing the land use
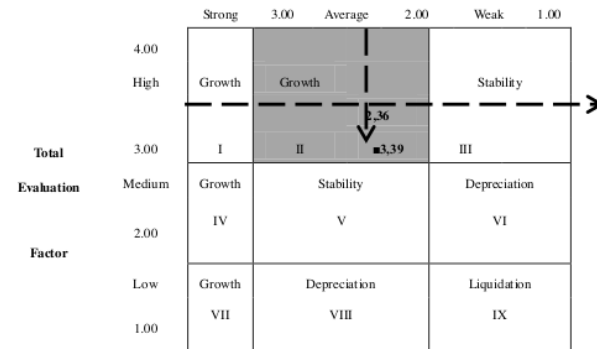

Figure 1.Position of urban development based on environment on Matrix External Internal

Strategy W-O

Strategies to do are as follows: 1) Making measuring standardization of the Environmental Quality Index both at the central and local levels, and still accommodating the specific topographical conditions of each region, 2) Re-planning the sustainable urban development in both the central and local levels and among the institutions. The realization of the development conducted is often mutually eliminating or damaging. For example, in Semarang Regency, the road building made of concrete has damaged the water pipes of PDAM planted under the road. The pipes are broken and leaking to the leakage rate of 49.8%. According to the Local Planning and Development Board (Bappeda) of Semarang Regency, the leak is difficult to repair because of the thickness of the concrete in the range of 30-40cm. Therefore, in building and developing the infrastructure and facilities, the various departments concerned (the Ministry of Public Works, the Department of Transportation, the Regional Water Company and the State Electricity Company, the Telecommunications) must be based on a master plan of the national system to integrate and target the development, 3) Managing the water sustainably. The urban development must also consider the carrying capacity to control the physical development and to define the the reserve regions and the reservation.

Strategy S-T

Strategies to do are as follows: 1) Restoring the land use as the allotment (zone) in accordance with the Acts No.41 / 2009 on the Protection of Sustainable Food Agricultural Land (LP2B), 2) Making a systematic and inclusion urban planning, which means that the urban development should give access for the entire community, not only for the residents with special needs but also for other citizens such as the elderly and the children, 3) Developing and optimizing the resources owned by the satellite city to minimize the imbalance among the regions (regencies)

Strategy W-T

Strategies to do are as follows: 1) Increasing the

strict and fair law enforcement for the unlicensed land use. The violation in the implementation should have measures of sanctions/ penalties according to the rules and not picky in giving the sanctions/penalties, 2) Creating and applying the urban management having orientation on sustainable development. It will succeed if there is a good cooperation and supports from the government, private, and community, 3) Improving the planning system of management and controlling for the conservation of water resources. The conservation of water resources can be conducted by creating the terracing, dams, reservoir recharge wells, river stabilization, reservoir and vegetation planting and community empowerment. The availability of vegetation in the urban areas is as a counterweight to the environment in helping the hydrological functions in terms of water absorption and reducing the potential for flooding. The trees through the roots can save the water into the soil, so that the supply of water in the soil is increasing and the amount of water runoff can reduce the flooding.

4. CONCLUSION

Based on the result of analysis, the strength factor is that most of the regencies/cities have the cultivated land area and the environmental quality index above the average. And the weakness factor is that the greatest cultivated land area in the regencies/cities is in the form of farms. The average of clean water production is still lacking. And there is no measuring standardization of the Environmental Quality Index at the level of regencies/cities. The opportunities are as follows: the green open space area of 30% of the land area is determined for the urban areas and the utilization of green open space in the urban areas is with local specific plant vegetation. There is the incentive provision in the arrangement of the green open space in the urban areas. While the Threats faced are as follows: the utilization of urban land is not in accordance with the land function, there is still a lot of water that is not distributed in accordance with the amount of production due to the loss/depreciation. There is a tendency of centralization of the urban growth in the core city (Semarang) that makes the imbalance among the regions. The development strategy improves the urban development based on the environment that is the growth and building strategy by improving a sustainable urban development through the urban management by optimizing the land use.

REFERENCES AND NOTES

Badan Pusat Statistik, 2012. *Indikator Pembangunan Berkelanjutan*. Pertama penyunt. Jakarta: BPS

Cracolici, M. F., Cuffaro, M. & Nijkamp, P., 2010. The Measurement of Economic, Social and environmental Performances of Countries: a Novel Approach. *Soc Indic Res,* Volume 95, p. 339–356.

Damayanti, F. & Purhadi, P., 2014. *Pengelompokan Wilayah Menurut Capaian Indikator Pembangunan Berkelanjutan di Indonesia Tahun 2012*. Semarang, pp. 11-17.

Dutt, K., 2009. Governance, institutions and the environment-income relationship: a cross-country study. *Environ Dev Sustain,* Volume 11, p. 705–723.

Fan, P. & Qi, J., 2010. Assessing the sustainability of major cities in China. *Sustain Sci,* Volume 5, pp. 51-68.

Jat, M. K., Khare, D. & Garg, P. K., 2009. Urbanization and its impact on groundwater: a remote sensing and GIS-based assessment approach. *Environmentalist,* Volume 29, p. 17–32.

Khatun, T., 2009. Measuring environmental degradation by using principal component analysis. *Environ Dev Sustain,* Volume 11, p. 439–457.

Khuzaini & Suwito, 2006. Analisis SWOT Daya Dukung Daerah Terhadap Pengembangan Kawasan Industri Kabupaten Blitar. *LIPI*.

Ma, M., Lu, Z. & Sun, Y., 2008. Population Growth, Urban Sprawl and Landscape Integrity of Beijing City. *International Journal of Sustainable Development & World Ecology,* Volume 15, pp. 326-330.

McCarthy, M. P., Best,, M. J. & Betts, R. A., 2010. Climate change in cities due to global warming and urban effects. *Geophysical Research Letters,* Volume 37, pp. 1-5.

S, Ahmad. & J, Choi. M., 2010. Urban India And Climate Change: Mitigation Strategies Towards Inclusive Growth. *Theoritical and Empirical Researches in Urban Management,* 6(15), pp. 60-73.

Todaro, M. & Smith, 2006. *Pembangunan Ekonomi*. Kesembilan penyunt. Jakarta: Erlangga.

Zheng, S., Kahn, M. E. & Liu, H., 2010. Towards a system of open cities in China: Home prices, FDI flows and air quality in35 major cities. *Regional Science and Urban Economics,* Volume 40, pp. 1-10.

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