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GIVING WAY TO WATER
Seeking Creative Collaborations for a Sustainable City

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ABSTRACT

This paper focuses on the Indonesian urban sanitation sector by placing it within the wider urban infrastructure sector and spatial system. In this paper, ‘sanitation’ is limited as domestic wastewater collection and treatment. Through our understanding that the sanitation sector and its problematic are interdependent with other infrastructure networks within urban spatial development, we will not see the problems as merely technical ones, e.g. lacking of finance, management capacity and technological solutions. This paper aims to 1) show that unevenness of wastewater infrastructure development is rooted in uneven spatial development; 2) show that defining ‘sustainable city’ as a future path for planning our urban environment necessitates more attention to the sanitation sector with its economical, social and ecological aspects; 3) seek a framework for identifying creative collaborations that can inform policy making in Indonesian water and sanitation sector.

Keywords: urban sanitation, networked infrastructure, social innovation

INTRODUCTION

The Indonesian water and sanitation sectors have been seen as separate systems and do not receive the same attention by policy makers and managers. In the global South especially, sanitation has consistently been a low priority either within the field of water-sanitation (see WHO & UNICEF, 2006) or the broader urban infrastructure sector. While our groundwater and open water ways are increasingly polluted, national budget allocations for sanitation development, in terms of facilities for wastewater collection and treatment, have been extremely low. In 2006, the Indonesian National Planning Board started to promote sanitation among local government through the Indonesia Sanitation Sector Development Project (ISSDP). It is expected that greater attention for the sector will be a start to acquire a more important place within local government’s budget. With the sanitation strategy, it is assumed that the cities would attract some capital investment for related physical development, e.g. sewerage system.

But, financial issue is just one among other complicated aspects of the water and sanitation infrastructure development (Tam, 1999). Institutional matters are among the most complicated issues (Ibid. 1999). It has been a massive debate in Indonesia recently, about who should be responsible to provide sanitation services. Although ‘sanitation’ has been present in the national policy debates, there is a need for collective action within the lowest level administrative units. The socio-
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A technological issue is another problematic. City-wide central wastewater treatment with its socio-political system has been proofed as not always suitable (see Mara & Alabaster, 2008; Parkinson & Tayler, 2003). Most cities in developing countries have reached certain size and density that are not appropriate anymore to be served by centralized city-wide wastewater management. On the other hand, sanitation cannot rely on individual efforts; a family cannot protect members from insanitary practices of neighbours. If the state, through the municipality, is not able to organize family sanitation, the responsibility cannot just be thrown into individual households.

This paper unfolds an argument about the Indonesian urban sanitation sector by placing it within the notion of the wider urban infrastructure sector and spatial system. Through our understanding that sanitation sector and its problematic are interdependent with other infrastructure networks within urban spatial development, we will not see current development stage of the sector as merely technical matters (e.g. lacking of finance, management capacity and technological solutions), problems of corruption, and/or consequence of population growth as it is advised by the Malthusian approach (cf. Kooy & Bakker, 2008b).

First, this paper aims to show that unevenness of wastewater infrastructure development is rooted in uneven spatial development. With an understanding that water and sanitation are inter-dependent systems, the second aim of this paper is to show that defining a ‘sustainable city’ as a future path for planning our urban environment necessitates more attention to sanitation sector with its economical, social and ecological aspects. At the end, this paper aims to propose a framework for identifying creative collaborations that can inform and support policy making in the Indonesian sanitation sector. The three aims are inseparable and to achieve them this paper is divided into three sections. The first examines the relationship between water-sanitation, urban infrastructure and spatial development. We move into the second part by bringing the Indonesian cases, especially Jakarta, into the discussion. The last section of this paper is to devise the broad concept of sustainability by utilising water-sanitation as strategic issue.

It is not the task of this paper to provide a solution-oriented framework for any particular Indonesian city. This paper is mainly developed as a foundation to guide the agenda of further case-study research that I will conduct within the next two years in Indonesia. I primarily rely on secondary sources to develop arguments in this paper. However, the author’s professional contribution in Jakarta during August 2009 for Oxford Policy Management (OPM) has shaped this paper. OPM conducted a global study on the Political Economy of Sanitation for the World Bank/ Water and Sanitation Program.

**WATER INFRASTRUCTURES AND THE URBAN INFRASTRUCTURAL NETWORKS**

Networked infrastructures, chains of physical elements that are mediating flows within urban regions, are embedded in space, in mind and sustaining the socio-technical geometric of power (see Graham, 2000b). Modern infrastructure, e.g. water piping, sewerage and roads, has its origin in the development of industrial nations, supported by the welfare state and cannot be separated from the concept
of the modern city and the notion of public health (Gandy, 2004; Melosi, 2000; Gandy, 1999; Porter, 1994). Progress of infrastructure development has been the norm to measure economic achievement, symbols of political legitimation of the ruling regime (see Kaika & Swyngedouw, 2000; Swyngedouw, 1999) and the means to develop human capital (see Headrick, 1988). The early model of modern infrastructure in industrialised Europe was brought to the other part of the globe through modern colonisation; within these different atmospheres, the model was gradually reshaped either fundamentally or technically and either with better or worse impacts (cf. Ravesteijn & Kop, 2008; Melosi, 2000; Home, 1997).

In the countries of origin, the model of modern infrastructure has been facing several dynamics and transformations. Graham (2000a) raises the fact that urban infrastructure development in the global North is no longer organised by the national state as a big bundle of services. Services are now unbundled, following the decentralisation process of political and regulatory regimes that used to be the supporters of the public infrastructure monopolies. Across the globe, networked infrastructures are gradually reconstructed as standardized and universal since the development of networked infrastructures confirms the reconstruction of governance (the state and the market dominated by global enterprises) through various types of privatisation and liberalisation (Argo & Laquian, 2004; Graham, 2000a). Urban infrastructures are normalized within the broader construction of urban consumption and culture (for discussion regarding this, see also Rogerson, Findlay, Paddison et al., 1996b). The infrastructure market goes only to areas with greater ‘needs’ and purchasing powers. Concentrations of infrastructural resources in so called ‘premium networked spaces’ (Graham, 2000a) are parts of the efforts to build new images of city centres and to increase the competitiveness of the city in attracting the ‘spatially mobile investors’ (Rogerson, Findlay, Paddison et al., 1996a). These processes are bound up with the segregation within the fabric of contemporary cities (Graham, 2000a; see also Argo & Firman, 2001).

Although water-related infrastructure networks fit the characteristics of urban infrastructure in general, Graham (2002) points that it could be the least ‘typical’ sector among other networked infrastructure. The water sector has strong and resilient network monopoly characteristics, thus has limited alternatives to the networked infrastructure; for example, it will not be economically sound to have two competing pipe-networks along the same lines (Ibid., 2002). Competitions, or more appropriate to be called as alternatives, could be in a form of water vendors or water in bottles and gallons. This is not the case for other networked infrastructures. Communication towers have been built in any corner of the cities and signals from different operators are transmitted in several layers within the atmosphere. On the same railways or roads, different transportation companies are operating their busses and trains.

There is a more fundamental reason why we cannot easily liberalise the water sector. The world’s water supply is finite (see Barlow, 2001) while an easy and safe access to clean water is necessary to improve and maintain the economic and social conditions of every household. Despite for domestic use, the limited water source is also for agriculture sector, industrial use, service sector and the ecological systems. As limited resource for fundamental needs, water has to be managed collectively so that in principle everyone has access to it. For this, we certainly need regulation.
SANITISING INDONESIAN CITIES FOR AN INTEGRATED URBAN SPATIAL DEVELOPMENT

Indonesian Urban Water and Sanitation Sectors and the Uneven Spatial Development

In the previous section, we have discussed that the process of global economic restructuring has caused the unevenness of infrastructure development (Graham, 2000a). In Indonesia, we can see the phenomena through the commercialisation and privatisation of water sector that have been seen as the panacea of the sector’s problems (Bakker, 2007; Argo & Firman, 2001). These processes are incorporating the expansion of the centralised conventional technology. Problems that are defined by the Indonesian government to be addressed by the commercialisation and privatisation processes are (Argo & Firman, 2001): 1) inefficiency within the state water companies; 2) incapability to provide water for all, including the urban poor; 3) groundwater depletion due to the extensive use of wells. None of the problems are alleviated after the implementation of the privatisation scheme. In fact, 1) privatisation could not unchain the sector from corruption and collusion (Ibid., 2001); 2) privatisation makes the water price far from accessible by the poor since water should be treated as an economic good and the water tariff should reflect the cost of production and distribution (Argo & Firman, 2001; Barlow, 2001); 3) municipality water companies are also relying on groundwater and people subscribing to the companies still have to combine the piped-water with water from wells, street vendors and/or bottled water (Kooy & Bakker, 2008a; Argo & Firman, 2001; Argo, 1999).

The water sector commercialisation and privatisation in Indonesia, as if we receive this as solution to the water crisis, has not been accompanied by the private sector’s responsibility to also manage wastewater. The following is Jakarta case as an example. In 1997, one of the largest water and sewerage privatization schemes in the world were launched in Jakarta (Argo & Laquian, 2004). Thames Water Overseas Ltd. and Suez Lyonnaise des Eaux allied themselves with two local Indonesian companies to run the Jakarta water and sewerage system (Ibid., 2004). But, the overall scheme which involved comprehensive coverage for sewerage system has not (never) been implemented yet; the companies are now just dealing with clean water provision. In developed countries, both services are normally provided under the same responsibilities. Unlike water that is considered as a product, people in Indonesia are not willing to pay for wastewater collection and treatment which is considered as a loss for the water companies.

The World Bank reports that sanitation coverage in Indonesia is 57% which is lower than those of its neighbouring countries, i.e. the Philippines and Vietnam (Hutton, Rodriguez, Napitupulu et al., 2008). ‘Sanitation coverage’ means easy access to ‘private and safe place to urinate and defecate’ (WHO/ UNICEF, 2010; Napitupulu & Hutton, 2008). The figure is quite generous if we consider that the ‘management’ does not mean proper waste-water treatment. In urban areas, household human wastes goes into septic tanks (59%), pits (21%), rivers and lakes (13%), and ponds, rice fields and others (7%) (Blackett & Sukarma, 2005). Most of the septic tanks are leaking, polluting the soil and ground water, and
possibly harm people’s health since there are still significant numbers of urban populations that are relying on shallow wells (cf. Argo, 1999). Trucks of municipal agencies or private operators emptying the septic tanks do not always dispose the sewage in a proper way. It is often the case that rivers or rural areas become the disposal points. The degradation of open water bodies causes the poor who is relying on surface water lose their water sources. The decreasing quality of their water resources has changed their real income because, for example now they have an additional external cost due to any illness caused by the bad water consumption, or have to pay for water from vendors.

Box 1
Jakarta uneven spatial development and fragmented water and sanitation services
Source: Author based on Kooy and Bakker, 2008a; Bakker et.al, 2008; Texier, 2008; Jakarta Municipality Maps

The socio-technological water management system brought by the Dutch for early development of Indonesian cities had not incorporated centralized sewerage systems. Today, only nine cities have centralised sewerage systems and many of these only cover a tiny area and the treatment plants are under-utilised. In the case of Jakarta, the sewerage system operated by the local wastewater company is covering only 2% (see Box 1) of the metropolitan area. The coverage area is
occupied by mainly tall buildings with office and business functions. It was argued that the commercial functions should be served first in order to give the operating company benefits that can be reinvested for providing subsidized service to the residential areas and later on to expand the system.

Problems of water and sanitation sectors are not merely matters of financing and managing the water and wastewater companies. Referring to our discussion in the first section of this paper, unevenness within the water and sanitation sectors is following unequal spatial development, which has been going on since the Dutch colonialism (see Kooy & Bakker, 2008a). While massive sprauls have been occupying water-absorbing areas and requiring inefficient infrastructure networks (Argo & Firman, 2001), the development of water-related infrastructure serves mainly important economic centres, upper-class residential areas, and governmental buildings. Box 1 illustrates the relationship between uneven spatial development and fragmented water and sanitation services in Jakarta.

Towards An Integrated Urban Spatial Development

An integrated approach for policy making is required to incorporate together water, sanitation and other urban infrastructural sectors in order to improve the performance of each sector and the quality of urban life. It is relatively easy to integrate water and sanitation sectors, in terms of managing the issues within the planning processes. It is clear that policy making within the water sector cannot neglect the sanitation sector anymore. The lack of wastewater management within the uneven spatial development deteriorates the quality of our water resources and the poor are the most disadvantaged group in the process. If we stick to the concept that infrastructure development is to balance the inequalities (Beatley, 1988), we have to foster infrastructure development for the sanitation sector in order to secure water resources for the city, including for the poor. Apparently, as water and sanitation cannot be separated from urban spatial development, integration of these two sectors with the other urban infrastructural sectors is needed. As sectoral activities are embedded in space, spatial planning and its instruments should assure this integration. I propose ‘wastewater’ as a central issue in urban spatial planning due to the following arguments. Due to the limitation of space, I need to explore these points in another opportunity.

First, the worst sanitation condition is located in several pockets of housing that usually have the lowest quality of space due to the absence of other types of infrastructure, e.g. access roads and open public space (consult Box 1). Addressing such areas would lead to quality improvement of the space and hence, upgrade the city environment. Second, the alternative solutions for wastewater management have the characteristics that would open the opportunities to involve lower government level and community participation within the planning process. The centralised city-wide sanitation system has been proved as not suitable to implement in the developing countries while the individual system is vulnerable (polluted and drying wells, leaking septic tanks, etc). A new paradigm suggests that water supply and sanitation provision in urban areas should be organised for groups of households, not to individual households (Mara & Alabaster, 2008). Third, the development of decentralised wastewater system means a creation of new urban space. Any model of the decentralised wastewater system requires certain area of land for the new facility. This piece of land and the wastewater
management facility can be seen as potential open communal space, which is lacking in the Indonesian big cities.

Although having integrating potentialities, spatial planning process is never neutral; it will not give equal attention to all sectors and this is just one of the consequences of not giving equal opportunities for all actors to influence the process. In the following section, we discuss potential conditions from which collaborations would emerge at community level to achieve innovations for the problematic water and sanitation sector.

SEEKING COLLABORATIONS FOR A SUSTAINABLE CITY

The concept of ‘sustainability’ remains ambiguous and due to its broad interpretations, it is kept being used widely without being a powerful explanatory tool and an effective guiding principle for a better habitat (see Swyngedouw, Kaika, & Castro, 2002; Campbell, 1996). It is only when there is clear explanation of ‘who decides what needs to be sustained for whom, where, and why’ (see Swyngedouw, Kaika, & Castro, 2002 referring Robinson 1994), that ‘sustainability’ becomes a powerful and useful concept. Hence, producing a sustainable city necessitates involvement of ‘all relevant social actors at geographical scales’.

Regarding the water sector, we need to assure that sustained water circulation is not separated from other sustainability-related processes (Ibid., 2002). I have promoted wastewater as a central issue for an integrated urban spatial development due to the economic, social and ecological aspects. My approach basically advocates the sustainability of the communities who have been excluded from the policy making processes. While the state alone is not able to increase the performance of the water and sanitation sectors, people have often organised their own water and sewage outside the playing-field of the state and big private enterprises. These practices need to be organised so that they are improved, sustaining and moving beyond the sectoral needs satisfaction.

Moulaert et al (2010) explores conditions, prerequisites, and neighbourhood dynamics lead to social innovation that not only to fulfil the satisfaction of basic needs but may also lift local initiatives to the scale of the city and empowering social processes by changing social relations. Social innovation emerges from mechanism of crisis and recovery, efforts to overcome exclusion from formal decision-making and low quality of life, and with the goal of needs satisfaction (see Moulaert, 2010). Within this concept there is an active meaning of ‘community’: enablers of citizenship rights in social life (political, social, and basic needs) with recognition of citizens’ responsibilities (Moulaert, 2010); this concept criticise ‘conservative’ definition of ‘community’ as a group based on politics of identity such as religions, ideologies, professions, ethnic, etc (Ibid.). Strong collective identity within stable social relationship is often seen as necessity for ‘collective action’ (cf. Beard & Dasgupta, 2006). In fact, case studies explored in Moulaert et al (2010) are stories of social innovations within neighbourhoods (‘spatialised urban communities’) that are rarely socio-culturally homogenous. The concept of ‘social innovation’ I discuss here contains
‘sustainability’ since it necessitates institutions for enabling and maintaining such initiatives within the state-regulated political system; and for democratic decision-making process and necessary transformation in governance.

CONCLUSION

Framing our discussion on water and sanitation sectors within the theorisation of urban infrastructural networks and spatial development allows us to analyse the problems across boundaries of political and geographical territories. Water sector and its infrastructural networks have characteristics by which we could start either theorising the dynamic of contemporary urban regions or for bridging collective imaginations on our future habitat. Not only the financial problems or government’s low capacity cause the slow pace of water and sanitation infrastructure development. If there are to be social causes there should be social solutions. Spatial planning processes need to create rooms for both explorations of social and technological solutions that involve the affected communities. Prior to this, we need to identify potentialities within each level of governance that together could form creative collaborations to achieve innovations against the problematic water and sanitation sectors and the fragmented urban spatial developments.

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