Fourth Regional 3R Forum in Asia
"3Rs in the Context of Rio+20 Outcomes – The Future We Want"
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Country Analysis Paper

(Draft)

< Indonesia >

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Indonesia Country Paper Analysis

The Background

Refer to ADB estimation; our largest cities produce waste on average 760,000 tons of solid waste every day. It predicts that there will be a two-fold increase - to 1.8 million tons - by 2025". This situation is driven by high-rate of urbanisation in developing countries, including Indonesia, as what the UN has been estimated that more than half of the world's population lives in urban areas, and it is expected that by 2050, three quarters of the total world population will be city dwellers.

In Indonesia with population 238 million (2010), the waste generation is about 184,000 ton a day nationwide. Mega cities generate 1,791 ton per day of solid waste, meanwhile the big cities produce 854 ton solid waste a day. The figure tends to increase year by year since more population move and live in urban areas. In the other side, coverage of solid waste collection service in those cities is about 70% and even worse in the rest of our cities. Furthermore, more than 90% of final disposal is still practising open dump system.

The Government of Indonesia has done several actions to apply resource efficiency through Cleaner Production approach as one tool for 3R implementation. Especilly for SMEs and industry, the government provide assistance through facilitation of education and training, technical support, pilot project initiation, and R&D in order to encourage dan support 3R implementation in SMEs and industry.

Legal Framework of Waste Management

In Indonesia there are two Acts that regulated waste management namely Act No. 18/2008 concerning Solid Waste Management and Act No. 32/2009 concerning Environmental Protection and Management. Act No. 18/2008 regulates solid waste management that mainly focuses on municipal solid waste management. Act No. 32/2009 regulates industrial waste and hazardous waste.

In management of industrial waste and hazardous waste, the principle of polluter pay principle is imposed whereas the waste generator is fully responsible for their waste. However, combination of polluter pay principle and public service principle is applied

to municipal solid waste management. This combination principle states that in general, both central and local government is responsible for solid waste management. But, for certain case the responsibility is delivered to community and business sector.

The fundamental of industrial waste management states clearly that industrial sector should manage their waste in environmentally sound manner until the waste quality meets environmental standard. If industrial sectors discharge untreated waste or treated waste which does not meet the standard, it would be considered as a criminal. In order to make industrial sectors comply with regulations, both central and local government oblige to do the following: conducting socialisation and dissemination law and regulation, providing guidelines, giving technical assistance, and conducting monitoring and evaluation.

There are 2 government regulations that regulate industrial waste management i.e. Government Regulation No. 18/1999 in accordance with Government Regulation No. 85/1999 concerning and Government Regulation No. 82/2001 concerning Water Quality Management and Water Pollution Control. Those regulations now are going to be revised in order to response to new Act and actual issues. Some Ministerial Regulations have been set for regulating guidelines and environmental standards of industrial waste.

The basic policy of hazardous waste management is based on the principle of “from cradle to the grave”. The generator of hazardous waste is responsible for managing their waste from the source to the secured landfill. In addition, hazardous waste management consist of the following activities: minimisation, storage, collection, transportation, utilisation, treatment, and disposal. For conducting each activity, the regulation mandates to have a licence except minimisation of waste. If anybody or business sector conducting each activity without licence, it would be got criminal sanction. However, in order to implement resource efficiency and waste minimisation principles, the philosophy is now shifting to become “from cradle to cradle” by making waste as valuable resource that could be recovered and utilised as much as possible.

It should be emphasised very important issue related to hazardous waste i.e. our Law states that importation of hazardous waste is strictly prohibited. A criminal code is imposed to any party who importing hazardous waste.

Furthermore, the basic policy of municipal solid waste management is Act No. 18/2008; there are 3 types of solid waste management including household solid waste, household-like solid waste, and specific solid waste. Household solid waste is

domestic solid waste that generated from household activities. Household-like solid waste is domestic solid waste that generated from non-household activities such as office, market, commercial area, public facilities, etc. Meanwhile, specific solid waste is categorised as solid waste that having specific characteristics that need to be managed specifically. Specific solid waste consist of 5 types including: household hazardous solid waste, disaster waste, construction and demolition waste, solid waste that could not be treated by available technology, and solid waste that generate in non-periodic manner.

The implementation of municipal solid waste is responsibility of local government (city and regency). Based on Government Regulation No 38/2007 regarding “the Role of Central Government and Local Government” that both central and provincial government are responsible for formulating the regulation (policy and regulation, providing standard and criteria, as well as guidelines), guidance (providing the stimulant project of 3R, landfill improvement), development (for regional landfill) and supervision .

The spirit of our solid waste management is based on 3Rs principle i.e. reduce, reuse, and recycle. Using the 3Rs principle the Law stipulated that solid waste management consisting 2 major activities namely waste minimisation and waste handling. Waste minimisation is elaborated in to the following activities: reduction of waste at source, reuse of waste at source, and recycle of waste at source. Activities of waste handling consist of the following: separation, collection, transportation, treatment, and final processing at final disposal.

In the context of waste minimisation of 3Rs principles, the Law adopted extended producer responsibility (EPR) principle. The scheme of EPR that would be implemented including: production of product and packaging should meet design for environment criteria; and the producer should be responsible for post-consumer product and packaging.

In addition, there are 2 important issues that stipulated on solid waste management law. Firstly, similar to hazardous waste, importation of municipal solid waste is prohibited by the Law. Criminal code would be imposed if breaking the rules. Secondly, the Law stipulated that city and regency should convert open dump system at final disposal to better system (controlled landfill and sanitary landfill) by 2013.

There are 2 government regulations that regulate solid waste management including Government Regulation No. 81 Year 2012 regarding Household Solid Waste and Household-like Solid Waste Management and Government Regulation regarding

Specific Waste Management that is still being formulated. Hopefully we can promulgate the second regulation this year.

Formulation of Implementing Regulations

Act No. 18 Year 2008

In order to implement the Act, there some regulations that should be formulated by Government including:

1. Government Regulation regarding Household Solid Waste and Household-like Solid Waste Management (already promulgated as Government Regulation No. 81 Year 2012);
2. Government Regulation regarding Specific Waste Management (working on draft);
3. Presidential Regulation regarding National Policy and Strategy of Solid Waste Management (to be formulated this year);
4. Minister of Environment Regulation concerning Guideline of Land Application from Palm Oil Waste Water No 28 Year 2003)
5. Guideline of toward agroindustries zero waste
6. Minister of Environment Regulation concerning Implementation of 3Rs through Waste Bank (already promulgated as Minister of Environment Regulation No. 13 Year 2012);
7. Minister of Environment Regulation concerning Emergency Response System on Solid Waste Handling (to be formulated this year);
8. Minister of Environment Regulation concerning Environmental Standard of Leachate (to be formulated this year);
9. Minister of Environment Regulation concerning Mechanism of EPR Implementation (to be formulated this year);
10. Minister of Public Works Regulation concerning (working on draft, by May 2013):
    - Technical criteria for 3R waste treatment site (TPS 3R);
    - Landfill closure and rehabilitation guideline;
    - Landfill construction guideline; and
    - Landfill operation guideline.

Strategy, Program and Initiatives

Responded to policy and regulation to achieve 3R implementation overnment has been conducting some Programs related as follows:

1. **Adipura Program**, a Program that measures the performance of city and regency in urban environment management including MSW management performance; and beyond compliance toward a sustainable city (**Adipura Kencana)**;
2. **Promote and Implement 3Rs**, a Program that develops 3Rs implementation both community-based 3Rs (356 cities as a pilot project) and city-scale 3Rs; campaign and education for elementary school as "school 3R completion".
   Promoting 3R (municipal solid waste) development in Indonesia was done since year 2006 which focus on composting and recycling activities with community 20% of waste, the promoting and encouraging to local government and people have been done through campaign education and pilot project of 3R facilities for 356 locations or cities.
3. ***Bank Sampah* or Waste Bank**, a Program that educates people to reduce their waste by conducting waste separation, waste collection, and waste saving for recycling purpose.
4. **PROPER PROGRAM,** a Program of assessment and performance rating of industry in environmental management
5. **Green Industry Award**
6. Landfill improvement (including rehabilitation of open dumping sites) as well as controlled landfill or sanitary landfill in 190 cities (2006-2012). Some of them have been promoted for CDM project. In line with 3R programme, landfill improvement have been promoted to fulfil the requirement of regulation anf to protect the green house gas emission. Landfill infrastructure have been constructed for 190 cities (from the target 250 cities until 2014). For main infrastructure construction (liner, leachate treatment, gas utilization) and heavy equipment are supported by national budget with completed by requirement of readiness criteria (ie. capability of institutional development including operator and human resources, operation and maintenance budget, 3R development). For complete landfill facilities, local budget is needed, either for operation and maintenance budget. Post construction will be carried out by local government. During the operation period, local government facing the financial problem ang landfill operated improperly.

7. Campaign and education for public awareness (including children) among cooperation with Ministry of Public Works, Ministry of Education, Ministry of Health, Ministry of Environment, Women Organisation (Solidarity of Indonesia Cabinet Wife). The selection of National Sanitation Ambassador every year (33 Provinces) is one of the campaign Programs to improve the community awareness that focused on early students.
8. Providing technical guideline;
9. Institutional strengthening in line with functional separation between regulator and operator;
10. Capacity building for improving the human resource on solid waste management.
11. Training and Dissemination for facilitator and local government;

12. Especially for SME sector, the Government provides assistance through facilitation of education and training, technical support, pilot project initiation, and R & D pilot project in order to encourage 3R implementation in SMI sector;
13. Utilization of waste wood bark chips produced at the debarking process to fuel power plants;
14. The use of clean condensate back to the production process, thereby reducing the efficiency of water use
15. Utilization of solid waste (sludge) and waste paper as raw material for paper making industry (brown paper, chipboard)
16. Utilization of flue gas through the installation of a heat recovery steam generator
17. Utilization of waste biomass from agricultural waste for fuel.
18. Utilization of rainwater and waste water in the production process.
19. Utilization of waste heat gas as energy by installing Waste Heat Recovery Generator (WHRG)
20. Utilization of non-B3 and B3 both from internal and external factories for the production process.
21. Utilization of flue gas from the kiln for drying process
22. Optimizing the use of waste products as raw material production as much as possible
23. Waste recovery tapioca to produce energy
24. Utilization of water runoff for re-screening process
25. Utilization ex back padding solution has settling one day for dyeing batik by added to fresh dye solution with a ratio of specific colors
26. Reuse of the former solution of hydrogen peroxide and Kaostik Soda on the scour and bleach
27. Recycle plastic waste become plastic pellet as raw material for plastic products;
28. Reuse waste from consumer product packaging (such as tooth paste tube, liquid soap packaging, used can) as raw material for handycraft;
29. Re-process e-waste such as chip electronic as raw material for electronic industry.

Act No. 32 Year 2009

The Republic Indonesia Act No.32/2009 and Government Regulation No.18/1999 Jo No.85/1999 concerning the Hazardous Waste Management; the Hazardous waste are already being reused, recycle and recovery through the permit mechanism, this system are already implement since 1999 (for waste which is produced within the country). In 2012 there are 225 permits already publish by the Ministry of Environment for hazardoust waste ulilization, these include the waste ulilozation for the waste oil, fly ash and bottom ash, ashes from the metalurgical process, chemical wastes, sludge paper, etc.

As stated in the republic Indonesia Act No.32/2009 and Government Regulation No.18/1999 jo. No.85/1999, it is prohibited to import waste into the country. However, through the Ministerial of Trade Decree No.39/2009, stated, is possible to import of non-hazardous waste for the purpose of fulfiling the leak of raw material.

Since for the recycling of non-hazardous waste, Indonesia also has many recycling industries which can recycle of non-hazardous waste such as papers scrap, plastics scrap, metal scrap, aluminium scrap, copper scrap, rubber scrap, cotton scrap etc.

The number of industries which already had the licence to import of non-hazardous wastes as raw material:

No	Kind of non-hazardous waste	Number of industries
1	Cotton scrap	6
2	Cullet glass	7
3	Paper scrap	44
4	Rubber scrap	7
5	Plastic scrap	62
6	Ferrous and non-ferrous scrap	109

Indonesia also consider the electronic waste as the hazardous waste therefore the treatment of the e waste is follows all the regulation of hazardous waste as also it is prohibited to import into the country. For further management of e-waste currently we are still preparing draft of national regulation for the electronic waste management.

Other regulation concerning the used electronic and electrical equipment (UEEE), is regulated under the Ministerial of Trade Decree No. 48/2011 concerning the

importation of second-hand goods, it's stated that used computer equipment (HS 8471.41.10.00) and used LCD Monitor (HS 8531.20.00.00) can be imported by the re-condition manufacturer and with some requirement such as:

a. Imported in the complete set and in proper packaging;
b. Life-time maximum 5 years;
c. Latest specification technology of CPU.

In addition, with regard to hazardous waste management we have been implementing some Programs including:

1. Encourage business sectors that generate hazardous waste to do 3Rs by minimising, recovering, and recycling their waste;
2. Improve permitting procedure by applying transparent process, fair and equal services, as well as fast and reliable services;
3. Control and monitor the permit by conducting Proper Program, a Program that rate the performance of business sectors in environmental management compliance including hazardous waste management.

CURRENT PROBLEMS :

1. Almost 30% of 3R facilities municipal waste are not operated well and waste is not separated from sources. The problems are identified as follow :
   - The empowering of community group was not doing properly
   - Difficulties of operation and maintance budget
   - Compost marketing
   - Lack of local government support in post construction period, especially for the beginning operation
2. The main problems on landfill improvement :
   - Limited operator and lack of skilled of the personnel
   - Limited budget for operation and maintenance
   - Gas handling and utilization still unproper
   - Scavenger
3. For the hazardous waste there still many of waste being dump or illegally utilized in the process that not environmentally friendly.
4. The implementation of 3R in SMEs and industry have barriers such as lack of know how for technically 3R implementation and lack of financial for replacement/modification of machinery or equipment to increase the efficiency of energy and raw material.

Indonesia supports the 3R Program and therefore each country can conduct effective and efficient 3R so that there will be no more waste import.

In addition, Indonesia needs support and cooperation from all stakeholders and international institutions to increase implementation of 3R Program