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# Call for Papers Summer 2023 Issues Journal of Environmental Management and Tourism

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## Urban Ecosystem Network. Standardization's Effects upon Development of Green Open Spaces in the Arosuka River Flow Area

G. GUSMAL

Department Environmental Assessment and Development  
Faculty of Economics, Universitas Negeri Padang, Indonesia  
[gusmalgusmal@student.unp.ac.id](mailto:gusmalgusmal@student.unp.ac.id)

Agus IRIANTO

Department Environmental Assessment and Development  
Faculty of Economics, Universitas Negeri Padang, Indonesia  
[prof.agus.irianto@gmail.com](mailto:prof.agus.irianto@gmail.com)

Susi EVANITA

Department Environmental Assessment and Development  
Faculty of Economics, Universitas Negeri Padang, Indonesia  
[susievanita@gmail.com](mailto:susievanita@gmail.com)

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### Abstract:

This study examines the impact of standardized supervision on green space development in the Arosuka river flow basin. Whoever manages the Solok Regency government's park is accountable for meeting the community's oxygen demands. This mixed-method study analyzes respondents' impressions of questionnaires. 64 employees of Solok Regency's Field of Parks and City Decoration participated in the study. Statistical analysis confirms the study's research hypothesis. Supervision can affect green city development by 59.84%, and the two have a favorable association. This associative quantitative study measures respondents' impressions of questionnaires. 64 gardening and decorating division employees participated in the study. Statistical analysis confirms the study's research hypothesis. Where supervisory standardization on green open areas by 99.4% has a good link.

**Keywords:** urban parks; vital ecosystem; open green space; river flow area.

**JEL Classification:** Q57; O18; N50; R11.

### Introduction

The relationship between humans and cities can no longer be separated at this time. Human existence is almost always integrated with the context of the urban world. Urban areas, which only cover 3% of the earth's surface but accommodate more than half of the world's population, have become centers of social cultural transformation, engines of economic growth, and places of innovation and knowledge. It can be said that the above incident is caused by the phenomenon of industrialization. Industrialization has become the center of all human activities. Where this industrialization has created a cultural shift that was previously agrarian, thus causing a shift from agriculture to industry and from rural to urban areas.

Urban parks are an important part of a complex network of urban ecosystems that provide important ecosystem services. Urban parks are defined as the benefits that come directly or indirectly to humans from a open green space ecosystem. For example, urban parks can absorb carbon dioxide emissions and produce



oxygen, improve air and water quality, regulate the microclimate, reduce noise, protect soil and water, maintain biodiversity, and have recreational value cultural and social. Urban development is carried out extensively in various regions without realizing that the extraction of natural resources has resulted in the degradation of environmental quality (Dewi 2020).

Urbanization of the urban environment, spatial expansion and dense use of the built environment by humans and all their socio-economic activities, have often been made "suspects" who are responsible for both social and environmental problems that occur as a result of new cultural processes. Urban parks are an important part of the complex urban ecosystem network and provide significant ecosystem services (Loures and Costa 2012).

Green city is defined as benefits derived from the ecosystem function of the open green space itself for humans, either directly or indirectly. Several urban park development concepts have been successfully implemented in Solok Regency. But in the survival of the green city itself is rarely considered. Currently, the condition of the green along the Arosuka river border has been filled by several street vendors and is used by some people as a "perverted" place. The responsibility for supervising open green spaces is carried out jointly between the city government, the private sector, and the community (Manan 2020). However, this condition occurs because of the lack of supervision and maintenance of the results of the construction of green city. And this is also the background of the author in compiling the title of research on supervision standardization on the development of open green spaces in the Arosuka River flow area.

## 1. Background Research

The purpose of this study was to analyze and determine whether or not there is an influence of supervision standardization on the development of open green spaces in the Arosuka river flow area. So that the results can be used for input to the relevant governmental agencies

### Government management

The notion of government and governance as a process of governing, since the 90s has undergone very different changes compared to the previous period (Karim 2006). It is the paradigm and theoretical perspective that the pattern of relations between the community and the state has also developed in accordance with the environmental changes that occur. Whereas previously many countries practiced as the main actors in political change, but in the contemporary perspective the government as a state actor is only a catalytic factor.

Science of government is a science that studies how public government institutions are structured and functioned against citizens, both internally and externally (Labolo 2008). In the word government management, there is a single word management.

The word management comes from the word management which means to manage. Arrangements are made through a process and arranged according to the sequence of management functions. Thus, management is a process of achieving the desired goal. Management is a science and industry that effectively and efficiently controls the process of utilizing human resources and other resources to achieve certain goals (Yuniastuti and Hasibuan 2019).

### Supervision

Supervision is the process of monitoring rather than performing all organizational activities so that the work goes according to a clearly predetermined plan (Nawawi and Hadari 2010). Supervision is one of the functions of management, which is a process of leadership activity to ensure and guarantee that the goals and tasks of the organization will be properly managed in accordance with the policies, instructions, plans, and needs set out in the organization established and implemented (Imam 2010).

### Development open green space

Open green spaces have been addressed as an important urban planning strategy to mitigate the negative environmental impacts of high densities (Xue *et al.* 2010). Open green space is one of the concepts of a sustainable urban planning approach. Open green spaces are also known as eco-cities or healthy cities. This means that there is a balance between urban development and development with environmental sustainability. A healthy city can form a city that can contribute to development through the empowerment of community forums, with the help of interested sectors, and in line with urban planning, so that its population is safe, comfortable, clean and healthy, optimizes community capacity. One of the most important elements of a green city is the open green space.

Open green spaces help reduce pollution, enhance the beauty of the city, and create a comfortable microclimate. It can be created through landscape areas, green corridors, and other extensions (Hasanah 2015). A green city should be understood as a city that uses it effectively and efficiently, reduces waste, has an integrated transportation system, takes care of the environment, and conserves the natural and man-made environment (Prihanto 2020). The green city or green city is an urban concept, where environmental, economic, and socio-cultural factors should be balanced in the interest of future generations (Breuste 2021). The spatial layout system of green spaces should encourage the intention and desire to see active green spaces with purpose and social or physical activity, rather than passive observation without purpose or desire. The planning and design of open spaces should optimize microclimate conditions (such as shedding, cross ventilation, and thermal comfort) to facilitate long-term exposure or monitoring of its therapeutic effects (Xue *et al.* 2010). The Council of Europe states that in order to achieve sustainability, development "must be based on a balanced and coherent relationship between social needs, economic activity, and the environment" (Laures and El Costa 2012).

## 2. Research Framework

Supervision is closely related to planning, which is oriented to the achievement of goals and standards of work results or targets for the implementation of an activity. The supervisory function is also closely related to other functions, such as organizing, implementing, and controlling. Supervision is also related to the active action or process as a mediator of the relationship between supervisors and workers. If supervision is successful in carrying out planning and providing insight for employees in the Parks Sector of the Solok Regency Environmental Service in carrying out urban park area development activities which are one of the tasks of this field, it can be assumed that supervision will make a positive contribution to the implementation of urban park area development which carried out by employees in the Parks Sector of the Solok Regency Environmental Service.

The research formulates the following hypothesis: "The existence of supervision standardization has an effect on the development of open green spaces in the Arosuka river flow area".

This study uses a quantitative type of mixed method as Suyatmin *et al.* (2022) did in their study. The variables used in this study are: supervision (X) as the independent variable and the development of open green spaces (Y) as the dependent variable. The object of observation of research related to people is the employees who are in the Field of Parks and City Decoration of the Environmental Service of Solok Regency, totaling 64 people. The object being observed is the same as the population without using a sample of 64 people. This study uses two techniques, namely questionnaires and observations using a questionnaire as a tool. The data analysis techniques used are: the correlation coefficient of the moment product ( $r$ ). Hypothesis test design is used to test the hypothesis proposed in the study. In this study, the significance level used was 5%. Test the significance level of the correlation coefficient compared to the table value of the Pearson correlation coefficient. The hypotheses used are:

- $H_a$  : there is an effect of supervision standardization has an effect on the development of open green spaces in the Arosuka river flow area;
- $H_o$  : there is no effect of supervision standardization has an effect on the development of open green spaces in the Arosuka river flow area.

## 3. Results and Discussion

### Solok Regency environmental service profile

The Solok Regency Environmental Service has an ambitious vision: To make Solok Regency clean, green and comfortable towards the establishment of a new civilization based on morality. Solok Regency has a land area of approximately 184,229 Ha. Which consists of dry land of 8,616.05 hectares, airport area of 1,969 hectares with an area of open green space (RTH) managed by the Environmental Service of Solok Regency of 45.49 hectares. According to Regional Regulation No. 5 of 2005 which states that the area of public open green space is at least 20% and the area of private open green space is at least 10% of the area of Solok Regency, so currently the open green space managed by DKP has only reached 0.024%, if added to the dry land area and airport area it only reaches 1.09% spread over several sub-districts.

### Development open green space

The results of the descriptive analysis of the development open green space obtained from the respondents' assessment of several statements submitted by the researchers, can be explained through the results of the analysis of respondents' answers using descriptive statistical analysis. Based on the results of

descriptive statistical analysis on the results of respondents' answers regarding the development of the green city area by the Solok Regency Parks Cleanliness Service, the following results were obtained: the lowest worth of respondents' answers was 9, the highest value of respondents' answers was 39, the value of the lowest answer data range was up to the highest answer is 30, the average worth of respondents' answers is 27.562, the median value is 30.5 and the respondent's answer value gives a standard deviation of 8.979 and a variance value of 80.631.

### Supervision standardization

The results of the descriptive analysis of the supervision standardization obtained from the respondents' assessment of several statements submitted by the researchers, can be explained through the results of the analysis of respondents' answers using descriptive statistical analysis. Based on the results of a descriptive statistical analysis on the results of respondents' answers regarding supervision criteria by the Solk Regency Parks Cleaning Service, the following results were obtained: the lowest value of the respondents' answers was 10, the highest value of the respondents' answers was 44, the lowest answer data range value was 34, the average value of the respondents' answers was 30.047, the median value was 32.5, and the respondent's answer value was 10.042. Diversity values.

In general, the results of this descriptive analysis in this research can be seen in the Table 1:

Table 1. Results of descriptive statistical analysis of supervision standardization and development open green space

		Supervision Standardization	Development Open green space
N	Valid	64	64
	Missing	0	0
Mean		30.046900	27.562500
Std. Error of Mean		1.255230	1.122430
Median		32.500000	30.500000
Std. Deviation		10.041860	8.97947
Variance		100.839000	80.63100
Range		34.00	30.00
Minimum		10.00	9.00
Maximum		44.00	39.00

In general, the results of this descriptive analysis product moment can be seen in the Table 2.

Table 2. Results of product moment analysis

		Development Open green space	Supervision Standardization
Supervision Standardization	Pearson-Correlation	1	1
	N	64	64
	Sig. (2-tailed)	-	-
Development Open green space	Pearson-Correlation	.997**	.997**
	Sig. (2-tailed)	.000	.000
	N	64	64

Note: \*\*. Correlation is significant at the 0.01 level (2-tailed).

In testing the research hypothesis, the researcher uses the moment product correlation test method. This testing method is deemed appropriate to be used in testing hypotheses considering that the requirements for the analysis have been met, namely the data is normally distributed.

The results of the calculation of the correlation of the moment product produce a correlation value of 0.997 with a significance level of 0.000 ( $p < 0.01$ ). The significance number of 0.000 can be interpreted that if the value of 0.000 is multiplied by 100% it will give a result of 0.0% or in other words the value of calculation is 0.0%. This value means that the calculation of the moment product analysis has an error rate of 0.0%. Because the research error tolerance is 1%, the 0.0% value is much smaller than 1%, so the results of the calculation of the moment product correlation of 0.997 the results prove that there is a strong relationship or influence between the supervision standardization variables that act as independent variables on the development open green space variable that acts as the dependent variable in accordance with the research design that has been made previously. The analysis of the determinant coefficients can be seen in the following Table 3.



Table 3. Results of R square analysis

Model	R	R Square	Adjusted R square	Std. error of the estimate
1	.997 <sup>a</sup>	.994	.994	.79392
a. Predictors: (Constant), Y				

Based on the results of the analysis of the coefficient of determination, the value of R is 0.997 and the value of R<sup>2</sup> is 0.994. The result of testing the coefficient of determination is 99.4%. These results indicate that there is an influence between the supervision standardization on the development open green space in the Arosuka River flow area of 99.4%.

Based on the observations and understandings of researchers in the field, the development open green space activities are not only in the development process but have reached the stage of maintaining open green space that have been built and are the responsibility of the Solok Regency Environmental Service. Therefore, there are several factors that can be categorized as epsilon variables that can significantly influence the development open green space, including work discipline, teamwork, coordination, and so on, all of which are believed by researchers to be able to influence the development open green space.

Supervision standardization is carried out as an effort to maintain the quality and quantity of open green space. Supervision standardization is the responsibility of all parties, including the City government and related agencies as well as the community (Manan 2020). The Environment and Forestry Service (DLHK) conducts routine checks every day on plants that are in the green line of Arosuka City. The role of related parties in controlling land and land use can increase community participation in carrying out the established reforestation program so that the implementation of green city spatial planning can be achieved. Community participation in the management of open green spaces can improve the relationship between the government and the community (Degnet *et al.* 2022). The government and the community as parties have an important role in controlling land use and land use. Community participation in the management and development of open green spaces is an effort to prevent space use irregularities (Januarisa *et al.* 2015).

Although open green space is a space that is planned to meet the needs of community interaction and joint activities, the space also serves as an active playground for children and adults (Dewi *et al.* 2018). Open green space is an outdoor public space where this type of public space is usually in the form of outdoor space that can be accessed by all people (public) such as city parks, squares, pedestrian pathways, etc. (Yuniastuti and Hasibuan 2019). Open green spaces are essential for city growth and green urban development due to the benefits of maintaining urban biodiversity and ecosystems, including the well-being of city dwellers (Vadeveloo 2021). The efficiency and effectiveness of open green spaces is evidenced by the quality of urban environmental health for the sustainability of the city towards achieving the status and quality of life of a green city. Open green space provides an important value for sustainable development considering the diversity of its functions in terms of providing various benefits for improving economic stability, social stability and environmental sustainability. The development of open green spaces requires contributions from surrounding communities related to concepts, infrastructural facilities, and facilities that were created to suit the needs of the people who use them. One thing that should not be excluded is as a way to provide environmental education for children because education from a young age will create and shape identities in the future.

## Conclusions

There are some conclusions of the research as follows:

- based on product moment correlation analysis, it is proved that there is a strong correlation or effect between the value of the product correlation of 0.997 moments with the monitoring criteria for the development of open green space in the Arosuka River flow area;
- based on the calculation of the coefficient of determination, it can be concluded that the magnitude of the influence between the supervision standardization on the development open green space in the Arosuka river flow area is 99.4% and the remaining 0.6% is influenced by other factors (epsilon variables), namely work discipline, work motivation, work culture, leadership, incentives, work, work facilities and infrastructure, teamwork, coordination, and so on. All of which are believed by researchers to be able to influence the development open green space;
- the implementers of the construction of a open green space from the Solok Regency Environmental Service are government officials, and standardization supervision will affect the level of implementation of the development open green space carried out by employees at the Solok Regency Environmental Service to the community;

▪ this standardization of supervision will control the development of the park, from the process of constructing a open green space to the stage of its maintenance. The availability of green city and the maintenance of open green space will support the Arosuka City concept, seen from the aspect of carrying oxygen demand from the supply of plants in the open green space. There are several suggestions that can be put forward by researchers regarding the results of the study.

Further research, namely as follows:

- it is recommended that the Environmental Service have an SOP (Standard Operating Procedure) related to standardization supervision in carry out urban park development;
- the development of the green city area in this study is not only intended to be limited to the process of developing a green city, but also to its maintenance. On this basis and taking into account the conditions in the field, there are several parks that should be maintained more optimally, for example, the green city which is in front of the Nyimas Jasmine building which was once an icon of the city and where some people enjoy the scenery in this green city. Where the current maintenance is not optimal, because it seems to be poorly maintained. Even though there have been improvements, when compared to the previous conditions, there has been a decline in terms of garden maintenance;
- Solok Regency is included as a metropolitan city and industrial city that has a fairly high population growth, which of course has an impact on the relatively high demand for oxygen as a primary need for people's lives. One of the oxygen contributors is from open green space, but until now the number of open green spaces managed by the Arosuka City environmental service has only reached 0.0024% of the 20% required by regional regulation No. 5 of 2005 concerning Spatial Planning for Solok Regency which states that the area of public open green space is at least 20% and the area of private open green space is at least 10% and the Spatial Planning Law Number 26 of 2007 concerning Spatial Planning;
- this means that the government of Solok Regency is obliged to provide RTH covering an area of 19.9976% in accordance with applicable regulations so that people living in Solok Regency can live properly in getting a certain amount of oxygen which is a basic need of life;
- based on the above considerations, the researcher suggests that the Solok Regency Government is able to provide a budget to purchase land used as open green space as a fulfillment of the obligations of applicable laws and regulations, so that the slogan of Solok Regency as a livable city can be fulfilled.

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