

An Urban Environmental Security Perspective on Jakarta's Waste Management System

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Abstract— Waste disposal has been a major problem in big cities, including Jakarta. Data from the local government shows that the city produces hundreds of tons waste daily, and The problems lie in the substance and the quantity of waste that contaminates the environment and threatens the health of the community. However, inadequate waste management has been ineffective due to several factors. This essay aims to analyze the impacts of a conventional perspective and to envisage the viability of a new perspective of waste management in Jakarta. To do so, I will begin with approaching the three characteristics (suppliers, backyard, and fixers) of the center-periphery relationship that come out of the conventional city development perspective. The new perspective that I propose is shifting from “grey city” to “green city” in the framework of the urban system and its economic and political consequences in order to reshape a city-rural sustainable relationship. The shift will bring insight for better waste management.

Keywords—urban environmental security, waste management, green city and grey city, Jakarta

I. INTRODUCTION

Jakarta serves not only as the capital of Indonesia but also the as the country's economic, socio-cultural and political center. Located on the northwest coast of Java Island, it covers 662.33 km² and consists of 10.177.924 inhabitants that grow approximately 1.02 percent per year [1].

Similar to other megacities, waste disposal is one of the most serious problems in Jakarta. The Statistic Bureau of Jakarta noted that in a day Jakarta produces 7,147.36 tons of garbage, but only 6,491.75 tons were transported to landfill area. The garbage contains 55.37% organic, and the rest is non-organic [1]. The problems lie not only in a substance and a quantity of waste that contaminates the environment but also the community's health quality. Furthermore, the poor waste management practices have been triggering conflict between Jakarta and its surrounding areas.

This essay has two aims. The first is to analyze the impacts of a conventional perspective. The second is to envisage the viability of a new perspective of waste management in Jakarta.

II. RESEARCH METHOD

This research will begin by approaching the three characteristics (suppliers, backyard, and fixers) of the center-periphery relationship that come out of the conventional city development perspective. The new perspective that I propose is a shift from “grey city” to “green city” in the framework of

the urban system and its economic and political consequences in order to reshape a city-rural sustainable relationship. The shifting will bring insight for better waste management.

III. GROWTH MACHINE AND CONCENTRIC CYCLE

Jakarta does not have areas for dumping and processing their waste. Until now, the local government of Jakarta was relying on two locations for dumping and processing of waste; one in Bojong village, Bogor District and the other in Bantar Gebang village, Bekasi District. Beginning in 2001, local residents in those two areas organized themselves and refused the government of Jakarta's plan to build mega, modern waste processing facilities. They argued it would reduce environmental security, reduce health and sanitation quality, and jeopardize the neighborhood. Since then, several horizontal and vertical conflicts among the government of Jakarta versus the governments of the Bekasi and Bogor districts as well as and the Bekasi or Bogor communities, have occurred in those two locations.

Assessing the waste disposal problem that often emerges in Jakarta, there is an obvious logical fallacy in how to achieve economic development in connection with center urban and peri-urban areas or center-periphery relationships. In relation to city economic development, the city stakeholders are characterized in the periphery areas (suburban and rural) as suppliers, backyards, and fixers. This is a common attitude of city stakeholders in justifying the roles of periphery areas.

As a supplier, they are placing the consumer at the center and the producer at the periphery for environmental goods and services. In doing so, their policies are focused on how to increase the consumption capacity of city residents, as well as how to increase the environmental goods and services capacity of periphery areas. But, at the same time, the increase of consumption capacity will increase the production of waste. As a backyard, peri-urban areas are seen as less important areas to develop. Inspired by “trickle-down economics”, a famous economic development axiom, the government believes that by prioritizing economic development at the center the externalities of these processes would be spread out into the periphery areas. As fixers, periphery inhabitants are often asked to participate in maintaining the environment in order to continue their goods and services provided to the center's development.

A modernist center-periphery relationship mentioned above is the reflection of the image of Molotch's [2] frameworks called “growth machine”. According to this framework, urban development is driven by the social

relations of production and accumulation [3]. In a more strict explanation, Friedmann quoted by Pitkin, said:

“the city was no longer to be interpreted as social ecology, subject to natural forces inherent in the dynamics of population and space; it came to be viewed instead as a product of specific social forces set in motion by capitalist relations of production”.

As the impacts of government and other members of the “growth machine” set in, economic growth supporters, urbanization, and natural population growth have increased rapidly over four decades. Gordon McGranahan and Peter Marcotullio [4] wrote: “the most urbanized nations are those with the highest per capita incomes, and the nations with the largest increases in their levels of urbanization are those with the largest economic growth”. The increase in income per capita will stimulate the increase of consumption capacity per capita on environmental goods and services. At the same time, the capability of the government to provide better services for waste management was not equal to the rate of waste production per capita.

Similar to the “growth machine”, the concept of “concentric circles” from an ecological perspective, can be useful to explain the characteristic of suppliers, backyard, and fixers. Burgess, a proponent of the ecological school of thought, found that changes in neighborhoods were caused by resident’s competition for the city space [3]. The competition causes the city to be divided into concentric rings: the innermost ring is the central business, political, and cultural district, surrounded by the industrial sector, higher-status dwellings, and suburb housings (slum, working-class, and commuter). Pitkin said, “as the city grows outward, each ring places pressure on the ring surrounding it to expand” [3]. In the context of Jakarta City and other cities, it cannot be denied there was an overlap between the rings, but in order to give a more clear picture I will identify and separate it into three concentric rings: central business, politics and cultural ring; industrial sector and higher-status dwelling; and suburban housing ring or periphery (see image 1).

If we look at the case, the locus of waste and environmental insecurity has happened in the outer ring of the “concentric cycle” concept. Those areas have a weak bargaining position with cities both politically, economically, and environmentally. For the sake of attracting investments and economic development, the government and city planners put city wastes at the outer ring. In the two areas, the final waste disposal areas are located between two cities. For instance, Bantar Gebang village is situated in the outer ring of Jakarta City, and Bekasi City and Bojong village are also situated in the outer ring of Jakarta City and Bogor City.

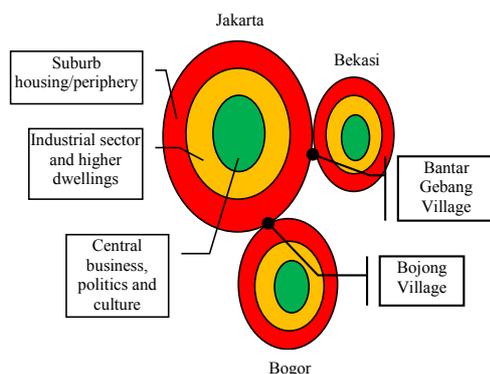


Figure 1 - The Concentric Rings: Jakarta City, Bekasi District, and Bogor District

Those perspectives shaped an unequal relationship between center and periphery in the city, as well as the relation between Jakarta City with surrounding areas (Bogor and Bekasi districts) in political, economic, and environmental arenas. Unequal economic opportunities occur when government policies prioritize economic and social infrastructures in the city area rather than the periphery areas. These infrastructures will stimulate economic prosperity and growth for its residents. Generally, a city is defined by its population or its population density (population-based criteria). This criterion will have consequences on the political realm since the political system is based on representative democracy system. A high-density population area (city and urban areas) will receive higher representations in local or national parliament compare to low-density population area (rural or village). Environmental injustices were taking place when government policies were laid out the rural area as a supplier for environmental goods and services and undesirable land.

In the following sections, I will propose a new approach for city economic development and envisage a new framework for waste management in Jakarta. To do so, I will begin by defining the causes of waste management problems in Jakarta and argue the capacity of a new perspective to tackle these problems.

IV. FROM GREY CITY TO GREEN CITY

From the previous section, I mentioned the three characteristics (suppliers, backyard, and fixers) of a center-periphery relationship, which came as the consequences of utilizing growth poles (capital concentration) and technocratic planning perspectives for developing a city. This perspective formed an unequal political and economic opportunities and risk between the center and periphery areas. Furthermore, in the context of waste management, it has been triggering the tension among center-periphery areas and causing horizontal and vertical conflicts.

The lack of stakeholder consciousness and institutional arrangement of waste management, limited availability of land areas for waste dumping and processing, and low technology are the major causes of waste disposal problems in Jakarta. These causes can be categorized into three levels of limitations, which are a mindset, institutional, and infrastructure.

The city development planning has been segregating humans from their biophysical and social environments. Dividing city areas into several sub-areas/rings which were based on economic function influenced the environmental capacity to produce goods and services. Naturally, the environment is an integrative concept which exists in a balance between bio and physical elements that interact with each other to produce goods and services that can be used for them and human beings. So, losing one element or dividing it from others, can generate imbalances that affect their capacity to produce goods and services. In this sense, both rural and urban areas should provide their own environmental goods and services to support their needs and capacities. Subsidizing environmental goods and services for urban areas by dumping wastes into rural areas will deplete rural environments in the long term, propagate health insecurity, and livelihood changes for rural residents.

Richard [5] said, “antisocial thinking about cities has been the dominant strain of urban discourse throughout most of its two and a half millennia history.” The tendency for antisocial thinking was spread if it not supported by, economic-based human interactions in modern society. In the case of Jakarta, the antisocial behavior is also especially reflected by high-middle class residents. Based on efficiency and effective calculations, the high-middle class usually buys a house that includes excellent facilities for water and sanitation, electricity and waste disposal. As long as they pay the bills, they do not want to know how the developer provides water, sanitation, electricity and disposes of the wastes.

Waste management institutions obtain minor attention from the governor and parliament compared to other government institutions. The governor and parliament give more attention to the institutions that generate revenues for local government. The intergovernmental cooperation between Jakarta City, Bekasi District, and Bogor District is not optimal to mitigate waste disposal problems in those areas. In downstream of 13 rivers, Jakarta receives 300-500 cubic meters of wastes from Bogor and the surrounding areas a day.

The poor of bargaining position of rural residents compared to from city residents could be drawn from their political representation in local parliament. There are three factors related to the degree of political representation between rural and urban areas. Firstly, the number of residents living in urban areas is higher than residents living in rural areas. According to Indonesian electoral law, district magnitude is principally determined by a number of voters (OPOVOV)/One Person One Vote and One Value), not by territory. Secondly, most of the parliament members in Jakarta come from the high-middle class, and they live in urban areas. Third, although Indonesia uses a bicameral system, senators represent their province, not city or village areas. They also come from the high-middle class, and their political arenas are limited to national issues.

V. IV. PERCEPTION AND INSTITUTIONAL CHANGES

The main feature of a new city development perspective is the change from “grey city” to “green city” in the framework of urban systems as human and ecological systems. Basically, a “green city” concept tries to incorporate the environment as a stakeholder in city development planning. Contrary to the “green city”, “gray city” separates humans from their environment and social experiences. Dekay and O’Brien [6] illustrate a “gray city” as a noisy, congested, frustrating, and unhealthy city. Most of the cities in the world can be categorized as gray cities. The similarity of one city to another cannot be eluded since city planners and decision-makers have a strong tendency to neglect ecosystem services and other correlations between ecosystems and human well-being.

Segregating human-ecology relations creates not only environmental damage but also makes human beings more vulnerable to environmental changes. It is because, naturally, a damaged environment has a low capacity to provide goods and services to humans. There are many urban areas that have a poor system and relationship with the ecosystem. A poor relationship between the urban system and ecosystem will involve issues of human well-being and social justice on

three levels [4]. First, unhealthy and unpleasant living conditions will affect vulnerable groups living in urban areas. They will be exposed to the risks when local ecosystem services are lacking, and alternatives are inaccessible. Second, when urban development harms ecosystems in the surrounding region, there are more extensive issues of spatial injustice. In this case, rural residents, as well as their environment, will have negative externalities from urban development. Third, urban activities infringe on distant people and future generations by reducing their access to ecosystem services, because the ecosystems themselves are degraded.

Even though humans have the capacity to damage a city environment, they also have the capacity to rejuvenate a damaged city environment. City parks, green belt corridors, and green building codes are a few of the efforts used to repair city environments. But, the question is whether these efforts are superficial actions or integrated actions. If it is a superficial action, there must be a great shift to the more integrated ones.

Dekay and O’Brien [6] propose, then there should be a shift in our perception, then, I believe a perception change must be followed by institutional changes. Perception changes can only happen if we learn to think ecologically because it is impossible to get us out of the urban ecological crisis with the same kind of thinking that created it. Building a sustainable city can be started by thinking of the city as a living system, not a static one, as the experience of nature, and as a particular place.

As a living system, the city should be seen as a structural and functional pattern of a living system. Structural pattern means, “the form, composition, distribution, and configuration of its parts—rocks, soil, plants, animals” [6]. Functional pattern means, “a relationship among these parts, involving the movement and transformation of energy, materials, and information” [6].

Thinking of the city as experience suggests we have to think of the city beyond the ecosystem services that provide our basic needs [6]. The city not only provides goods and services but can also affect our health and human development. We cannot guarantee our health and human development continuity when we live side by side with a damaged ecosystem. A healthy city ecosystem will maintain our health and human development pace in the future.

Thinking of the city as a particular place means we have to consider the city as a small part of a larger ecosystem and each of these small parts cannot be separated from each other. For example, every little change in the city ecosystem will influence other city or rural ecosystems. Considering this tight relationship, to build a green city we have to shift our individual thinking to contextual thinking that includes others [6].

The individual perception changes proposed by Dekay and O’Brien [6] are not sufficient to shift a “gray city” to “green city”. We have to transform the perception changes into institutional or sociopolitical structural changes. Modern human civilization is driven by institutional or structural mechanisms that are attached to a sociopolitical entity called a nation-state. Modern states have played a major role in constituting, according to their own perspective, what their goals are, the good they want for their citizens, and how,

with their power and authority, they will achieve them. But, many times, their goals are not parallel with citizens needs and the ways they achieve it endanger citizen rights. Scott [7] argues that this occurs because states observe and resolve the problems in a sketchy way, like quantifying and normalizing key social features without trying to encapsulate a more comprehensive perspective.

Knowing and considering the state attitude drawn by Scott [7], the institutional changes become very relevant in shifting a “gray city” to “green city”. In the case of Jakarta, the institutional change can be started by promoting community or neighborhood associations, channeling their interests in policy-making processes, and reforming the political representation of urban-rural residents. These steps can be realized politically since Indonesia has succeeded in squaring the democratic transition process for almost a decade. Learning from Ciudad Guyana, Venezuela, a post-authoritarian (democratic) era provides good momentum for reshaping city planning from central to local and from technocratic to participatory planning [8]. Authors and Affiliations

CONCLUSION: SHARED WASTE MANAGEMENT

The idea of shared waste management is rooted in risk society and discursive democracy perspectives. Through these perspectives, waste management can be framed in a “green city” concept which is driven by sharing risks-responsibilities and collegial relations between urban and surrounding areas in responding to waste externalities.

The concept of risk society comes from Ulrich Beck’s work Risk Society [9] and describes the continuity of industrial society. Risk society was not built as a new structure but is rather an extension of old sociopolitical structure that was already set up during modern industrial society. The differences between the two are the idea of the relationship between agents and social structures, and the level of consciousness of the individual to risks wherein the risk society they are not only distributing wealth but also risks. The two characteristics are rising in risk society because of the capacity of human reflexivity to modernization.

If the risk society perspective gives a good rationale for citizens on what should be shared, discursive democracy offers governments and citizens the operational value and tools to make it work. Discursive democracy, a concept proposed by Dryzek [10], is another keystone of shared waste management. Basically, discursive democracy puts discourse as the center of democracy. It comes from the assumption that the deepened democratic process requires intense communication exchanges in social contexts, including the definition of rules and institutions, processes of decision making and everyday interactions [10].

In the “green city” concept there are no clear boundaries between urban ecosystems and rural ecosystems because both are living systems and made up and interrelated with each other. This will bring us to an idea of sharing risks and responsibilities in waste management. Sharing risks and responsibilities mean every resident, no matter where they live, has the same quality of risks on waste externalities. Therefore they have the same responsibilities for managing their own waste.

Through long and complex negotiations, Jakarta City, Bogor, and Bekasi District finally came to an agreement on co-management of final disposal areas at Bojong and Bantar Gebang village in 2006. The agreement has to be followed through a reconciliation process at the community level in those areas, and the attitudes of city residents must be changed. Jakarta government should urge their residents to manage and recycle household waste before disposing of it into the final disposal area. Jakarta government should be promoting household associations and place them at the forefront of community waste management. Lastly, these practices should be institutionalized by regulations.

In order to minimize the political inequality of urban-rural areas, city and district governments should promote a “collegial political voice” in every political domain (local parliament and local government). The collegial political voice can be realized in two ways. First, there should be a reform of legislative candidates and district magnitude. Election law should be strictly arranged to say where the candidate comes from and who they will be representing. District magnitude should not only be determined by the number of voters, but also by the territorial representation (urban and rural area). Second, city and district governments have to open up the political space for community associations, especially those which represent rural residents, in policy-making processes. A deliberative or discursive policy-making process is the best way to maximize community participation and engagement in city planning.

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