The Role of Stakeholders Related to the Management of Ecological Function of Urban Green Open Space. Case Study: City of Depok, Indonesia

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Abstract. Urban green open space is one of the assets that provide substantial benefits to the urban community. One important function of urban green open space is a function of ecology. This study will provide initial explanation on the various studies related to the ecological function of urban green open space. The study of urban space management approach related to ecological function will explain the extent of the role of stakeholders in the urban areas that will further strengthen the importance of the existence of green open space, especially in city of Depok. With so many problems related to the supply and use of green open space in the city of Depok. This approach was originally applied by the private sector and many applications made a great contribution, so it began to be used by the government in managing public assets there. This study will use descriptive method, at the beginning of the study will explain the existence of the reality of urban green open space as part of the urban space by viewing it from theoretical overview of space, function and role of the various problems that occur in it. The results of this study indicate there are six problems in the management of green open spaces in city of Depok. Using the stages in asset management will provide space for participation of existing stakeholders in the management of green open spaces in city of Depok.

Keywords: management, space, urban open space, city of Depok

1. Introduction
Urban environment has become a major habitat of the community at this time. It also means that the number of persons affected by the conditions of the urban environment continues to increase (van Poll, 1997)\cite{1}. The urban population is growing rapidly, in 1975, there are only 1.54 billion people living in urban areas, in 2000, there were 2.92 billion projected world population living in urban areas. This figure will be doubled in 2025, of which approximately 5.07 billion people will live in urban areas (UNFPA, 2007)\cite{2}. In terms of area, the urban area has an area of only 3\% of the Earth's surface, but more than half the world's population, has become the center of social cultural transformation, the engine of economic growth, as well as places of innovation and knowledge creation (Wu, 2009)\cite{3}.

Some environmental experts have realized that every urban problems, particularly social problems, have root causes related to the environment (Byrne and Wolch, 2009)\cite{4}. This is the background why urban communities still need a harmonious closeness to the natural environment. Urban park actually is an open space which can integrate between the environment, society, and health in the urban environment by promoting an ecological approach to health and well-being that is based on contact with nature. In addition, the urban park is also useful in environmental, aesthetic, recreational, psychological, social, and economical for urban communities. But in fact there is still a urban park problems that reduce the presence and functionality.
This essay discusses the asset management as an approach in the management of the urban park, which includes the role of government, the public and the private sector. In an effort to understand the problems of managing the urban park, this essay comprehensively will also discuss in detail the existence of an urban park as part of urban space, function and problems.

1.1 The History of Green Open Space

The role of green open space is also gradually changed since the mid-19th century when it was first introduced as a refuge from the urban centers increasingly crowded as described in the previous section regarding the "garden city" and "radiant city". A study of the history identifies four types of open green spaces based on the characteristics, social objectives and user base by Roberts (2014) [5]:

(1) "Pleasure garden" (1850-1900), where the park is regulated environment to reduce the impact of the industrial city;
(2) "Reform parks" (1900-1930) that gave birth to the concept of the park for the children of the working class and immigrant families;
(3) "Recreation facility" (1930-1965), he went on to extend this fantastic concept to the suburbs and the urban with the entry of the stadium, a swimming pool and indoor facilities; and
(4) "Open space system" (1965-1990) where the trend of green open spaces such as streets, plazas and waterfronts are used for recreational purposes.

Harnik (2006) [6] suggests that the desire for green open space utilization declined after World War II due to the development of more focused on the suburbs. As a result, plenty of green open spaces deteriorate due to lack of funds for maintenance and operation. Interest in the development of open green space refurbishment in the early 1990’s where the urban population began to grow. In the last two decades of social and environmental issues regarding the provision and discussion of sustainable green open spaces began to be discussed (Cranz and Boland, 2004) [7]. Green open spaces are an important component of the social structure and ecological landscape of urban centers. In addition to providing aesthetic value and a place for recreation, urban green open space plays an important role in promoting economic development, improving public health, providing employment opportunities, and become self-sufficient in the use of existing resources (Cranz and Boland, 2004; Walker, 2004) [8]. Of the various previous studies have shown that green open spaces have an important role related to physical activity and social citizens who created the "sense of community" and can improve the quality of life of the urban community (CABE, 2005; McCormack., et.al, 2010; Roberts N., 2014) [9]. Green open space also has a role in improving the economy of the community (Cranz and Boland, 2004; CABE, 2005; Rabare, et.al, 2009) [10].

1.2 Green Open Space Standards Review

According to Indonesian Minister of Home Affairs Regulation No. 1 of 2007 on the green open space arrangement of urban areas, the definition of Green Open Space is part of an open space of an urban area filled with plants and plants to support ecological, social, cultural, economic and aesthetic benefits. Green open space itself is divided into two types, namely Green Open space of Urban Green Open Space Public and Private Urban Area. Green Open Space is a Public Urban Area Urban Area of open space provision and maintenance are the responsibility of the District / City Government.

Based on the type, urban green open space consists of parks, nature, recreation parks, neighborhood parks housing and settlement, neighborhood parks office and commercial buildings, forest parks, city forests, protected forests, landscapes such as mountains, hills, slopes and valleys, nature reserves, botanical gardens, zoos, public cemeteries, sports fields, the parade ground, open parking, land urban agriculture, the path under high voltage, the river banks, beaches, buildings, lake and marsh, the path of road safety, the median road, railways, gas pipelines and pedestrian, the area and the green belt buffer zone (buffer zone) airfield and park roof (roof garden).

In determining the land required to meet the public demand for parks and open space, National Recreation and Parks Association (NRPA) has developed national standards for the level of service and community environment park ranges from 9.25 to 14.5 acres (1 acre = 4046.86 m²) per 1,000 people within a mile (1 mile = 1.60934 km), which is used as a criterion to evaluate the level of service standards of green open space [12] (Table 1). Provision of green open spaces of both
standardization lies in providing orientation. The provision of urban green open space based on minimum population and service range in each type.

Table 1. Association National Recreation and Parks Association (NRPA) Standard for Green Open Space

| Type                    | Acres (1 acre=4046.86 m²) per 1,000 persons | Service Area (1 mile=1,60934 km) | Accessibility |
|-------------------------|---------------------------------------------|----------------------------------|---------------|
| Community Park          | 8.0-10.0                                    | 1/2-3                            | 15 minutes driving |
| Neighborhood Park       | 1.0-2.0                                     | 1/4-1/2                          | 5-10 minutes walking |
| Mini-Park or Pocket Parks | 0.25-0.50                             | <1/4                             | 5-10 minutes walking |
| Open Space / Open Lands | 1-2                                         | Entire Community                 | 45 minutes driving |
| **Total:**              | **9.25-14.5**                               |                                  |                |

Source: National Recreation and Parks Association (2014)

In Indonesia, to determine the extent of green open space is based on the number of residents performed by multiplying the number of population served by the standard of green open space according to the applicable regulations. While on the provision standard issued by National Recreation and Parks Association using the extent approach, service coverage areas and accessibility to existing green open spaces.

Table 2. Provision of Green Open Space Based Population in Indonesia

| No | Service Unit | Green Open Space Type | Minimum Area/unit (m²) | Minimum Area/household (m²) | Location |
|----|--------------|-----------------------|------------------------|-----------------------------|----------|
| 1  | 250 inhabitant | Small Neighborhood park | 250                    | 1.0                         | Center of Neighborhood resident |
| 2  | 2500 inhabitant | Neighborhood park | 1.250                  | 0.5                         | Center of Neighborhood resident |
| 3  | 30,000 inhabitant | Sub District park | 9,000                  | 0.3                         | grouped by school / village center |
| 4  | 120,000 inhabitant | District park | 24,000                 | 0.2                         | grouped with the school / center subdistrict |
|    | Cemetery     | adapted              | 1,2                    |                             | spread |

Source: Regulation of the Indonesian Minister of Home Affairs 5, 2008 on Guidelines for the Provision and Utilization of Green Open Space in Urban Area

The second similarity lies in the provision of this standard that focuses on the human user. Widespread use minimal capita in use by Regulation 5, 2008 that differ based on the type of need attention. In contrast to the Indonesian Minister of Home Affairs 5, 2008[13] About Procedures for Environmental Planning Housing Urban wear range of services in the supply area of existing green space (See table 2).

The orientation of provision of some existing standardization indicates that the paradigm of "people centered development" thinking is very strong in the provision of green open space. Attention to environmental conditions, the carrying capacity of the land can only be seen within the reach of services as well as the timing of achievement in the provision standards issued by the NRPA. It is also
not enough to see the conditions and environmental characteristics in the provision of green space represented.

1.3. Ecological Functions Of Green Open Space in Urban Area

Green spaces that feature good connectivity and act as "wildlife corridors" or serve as "urban forests", can sustain populations of existing species in urban areas (Haq, 2011; Byrne and Sipe, 2010) [14]. Local green space is based on the protection and optimization of natural ecological systems and refers to suburban green spaces on a large scale not only enhancing the ecological environment of the entire city area and also providing important support from urban environmental improvements. Furthermore, the introduction of green space in the suburbs to the city also acts as the basis of ecological balance (Wuqiang et al., 2012) [15].

Supply of urban green space ecosystem services ranging from the maintenance of biodiversity through the urban climate regulator. Compare with the rural areas, the difference in solar input, the pattern of rainfall, solar radiation, air temperature, wind speed and relative humidity varies significantly because of the built environment in urban areas (Heidt and Neef, 2008) [16]. Therefore, the availability of green open space, vegetation around the houses, to the management of water bodies by the authorities can help to reduce the improvement of temperature situation.

The presence of motor vehicles produce pollutants that harm children, the elderly and people with respiratory problems (Sorensen et al., 1997) [17]. Greening activities in urban areas can reduce air pollution directly when the dust and smoke of particles are trapped by vegetation. The effect of "urban heat" caused by large heat-absorbing surface, the combination of high energy use causes increased urban temperatures by 5 ° C. Research has shown that on average 85% of the air pollution that got into the park can be filtered (Bolund and Sven, 1999) [18]. Noise pollution from traffic and other sources can cause stress and create health problems for people in urban areas. The overall cost to reduce noise pollution is estimated to be in the range of 0.2% - 2% of EU gross domestic product. In the presence of urban green space most of the cities in the European Union to reduce the noise level depends on the quantity, quality and distance from the source of noise pollution. In contemporary studies on urban green space required consideration of complex urban ecosystem, urban green space conservation to maintain natural ecological network for environmental sustainability in the city.

For cities with high urbanization and economic growth such as China must consider the dynamic form and expand urban areas in the management of green spaces of urban effective that will be able to contribute in reducing overall CO2 to maintain or even improve the uptake of CO2 by natural ecosystems (Huang et al., 2009) [19].

Reduced pollution vary in each city depends on the amount of tree cover, with an increase in tree cover leads to a reduction of greater pollution, but also for example the length of leaves each season as well as a variety of meteorological variables that affect transpiration tree and speed deposition (Paolotti et al., 2011) [20]. Trees can also reduce the temperature of the air through transpiration, affecting photochemical ozone by reducing the production of ozone. Cavanagh et al, (2009) [21] explain in more detail about the specific role of urban trees in reducing air pollution which mentions the function of vegetation in terms of atmospheric particles intercept and absorb various gaseous pollutants (Yin et al, 2011) [22].

1.4 Problems in the Provision of Green Open Space in Urban Area

In the theory of urban planning, Melville (1996) [23] said that city planning is the result of two groups which both have strengths, namely the government and non-government. The government is representative and administrative structure in the form of a formal organization and legal power to regulate and organize the life of the city. Non-government consists of various forces that are not part of the official government, but nevertheless have an influence or determine the planning of the city. The linkage between the two forces in order to determine the shape of urban planning, it is very different with inter-community, inter-political system and inter-period history. However, the city planning is the result of the various activities undertaken by organizations and individuals, both within, and outside the government.
According Purnomohadi (2006) [24] one of the factors is the lack of available urban green open space inconsistency of policy and strategy of the Urban Spatial Planning, lack of understanding and attention on the urgency of the existence of green space in urban areas unity. Strategic planning for development in the area of green space is not adequate, because it is considered as a public space (common property) that is not economically profitable so mutually irresponsible. Green open spaces are often regarded as dustbins, wild huts and disease-carrying vector nests, which tend to be more of a problem than benefits.

Population growth resulting in densification of population and settlements rapid and uncontrolled in parts of the city. This leads to the need for increased space to accommodate their interests. The increasing demand for space, especially for residential and undeveloped land increasingly impact the deterioration of environmental quality. Spatial Plan that has been made is not able to prevent urban land conversion so that the existence of green open space is threatened and the city even more uncomfortable to move.

In Indonesia according to Siahaan (2010) [25] that the likelihood of a decrease in the quantity of green space, particularly green space in the last 30 years is very significant. In big cities such as Jakarta, Surabaya, Medan and Bandung, green space area has been reduced from 35% in the early 1970’s to 10% today. Green open spaces that exist largely been converted to urban infrastructure and new residential areas. The main problem is the reduction in the presence of green space green space because of limited land and inconsistent of applying spatial policy. Reduced of green open space caused by the conversion of land that is to switch function green open space for other space designation.

According Dwihatmojo (2015) [26], Indonesian Law No. 26 Year 2007 on Spatial Planning mandates that city spatial planning must contain a plan provision and utilization of comprehensive Green open space minimum of 30% of the total area of the city. Green open space in urban green open space consists of public and private green open space where the proportion of green open space in urban areas is at least 30%, consisting of 20% green public open space and 10% consists of green open space private. The proportion of 30% is the minimum size to ensure the balance of the ecosystem of the city, good balance and equilibrium microclimates hydrological system, as well as other ecological systems that can increase the availability of clean air that is needed by the community, as well as to improve the aesthetic value of the city. The target area of 30% of the area of the city can be achieved gradually through the allocation of urban land is typically (Regulation of the Indonesian Minister of Public Works No. 5 Year 2008 on Guidelines for the Provision and Utilization of Green Open Space in Urban Area).

But the facts that the existence of urban green open space in Indonesia is far from the ideal proportions, the dominant market forces change in land use so that the existence of green open space increasingly marginalized even ignored the functions and benefits. Spatial expected to accommodate not seem powerless to resist the market mechanism. Legal instruments set of spatial planning should be implemented properly by the decision maker. The government must be consistent in carrying out spatial planning. Provision of green open space should be adjusted to the appropriations specified in the spatial plan. Law on Spatial Planning that includes sanctions can be used as a legal basis to meet the needs of green open space. The government should be able to provide green open space for the community so as to provide comfort because of its quality environment. Identification of the availability of green open space needs to be done so that the government determine the availability of green space as one of the ingredients of evaluation in determining the direction of policy and the protection of open spaces. Green open space as a component of the space availability levels both in quality and quantity must always be taken into account in urban planning process in order to create environmentally sustainable cities (Dwihatmojo, 2015) [27].

Another cause of the limitations of green open space provision is limited urban land due to high land prices. For municipal governments to own land and manage it to be a green area for urban lungs, the government must buy land. Private parties are also beginning to understand the potential of this government does not necessarily give the price of normal, this condition occurs in several regions in Indonesia.
1.5 Methods
This study will use descriptive method, at the beginning of the study will explain the existence of the reality of urban green open space as part of the urban space by viewing it from theoretical overview of space, function and role of the various problems that occur in it. This study will provide guidance in the form of an asset management approach in view of the role that is more specific to the aspect of urban environment in city of Depok, Indonesia.

2. The Role of Stakeholders in Managing Ecological Function
In this section will explain the various problems that occur in the provision of green open space and the role of stakeholders in the provision of green open space in the city of Depok.

2.1 Case Study of Green Open Space Provision in Urban Area (city of Depok)
Based on the Long-Term Vision Development Plan of Depok City 2006-2025 that makes Depok as a religious and eco-friendly trading and service city. City of Depok is as one of the buffer city which belongs to Jabodetabek region. Jabodetabek area is the region with the largest urbanization process in Indonesia because of the tendency to become one of the centers of trade and industry and services that encourage residents to work and settle in this region. City of Depok as a buffer city is also directed to settlements, educational towns, trade service centers, tourism and water absorptions. This situation causes the mobility of activities of the population will be higher and competitive so that urbanization process will continue to increase which impact on the increasing area of settlement and conversion of agricultural land to non agriculture. What happens next is the very visible pace of development in this area. The city of Depok actually leads to a city of trade and education services. For it is not surprising that the housing construction is as fast as the construction of trade and education facilities.

Based on the Urban City Spatial Plan of Depok 2012-2032, the amount of green open space in city of Depok is far from what is said according to Law No. 26 of 2007 and regulation of Public Works No. 05 of 2008 on Spatial Planning. In the regulation made by the central government, the provision of green open space urban must meet 30% green open space from city of Depok area, with the composition of 20% public and 10% private. The number of green open spaces of Depok City currently up to 2011 is 3,110, 88 Ha or only 15.53% of the total area of Depok City with an area of 20,029 Ha.

There are several factors that affect the lack of availability of green open space in city of Depok. The first factor, beginning with development planning, is the more focused development planning focus that focuses on its development infrastructure in the commercial city. The green open space from the planning side has become one of the top priorities. City of Depok has begun to pay attention to the arrangement of space and environment. In 2011, city of Depok only had 9 priority scales which did not discuss about urban environment. On the priority scale of 2011, city of Depok did not focus its environmental priorities, but only mentioned the spatial layout on the seventh priority scale, as one of the priorities in the city of Depok APBD. In 2013, the city of Depok has begun to focus on the environment.

The second factor, is the problem in implementation of the planning that are created by the city government. The implementation in this case is related to the implementation of the agencies related to green open spaces, such as Bappeda, Spatial Planning and Settlement Service, Office of Sanitation and Gardening and Environment Agency. Implementation that is a core of a plan must be guided by the planning that usually always meet the barriers, will affect the success of the program. In the implementation of annual work programs created by each of these agencies found some problems that cause impeded implementation namely the dimensions of shifting space that resulted in the dimension of time also shifted and the dimensions of costs are also affected.

The third factor, budgetary constraint factor is also another factor in the availability of green open space in city of Depok. When viewed from the existing land use, Depok still looks green, but the ownership of the land that is green is not from the public element, but most private property that is not managed properly, and also can lost at any time because it was built by the owner. The city government cannot do anything because the land is private property, if the government wants to manage it means the city government must buy the land. Private parties who also have begun to understand the potential possessed by this does not necessarily give a normal price. This is where the difficulty is owned by the government of Depok City.
The fourth factor, is the weakness of supervision. Supervision in the case of land provision in city of Depok is still limited related to the quantity and quality of the supervising human resources. Supervision is not effective, because there are areas that are not affordable, due to limited human resources. The fifth factor, is the limited land, the land for green open space in city of Depok is still limited due to the increasingly density of population every year. The last factor is the lack of public awareness.

2.2 The Role of Stakeholders in Urban Green Open Space Management

There are three approaches in Urban Management, namely: traditional; market-based; and participatory, (Mohamed, 2009) (See table 3). Urban management approach seeks to fight injustice, community involvement informal settlements policy making in the urban space. However, to achieve this successful involvement of communities should be active in the policy-making process. The urban authorities should also have the right credentials that allow them to deal with issues that are important to the inhabitants of informal settlements such as the access to urban land, housing, basic services, education and health. In addition, the urban government should be open to and supportive of informal settlements, and have appropriate mechanisms for their participation in policy-making. On the other hand, informal settlement communities can benefit from the opportunities of participation if they have a strong social capital, both the structure of society that are connected to make their voices can be heard by the policy makers. In an open democratic system, participation continues to grow through the interaction between policy and legal provisions and elements of the micro context, with the facilitators (local officials and community organizations). For explanation can be seen in the table below:

![Table 3. Urban Management Model Approach](https://example.com/table3)

This table shows that the participatory urban management approach offers a conducive environment for the participation of the poor, such as the informal settlement communities, and policy-making at the municipal level. Participatory model also shows the usefulness of the participation process with the government that enable the poor to take part, unlike the two other approaches (traditional and market-based). In the book "Managing The City" (Diamond. J, et.al, 2007) states that a holistic approach is needed and also integrated in solving various problems in urban areas. All parties must make a real contribution to the planning so as not to bring up a new gap in terms of thought or practical terms. In such efforts it is necessary to explore whether to allow an agreement of the interests of each party.

In the current conditions according to Diamond et.al (2007) this is difficult due to a conflict of interests such as the imbalance of community aspirations with the central government. This
condition also often occurs in the provision of public facilities (in this case Green Open Space). One approach to solving the complexity of this urban green open space problem is "asset management". In Roos and Lukman (2010) [31], this concept was first spawned by the private industry, integrating various thoughts from Demming, Baldridge, and several other figures (FHWA, 2007) [32]. Asset management is a process for improving the understanding of asset conditions, improvements in operating costs, and performance, which assist in improvements in decision making (World Bank, 2000) in Siregar (2004) [33]. Asset management as a process of maintaining or maintaining and utilizing public capital. The focus of public asset management is on decision-making on the construction, use, maintenance, repair and cessation or replacement of roads, sewers, and other infrastructure. The goal is to achieve maximum total capital payback where the approach used is a participatory approach (Lemer, 2000 in Siregar, 2004) [34].

There are three main factors that prompted the government needs to do its management asset (Bertovic, et al., 2009 in Akbar, et al., 2010) [35], namely:
1. Decentralization, local government must provide a number of services continues to increase with limited financial resources.
2. Local government property real estate assets are often much more significant than annual revenues from related assets. Although many assets are not intended to generate revenue, there is still a possibility to increase the revenue. In addition, small expenditures may indicate that there is a need to increase expenditures for asset maintenance purposes.
3. Local governments usually hold more power and flexibility in managing their assets. Rather than raising taxes and charges that are politically process which is sensitive, it would be better if the assets managed by local government to be able to contribute to increase local revenue.

As shown in Table 4, illustrates the stages of asset management as well as the role of the various parties involved management of urban parks (Vogelsang-Coombs and Miller, 1999; Rakodi 2003, Siregar, 2004; Akbar and Lukman, 2010) [36].

Table 4. Stages of Asset Management And The Role of Local Government, Public and Private Parties

| STAGES | DISCUSSION | LOCAL GOVERNMENT | PRIVATE SECTOR | PUBLIC SECTOR |
|--------|------------|------------------|----------------|--------------|
| Inventory | Collecting the essential characteristics of the park so that it can provide relevant information in urban green open space management decisions. | The local government's role here is to give responsive attention to the needs of poor urban residents, including the provision of public (Rakodi, 2003) | Encourage the private sector to conduct an inventory of activities and events that will have an impact on the use of urban green open space. | Efforts to inventory could also involve the community (community organization) in a community for the accuracy of the information about the presence of existing urban green open space. |
| Valuation | Efforts to resolve the legal issues of assets, in this case related to the status of | In general, local government role is determined in accordance with the urban management | Participates in the collaborative management and provision of urban green open space | Urban communities are entitled to contribute to urban assets |
| Legal Audit | Optimazion | Monitoring and Control |
|-------------|------------|-----------------------|
| Assessment of urban green open space assets refers to the four functions of the ecological value of green space, social, aesthetic, and economic. | Efforts to take advantage of opportunities that exist so urban green open space can fulfill its functions optimally | Setting up the right instruments to perform asset management area in a professional, transparent, accountable, efficient, and effective from |
| Conducting the process of assessment of the existence of urban green open space that is based on a specific standard or guideline | Responsive to inputs from various parties regarding the existence of public space by providing information media and discussion forums that will be useful in the preparation of budgetary provision and maintenance of public space (urban green open space) | Running evaluation and control functions(such as local regulations) periodically using various methods of effective and efficient. This approach can be done by the provision of human resources |
| Create a private community of caring and critical of the arrangement of urban green open space. | Encourage local governments in the improvement and optimization of public space in the form of mutually beneficial cooperation in the form of cost sharing management and maintenance of urban green open space. | Cooperating with the government in providing information on the availability of urban green open space (related to accountability, transpartasi management) as |
| In some cases, community organizations can be a mediator who can bridge the desire of the urban population about the existence of the existing urban park. | Efforts to optimize from the existing urban green open space that can be offered by community: maintaining and caring for the existing urban green open space assets through the establishment of community-based environmental / administrative. | Efforts supervision and control of existing assets can be realized with the social role of internal controls its own citizens. It is helpful to |

Control of park assets and strategies to solve various legal issues related to the acquisition or transfer of assets. Model adopted, the task generally make laws, policies and budget allocations as an authoritative decision of administrative (Vogelsang-Coombs and Miller, 1999) with the government for the sake of improving the quality of urban areas (social, economic, ecological, aesthetic) are critical to the local government through discussion forums or suggestions through the media information.
planning, management / utilization, as well as supervision. and the use of information technology in the management of urban green open space. well as contribute to the monitoring of existing assets. see where the asset itself in terms of utilization.

Sources: Adaptation dan Interpretation (Vogelsang-Coombs and Miller, 1999; Rakodi 2003, Siregar, 2004; Akbar and Lukman, 2010)

The community can play a role by improving the quality of the environment in the settlements for example by planting crops and building absorption wells and waste management. Home yard is used optimally with various types of plants either planted directly or in intermediate media such as pots and other intermediary media. The private sector can also play the role of providing green open space in facilities built (malls, plazas, housing, and so on). The government places itself as a facilitator by placing society as the main actors. Society in this case in the form of individuals, groups, institutions, or in it including the private (Dwihatmojo, 2015) [37].

3. Conclusion
Based on the results of existing studies from the conclusions can be drawn, namely:
1. The various studies that exist ecological benefits of green open space include: as a controller of air and sound pollution, natural conservation, biodiversity, improving air quality, water absorption areas, reducing the effect of “urban heat”.
2. The availability of urban green open space in city of Depok is influenced by several factors, namely: first factor, starting from development planning, development planning focus more focused on commercial city that focus on development infrastructure, second factor, is at the time of planning implementation there are problems that are closely related so that in the implementation of work program made by the city government, the third factor, budgetary constraint factor is also another factor in the availability of urban green open space in city of Depok, the fourth factor, is the lack of supervision, supervision in terms of land provision in city of Depok is still limited due to the quantity and quality of the supervising human resources, the fifth factor, is the limited land, the land for urban green open space in Depok City is still limited due to the increasingly density of population every year, the last factor is the lack of public awareness.
3. Asset management approach in urban space is one approach that plays an important role in the implementation stages of spatial planning (utilization and control). This approach is one of the most valuable approaches to urban green open space management. This concept together with the complexity of planning science is able to create a holistic understanding of assets so that better decisions can be made in optimizing assets. Its ability to identify important information related to park management functions and opportunities, has provided a new way to optimize urban green open space potentials. In addition, the implementation of asset management information systems, which further strengthens the asset management position as the right approach in park asset management.
4. An asset management process that includes asset inventory, legal audit, asset valuation, legal audit, asset optimization and asset management information system development. The process of attribute identification is the most important part of this research. This process is a representation of the application of an asset management approach that seeks to capture comprehensive information about park management. The information provided by these attributes is a complete picture. Through these attributes, the information obtained is not only about the existing conditions of green open space alone, but also can be obtained alternative opportunities for green open space management in the future.
5. The asset management approach is a participatory approach, in which the role of all parties must be seen in asset management. This approach also provides space for people who previously had difficulty providing criticism, information to the government in order to get the green open space that is in line with their expectations.
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5. References
[1] van Poll, H., 1997, The perceived quality of the urban residential environment: a multi-attribute evaluation. http://dissertations.ub.rug.nl/FILES/faculties/science/1997/h.f.p.m.van.poll/thesis.pdf
[2] UNFPA, 2007, State of world population.
[3] Wu, J. (2009): Urban sustainability: an inevitable goal of landscape research. Landscape Ecol 25:1–4. http://leml.asu.edu
[4] Byrne, J. dan Wolch, J., 2009, Nature, race, and parks: past research and future directions for geographic research. Progress in Human Geography 33(6):743–765. http://phei.sagepub.com.
[5] Roberts, Nina., 2014, The modern urban park: access and programming; where have we been... where shall we go?, San Fransisco University.
[6] Harnik, P., 2006, The excellent city park system: what makes it great and how to get there.; Trust for Public Land, Washington, DC.
[7] Cranz, G., & Boland, M., 2004, Defining the sustainable park: a fifth model for urban parks. Landscape Journal, 23(2), 102–120.
[8] Walker, C., 2004, The public value of urban parks, Washington, DC: The Urban Institute.
[9] Commission for Architecture and the Built Environment. (CABE), 2005, Start with the park: creating sustainable urban green spaces in areas of housing growth and renewal, CABE, USA. McCormack G.R., 2010, Characteristics of urban parks associated with park use and physical activity: a review of qualitative research, Health and Place Journal, Elsevier.
[10] Cranz, G., & Boland, M., 2004, Defining the sustainable park: a fifth model for urban parks. Landscape Journal, 23(2), 102–120.
[11] Cranz, G., & Boland, M., 2004, Defining the sustainable park: a fifth model for urban parks. Landscape Journal, 23(2), 102–120.
[12] Commission for Architecture and the Built Environment. (CABE), 2005, Start with the park: creating sustainable urban green spaces in areas of housing growth and renewal, CABE, USA. Rabare E., et.al., 2009, The role of urban parks and socio-economic development, case study of Kisumu Kenya, Theoretical and Empirical Research in Urban Management Number 3(12), CCASP Terum.
[13] Indonesian Minister of Internal Affairs Regulation 1 of 2007, 2007, The arrangement of open green space of urban areas.
[14] Association National Recreation and Parks Association (NRPA), 2004, National standards for the level of service and community environment park.
[15] Minister of Home Affairs 5, 2008, Guidelines for the Provision and Utilization of Green Open Space in Urban Area.
[16] Haq., 2011, Urban green spaces and an integrative approach to sustainable environment, Journal of Environmental Protection, 2(5): 601–608.
[17] Wuqiang L, Song S, Wei L., 2012, Urban spatial patterns based on the urban green space system: A strategic plan for Wuhan City P. R. China Shi Song.
[18] Heidt V, Neef M., 2008, Benefits of urban space for improving urban climate, ecology, planning and management of urban forests, International Perspective.
[19] Sorensen  M, Smit J, Barzetti V, Williams J., 1997, Good Practices for Urban Greening, Inter–American Development Bank, http://www.iadb.org/sds/doc/ENV109KKeipiE.pdf.
[18] Bolund P, Sven H, 1999, *Ecological services in urban areas*, Elsevier Sciences: Ecological Economics, 29: 293-301. doi:10.1016/S0921-8009(99)00013-0.

[19] Huang D, Lu CC, Wang G, 2009, *Integrated management of urban green space: the case in Guangzhou China*, 45th ISOCARP Congress.

[20] Paoletti E, Bardelli T, Giovannini G, Pecchioli L, 2011, *Air quality impact of an urban park over time*, Procedia Environmental Sciences 2011(4), 10-16.

[21] Cavanagh, J.A.E, Zawar Reza P, Wilson J, 2009, *Spatial attenuation of ambient particulate matter air pollution within an urban ed native forest patch*, Urban Forestry & Urban Greening 8(1), 21-30.

[22] Yin S, Shen Z, Zhou P, Zou X, Che S, Wang W, 2011, *Quantifying air pollution attenuation within urban parks: An experimental approach in Shanghai, China*, Environmental Pollution 159(8-9), 2155-2163.

[23] Branch, Melville, 1996, *Perencanaan Kota Komprehensif - Pengantar dan Penjelasan*, Gadjah Mada University Press, Yogyakarta.

[24] Purnomohadi, Ning, 2006, *Ruang terbuka hijau sebagai unsur utama tata ruang kota*, Direktorat Jendral Penataan Ruang Departemen Pekerjaan Umum, Jakarta.

[25] Siahaan, James, 2010, *Ruang Publik : Antara Harapan dan Kenyataan*, Buletin Tata Ruang, Badan Koordinasi Penataan Ruang Nasional, Edisi IV (Juni-Juli 2010), p.11-16.

[26] Dwihatmojo Roswidyatmoko, 2015, *Pemetaan neraca sumberdaya air kabupaten sabu raijua, nusa tenggara timur, indonesia*, Geoplanning Jurnal, Diponegoro University, Semarang.

[27] Mohamed S.S, 2009, *The participation of informal settlement communities in city-level policymaking processes in Johannesburg*, Johannesburg.

[28] Diamond, J. et al., 2007, *Managing the city*, Routledge, New York.

[29] Siregar, D.D., 2004, *Manajemen aset: strategi penataan konsep pembangunan berkelanjutan secara nasional dalam konteks kepala daerah sebagai ceo’s pada era globalisasi & otonomi daerah*, PT Gramedia Pustaka Utama, Jakarta.

[30] Akbar, Roos, Lukman Azhari, 2010, *Manajemen taman milik pemerintah kota Bandung berbasiskan pendekatan manajemen aset*, jurnal teoritis dan terapan bidang rekayasa sipil, Institut Teknologi Bandung.

[31] Vogelsang, Vera D, Coombs, Miller M., 2003, *Developing the Governance Capacity of Local Elected Officials Public Administration Review Vol. 53 Iss. 3*, Rakodi, C., 2003, *Politics and performance: the implications of emerging governance arrangements for urban management approaches and information systems*, Habitat International, 27(4), 523-547.

[32] Siregar, D.D., 2004, *Manajemen aset: strategi penataan konsep pembangunan berkelanjutan secara nasional dalam konteks kepala daerah sebagai ceo’s pada era globalisasi & otonomi daerah*, PT Gramedia Pustaka Utama, Jakarta.

[33] Siregar, D.D., 2004, *Manajemen aset: strategi penataan konsep pembangunan berkelanjutan secara nasional dalam konteks kepala daerah sebagai ceo’s pada era globalisasi & otonomi daerah*, PT Gramedia Pustaka Utama, Jakarta.

[34] Akbar, Roos, Lukman Azhari, 2010, *Manajemen taman milik pemerintah kota Bandung berbasiskan pendekatan manajemen aset*, jurnal teoritis dan terapan bidang rekayasa sipil, Institut Teknologi Bandung.