

Domestic Wastewater Services and Facilities in Indonesia: Policy and Regulation Role

Dwina Roosmini¹ and Suphia Rahmawati²

^{1,2} Environmental Management Technology Research Group, Faculty of Civil and Environmental Engineering, Institut Teknologi Bandung, Jl. Ganesha 10, Bandung, 40132, Indonesia
email: droosmini@bdg.centrin.net.id, suphia_rahmawati@yahoo.com

Abstract

Indonesia still faces many sanitation problems; one of the crucial problems is poor domestic wastewater facilities and services. Domestic wastewater pollution causes the spreading of waterborne diseases as the major cause for infant mortality. The effectiveness of wastewater management and sanitation facilities and services are highly influenced by government policy and regulation in both national and local levels. Policy and regulation in each wastewater management stages which are started from planning or programming, design, construction (design and financial aspects), operations and maintenance and monitoring were identified and analyzed. Results showed that there are no clear institutional roles in wastewater management. Lack of coordination between central and local government also identified. There are no clear regulation and policy that state about operational and maintenance of domestic wastewater management. Wastewater management awareness in community and government are still low. Coordination within government agencies which are related to domestic wastewater is not well implemented. In terms of financial aspect, domestic wastewater services and management was not the priority for central and local government budget. In monitoring aspect, effluent and stream standard regulation was not well implemented. There are no punishments or rewards for the local government with poor or good domestic wastewater management. No clear institution which has the task to monitor the implementation of standard.

Keyword: policy, regulation, domestic wastewater

Introduction

Public health qualities are depending on sanitation condition, waterborne diseases are spreading because of poor sanitation. Improper domestic wastewater management will cause the spreading of microorganism from one infected person to other people through unsafe water or food. Ministry of Health reported that Diarrhea and gastroenteritis was the ten main diseases of inpatient in 2005 followed by typhoid fever and paratyphoid fever (Ministry of Health, 2007). In terms of healthy sanitation facilities coverage, Indonesia was in 7th rank out of 9 countries in South East Asia.

Existing condition of sanitation in Indonesia is apparently stagnant from time to time because the sanitation development cannot catch or even surpass high population growth. After 7 times periods of five yearly development program and long term development program until year 2005, the number of sanitation facilities compared to population growth are not increase

even tend to decrease in some places in Indonesia. Sanitation facilities coverage are as follows: 46% in 1990, 52% in 2002 and 55% in 2005.

The built sanitation facilities are not sustained in operationally because of many factors. ADB (2004) reported that in several communities in Indonesia less than 4 years after project completion, the use of the facilities are abandoned.

The effectiveness of wastewater management and sanitation facilities services are highly influenced by government policy and regulation in both national and local levels. There are several stages to achieved better urban domestic wastewater management: (1) planning and programming, (2) design, (3) constructions, (4) operation and maintenance, and (5) monitoring. The clear frame work should be designed to regulate this management process smoothly. On the other hand, program for each agencies/institutions related with sanitation also an important aspect to be considered. Good coordination and synergized between each related agencies/institutions will support the implementation of sanitation management

The aim of this study is to identify and evaluated the existing government policy and regulation which are related to each stages of domestic wastewater management. The institutions role and practiced are also evaluated.

Methodology

This study is conducted as desk study by collecting the data from many sources related to domestic wastewater management. Existing policy and regulation regarding sanitation in central and local government are identified. These data are analyzed according to the stages of domestic wastewater management. Standard and manual which are have correlation with wastewater and sanitation facilities also collected and evaluated. Implementation of policy and regulation and its factor that influenced also analysis using secondary data from agencies such as Statistic Centre Bureau, Ministry of Public Works, Ministry of Health. Coverage access of wastewater facilities in several area of Indonesia is an excellent indicator for wastewater management performance.

Discussion

Wastewater development in Indonesia was starting since Repelita (five yearly development program) in 1945-1980, through Kampong Improvement Program (KIP). In Pelita III until VI (1980-2000) program was continued focusing on the development of onsite sanitation facilities and rehabilitation on central system. Several pilot projects were conducting in several cities such as Tangerang, Jakarta, Mataram, Balikpapan, and Banjarmasin. Community Based Development System is implemented in Malang and Semarang City (Ministry of Public Works, 2003). In 1999-2000 central governments give the authority to local government as the policy of decentralization are conducted. Local government role in conducted wastewater facilities are increase as decentralization policy are implemented.

National Action Planning (Ministry of Public Work, 2003) reported the condition of wastewater access in Indonesia, onsite sanitation are dominant method that are use both in urban and rural area. Off site sanitation method are used in urban area only and mostly is the old facilities. Access to wastewater facilities in Indonesia in 2000 are shows in Figure 1. As the onsite facilities are built privately, the construction and operation of the facilities can not

monitor easily. In some places like West Java Province the domestic wastewater are dominant pollutants to surface water (Wangsaatmaja, 2004).

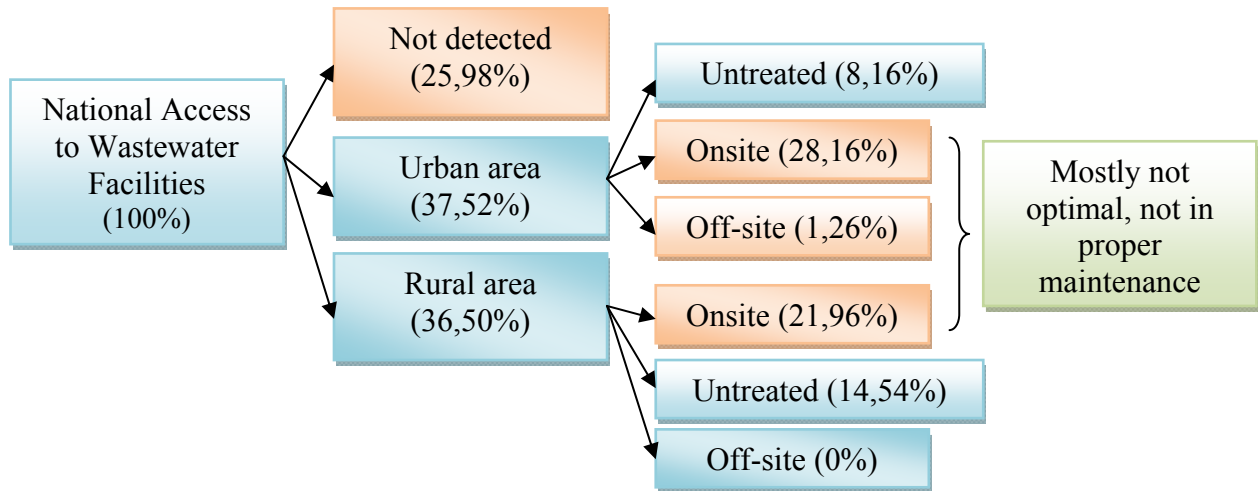


Figure 1. Access coverage of wastewater services in Indonesia at 2000

Source: Ministry of Public Work, 2005

The distribution of onsite sanitation facilities in each province in Indonesia are show in Figure 2, in several province the facilities are lower than 20%. West and East Nusatenggara, Maluku and Papua were the province with onsite sanitation facilities lower than 20%. Other province has the onsite sanitation facilities around 50-60%.

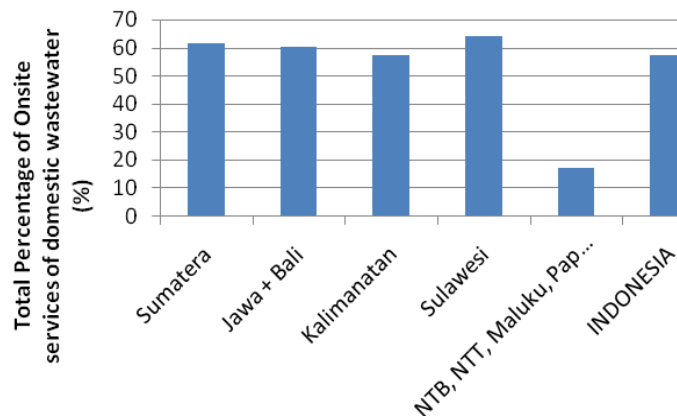


Figure 2 Total percentage of onsite services of domestic wastewater in Indonesia

Source: Statistic Central Bureau, 2000

Figure 3 are figure out the methods use for onsite sanitation facilities in several provinces in Indonesia. The main method used is septic and the other method is latrine. Coverage of septic

tank used in urban area is higher compare to rural area. In several provinces the septic tank coverage is higher than 50%.

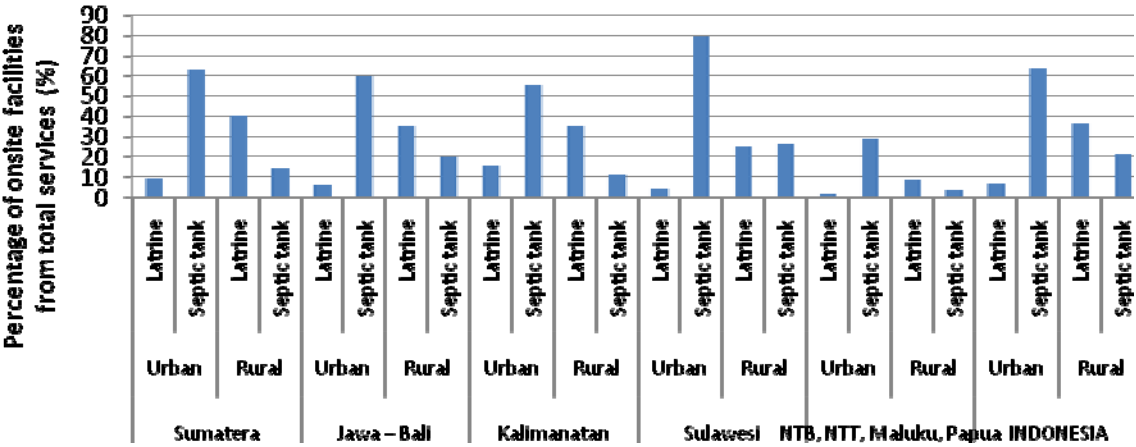


Figure 3 Percentage of onsite services of domestic wastewater in Indonesia

Source: Statistic Central Bureau, 2000

In decentralization period, the sanitation becomes the responsibility of the local government in provincial as well as district level (Law 32 in 2004, article 13 and 14). Law 32 in 2004 regulates the responsibility of local government in sanitation comprise of: designing and monitoring the construction, regional planning, providing facilities, and environmental management. The function of local government are monitored and assisted by central government, as written in Law 32 in 2004 article 217. Central government should deliver the norm, manual and standard (NSPM), training and course. Nationally, local government function in assisting and monitoring are coordinated by the ministry of home affair (article 222 Law 32 in 2004). In regency and city level coordinated by governor and in district level by the head of city.

Based on Law 32 in 2004, domestic wastewater management becomes the responsibility of local government at provincial level as well as city level. Several laws are regulating the importance of domestic wastewater management in terms to protect environmental health and water pollution. Law 7 in 2004 describing the water quality management and water pollution protection in terms of enduring and recovering water resources. Article 24 (Law 7 in 2004) regulate that people and business organization are prohibited to do any activities that may degrade the water resources.

Currently, the conditions of domestic wastewater facilities in cities are deprived. The concern of local government who responsible for the business are low and the consequences is the developments of domestic wastewater facilities are very slow. The GOI had committed to the MDG target in 2015, this commitment are delivered in Rencana Pembangunan Jangka Menengah (RPJM-Mid Term Development Program) written in Government Rule - PP 7 2005. RPJM target for domestic wastewater is open defecation free in all cities in 2009; increasing the utility of IPLT and IPAL (Wastewater Treatment Plant) up to 60%; decreasing river water pollution form feces up to 50% based on 2004 condition and centralized sewerage system development in metropolitan city. To achieve those targets, Bappenas, Ministry of Public Works and Ministry of Health have been developed their strategies and plans.

Bappenas creating a National Policy for *Community Based Drinking Water Supply and Environmental Sanitation* and *Institutional Based Drinking Water Supply and Environmental Sanitation*. In other side, Ministry of Public Work setting the National Action Plan of Wastewater and the Ministry of Health establish the National Planning in Environmental Health 2005-2009.

So far, there isn't specific law in regulating city domestic wastewater management. Government decree no. 16 in 2005 (PP No. 16 Tahun 2005) regulates the Drinking Water System Development: protecting the raw water, potency of solid and liquid waste to pollute the raw water. Law 23 in 1992 regulate that Ministry of Health are responsible in securing the solid waste as well as liquid waste in attempting environmental health as stated in article 22 that: "The environmental health is conducted to create the quality of the healthy environment in the public place, settlements, working environment, public transport and other environments including effort for a better water and air, preventing from solid waste, liquid waste, gas emission, radiation and noise, controlling diseases vectors and other efforts or security on the above matters".

People right for over well being and environmental health are regulated by Law 23 in 1997 article 5, chapter V regulate the conservation of environmental function and chapter VI for the requirement of environmental arrangement.

In terms of financial arrangement, local government has their authority to manage their financial as stated in Law 25 year 1999 Financial Balance between Central and Local Government including the determination of the health development priority by their own appropriate as the capability, condition and local needs. Government decree (PP No. 82 year 2001) regarding the water quality management and controlling of water pollution, among others states there will sanction of any action polluting water and the authority of the Bupati/Walikota to issue permit on liquid waste utilization.

At ministry level, there is a set of decrees or ministerial decree has also been developed, including: Decree of Ministry of Health No. 907/2002 regarding qualification and controlling of drinking water quality, which need further local regulation (Perda) to follow up.

Ministry of Health Decree (Kep.Menkes) No. 1457/2003 regarding Minimal Standard of Health Services in Kabupaten/Kota, among others those regarding: Preventing and mitigating diarrhea, dengue fever, environmental health and hygiene service at public place as well as appointed bupati/walikota in charged on the health service in accordance to this Minimum Services Standards.

Strategic Plan of Ministry of Health regarding the availability of healthy environment program, which include: provision of clean water facility and basic sanitation, maintaining and controlling of environmental quality, controlling of environmental pollution and healthy area development. These strategic plans are stated in Ministry of Health Decree (Kep.Menkes) No. 1274/2005.

In addition, technical guidelines/technical or manual has been developed, some of which developed in cooperation with other ministries with financial source from international institution, including: CLTS, Community Lead Total Sanitation, equipped with module and the team; MPA Movement (Methodology Participation Assessment), and PHAST (Participatory Hygiene Transformation); Guidelines on Sanimas (Community Sanitation); Technical Guideline (Juknis) on air and liquid waste quality assessment (By Dirjen P2MPLP

in 1994); Guidelines on Installation of Hospital Liquid Waste Management (Dirjen Yanmedik, 1993).

The law on spatial planning (UU Tata Ruang) currently is on changing process including the preparation of related government regulation (PP). The draft (RUU) or government regulation (PP) explicitly not mentions any sanitation aspect. The arrangement of such aspect will be covered on the arrangement of spatial circulation (people, service, goods including waste). It is proposed that waste aspect should be officially included so that the opportunity for changing in particular of the RPP is widely opened.

Law/regulation compilation is show in Table 1.

Table 1 Law and Regulation Relating to the Sanitation

No	Law/Regulation	Stipulation
1	UUD 45: Article 33 Alinea 3	‘Land and water and the wealth beneath governed by state and utilized for the greatest benefit of people welfare’
2	UU No.23 Year 1992: Chapter IV, Article 9 Article 10 Chapter V, Fifth Part. Article 22 Article 38	Health Government has tasks to mobilize community participation in administering and financing of health Efforts to realize optimum health for community as a preventive approach Environmental health covering water and air pollution control, protection against solid waste, liquid waste, gas emission, radiation, and noise, control of diseases vector, and other protection. Environmental health, diseases abatement and health education represent part of health efforts. Health education is administered to improve knowledge, awareness, willingness, and capacity for health life
3	UU No. 23 Year 1997 Chapter III, Article 5 Clause 1 Chapter V, Article 14-17 Chapter VI	Environmental Management Each person has right over well being and health environment Protection of environmental function Requirement for environmental arrangement

No	Law/Regulation	Stipulation
4	Law No. 22 Year 1999	Local Government: Province, Kabupaten, and Kota have authority to govern and administer local community interest according to their own aspiration based on community aspiration.
5	Law No. 25 Year 2000	National Development Program (2000-2004) on health environment, health behaviour, and community empowerment. Settlements infrastructure and facilities development program at local level.
6	Law No. 32 Year 2004	Local Autonomy
7	Government Rule No.25 Year 2000	Government and provincial authority as autonomous district
8	Government Rule No.7 Year 2005	Rural development Acceleration of infrastructure development
9	Government No. 16 Year 2005	Development of Water Supply System which integrated with sanitation infrastructure and facilities development Wastewater infrastructure and facilities Solid waste infrastructure and facilities related to raw water source protection
10	Ministry of Health Decree No. 907 Year 2002	Requirement for Healthy Drinking Water Type of drinking water
11	Ministry Public Work Decree No. 409 Year 2002	Administration of KPS (Government-Private Sector Cooperation) in administration and/or management of water supply and sanitation
12	Ministry of Environmental Decree No. 111 year 2003	Requirement and procedure for permit of wastewater facilities discharge
13	Ministry of Environmental Decree No. 112 Year 2003	Domestic wastewater quality standard

It appears that at the moment, the current laws and regulations are not working properly in the various sectors responsible for the domestic wastewater management. Each sector (agency) based on its purpose (program) tried to prepares a strategic plan with the same aim for improved wastewater management but it seems need synergized one another to implement the program to avoid the overlapping programs and to increase the services.

Identified related laws and regulation in each domestic wastewater management phases:

1. Central Government Policy:

- Decentralization – Local Government Autonomy (2004)
- Development of Community Based Water Supply and Environmental Sanitation (2003), by National Development Board
- Development of Institutional Based Water Supply and Environmental Sanitation (2004), by National Development Board
- National Action Plan in Wastewater (2003), by Ministry of Public Work
- Healthy Indonesia 2010 (2003), by Ministry of Health

2. Planning: No specific law available in planning stages of domestic wastewater management, so far the planning are base on:

- Law 32 in 2004 (Local government autonomy): article 13 and 14 regulates the responsibility of local government in development, public service and environmental management, furthermore article 217 stated that local government function are monitored and assisted by central government
- Law 23 in 1997: Environmental Management
- Law 7 in 2004 (Water Resources Management): article 23-25 regulate the water pollution control
- Law 23 1992 (Ministry of Health): article 22 stated the protecting community from wastewater

3. Design and Construction: No specific regulation identified, central government set up the Norm, guideline and manual, so far local government with regulation on wastewater are very limited, Law 7 year 2004 regulate that wastewater development should be integrated with water supply, and the wastewater management included in housing development.

4. Operation and Maintenance: No regulation identified on institutional mechanism in operation and maintenance, several city set the wastewater tariff in related to water consumption (Stated own water supply company). There no specific institution that has the responsibility to make the built infrastructure sustain

5. Monitoring: Limited law/regulation that regulate the performance of built facilities, the institution responsible also not well regulate, several decree identified are: Government Decree 82, 2001: water quality management and water pollution control; Ministry of Environmental Decree 111, 2003: procedure of wastewater disposal consent to surface water; Ministry of Environmental Decree 112,2003: effluent standard for domestic wastewater

Local governments rule that supporting domestic wastewater services regulation are limited as seen in Table 1. Water quality degradation in surface and ground water is an indication of poor wastewater management in every management process, especially aspects of monitoring such as construction, and the performance of built infrastructure (effluent standards, surface water standards, etc).

Conclusion

Policy and regulation which related to domestic wastewater management in Indonesia are not well implemented in many sectors that responsible to the wastewater services.

Law or regulation are need to be develop to increase the coordination between related institutions in domestic wastewater management both in local and central government

There are no clear regulation and policy that state about operational and maintenance for domestic wastewater management both in central and local government

References

Asian Development Bank (2004), Rural Water Supply and Sanitation Sector Project in Indonesia, Project Performance Audit Report.

Ministry of Health (2007), Indonesia Health Profile 2005

Ministry of Public Works. (2005). National Action Planning Report for Water supply and Sanitation

Statistic Central Bureau . (2000). Sanitation Facilities in Indonesia

Ministry of Health (2000). Sanitation coverage data in Indonesia.

Wangsaatmaja, S. 2004. Perubahan tata guna lahan terhadap rezim aliran air dan sanitasi lingkungan (Land use change impacts on surface water regime and environmental sanitation: Case analyses of the Upper Citarum Watershed). PhD thesis. Bandung: Institut Teknologi Bandung.