The Waste Management Program Of 3R (Reduce, Reuse, Recycle) By Economic Incentive And Facility Support

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Abstract. Waste management in the city of Mojokerto formerly used open dumping method at TPA Mojokerto. Once Law No.18 of 2008 issued on waste management, the garbage in the city of Mojokerto dumped into the area of Randegan. The research aims is to explore and to describe economic incentive and facility support of 3R (Reduce, Reuse, Recycle) waste management program in Mojokerto. This is a descriptive qualitative research. The sample in this study of a random sampling of 106 RW in the city of Mojokerto. The results showed high support and community willingness to play active role in 3R waste management concept. It is showed that 96,3% of respondents are expecting 3R waste management method. They gave support toward collecting, processing and recycling of waste. To improve the quality of waste management 83% the respondents is not hesitate to pay higher 3R waste management services. The adequacy of financial support both from local government and community volunteer are important to make the program successful. There is also a desire for reward and incentives from the community to trigger the program runs well. The study also reveals some actions that have been doing by community dealing with 3R management method: bringing shopping bag, buying recycling products, fixing and reusing old products, separating organic and unorganic garbage and making handicraft from wasted materials. However, there are still lack facility support to improve the program. The research showed 86% respondents didn’t have garbage bin to recycle waste. Furthermore,75% respondents are expecting government to support facility of 3R waste management concept as as well 55% respondent are wanting accessibility to 3R waste management centre in each region in Mojokerto City. Here, several tasks must be take for considerations by the local government and support of community is obviously needed.

1. Introduction
Randegan generated garbage sourced from the housing as 218,90m3 and from market as 72,96m3 of the total of 446, 27 m3 of landfill waste per day\cite{1}. Waste management in the city of Randegan according to Vertieb Abfalltechnik & Recycling Schaefer a waste management company in Germany is an outdated method that has been left European countries 30 years ago. Waste management of open dumping is a method that abondaned the environment and is an activity that is not environmentally friendly. Waste management must be supported with public awareness and implementation of waste recycling system gradually. (Harianhaluan.com2012). Until now, the existing waste management in
the city of Randegan which is managed by the Dinas Kebersihan dan Pertamanan (DPK) is having difficulty dealing with solid waste. Obstacles faced is the public awareness to minimize waste production that begins with personal, family and environment [2], [3].

Commencing on May 5, 2013 the disposal of waste in the TPA Mojokerto should not be done again for any reason. It refers to Law No. 18 / 2008 that prohibit dumping in the TPA Mojokerto that had been done by the Government of Randegan. As alternative Pemkot Mojokerto facilitated by the Government of East Java Province to deal cooperation in waste management together in Mojokerto city which has a land area of 23 hectares in Randegan.

The dumped waste from Randegan city reaches 120-130 tons per day. The consequences of such cooperation is Randegan government must pay compensation in the form of retribution per 1 tonne of waste sent to Randegan, Mojokerto valued Rp. 20,000, plus the cost of transport operations from Randegan to Randegan and vice versa. If the accumulated per year Randegan city authorities must allocate a fund of Rp.864,000,000 per year for the garbage excluding the cost of transportation from Randegan to Mojokerto. The 3R waste management concept can not be separated from the participation of communities involved in various 3R activities. Furthermore, community participation need to be supported by some economic incentives for the activities to support the program work well [4], [5].

2. Methods
This study is conducted in the city of Randegan July-August 2016. Data used in this study are primary data and secondary data. The primary data were obtained from the DKP district Randegan, respondents, and stakeholders who provide information based on a distributed questionnaire. Secondary the data is taken from reports, journals, articles, publications related to waste management in the city of Randegan and other places. The method used in this research is descriptive quantitative research methods [6]. The study population was the member of the family who live in the city of Randegan as many as three districts with the number 106 and the RW 336 RT. The interviewed respondents by simple random sampling technique. In this study the methods used are interviews, questionnaires and focus group discussions.

3. Result and Discussion
The following chart above shows various responses of society associated with waste management with the 3R concept that involves the community. The survey results showed 53% of respondents stated that the people of the city of Randegan has played an important role for management and waste reduction. While 44% of respondents declare that the people of Randegan has not played an important role for management and waste reduction as shown on figure 1.

**Figure 1. Community participations on 3R.**

The result of the survey show the expectation of community involvement in waste management with the 3R concept. Amounting to 96.3% of respondents are wishing that communities can utilize and process waste for reuse and recycling. This is reinforced by the response masyarkarakat of 94.4%
stating that the public can collect kitchen waste and yard trash for recycling. The success of 3R waste management concept beside funded by the government could also come from community contributions. The survey results showed 83% of the community is willing to pay a fee-based management services which is more environmentally friendly. Only 14% of respondents are not willing to pay dues community-based waste management services as shown on figure 3.

The survey showed 74% of respondents agreed fee collection for 3R waste management services collected each month. A small part of respondents of 15% proposed 3R fee waste management services are collected every week.

The following results show the community responses toward the amount of contributions to the 3R concept. As many as 73% of respondents agreed the amount of 3R concept fee is around Rp.5,000-10,000, then as much as 8% of respondents agreed amount of contribution waste management services with the 3R concept of Rp.10,000-15,000, and as much as 4% of respondents agreed the amount of fees for waste management services for 15,000-20,000.

Related to the economic aspects and support, the survey results showed mixed response associated with 3R waste management. 76% of respondents agree that it is reasonable to pay for better waste recycling services than relying on government funding. Furthermore, 79.1% of respondents approved the provision of costs (operating and maintenance) important for successful waste reduction. Concerning the adequacy of funding for more environmental friendly waste management 60.5% of respondents stated that the provision of funds from the government have been sufficient, while 19.3% of respondents said that the provision of government funding has not been sufficient particularly to support 3R management concept.

Government willingness to use recycled products is a factor supporting the success of environmentally friendly waste management. 67% of respondents agreed that recycling succeed if the government is willing to use recycled products. Furthermore, 74.7% of respondents agreed that in order to be successful community 3R program should be given remuneration and awards. In the waste 3R management program, garbage collectors play an important role in which 63.7% of respondents agree on this statement. Furthermore, 63% of respondents agree that public participation in recycling should be voluntarily leading activities to be more successful. This statement is strengthen with an additional 21% of respondents strongly agreeing upon this revelation.

So far there have been efforts made by the community of Randegan City in 3R waste management concept. However, the efforts is done individually and no longer collectively set by a policy made by the Government of Randegan. Bring a shopping bag is an effort to reduce plastic
waste. According to the survey 56.5% of citizens Randegan ever carry a shopping bag. 18.1% said never carry a shopping bag.

Furthermore, for purchasing recycled products by 68% of respondents said that they ever experience buy recycled products, but for the respondent that states often buy recycled products only reached 4%. As well as the reuse of items that can still be repaired. 59.5% of respondents claimed never fix stuff and then reuse it again, but this needs to be pushed because respondents stated often fix stuff and then reuse it only reached 9.5%.

3R program’s successfullness begins with the separation of organic waste and unorganic waste. The results of the survey showed that 43.5% of respondents said never perform the separation of organic waste and unorganic trash. The results of the survey shows 9.1% which often separates organic waste and unorganic trash. It should be made an effort to build awareness of the community to start separating garbage considering the sustainability of the 3R program begins with waste separation.

Separation of organic waste and unorganic garbage will ease the implementation of the 3R waste management, where the separated garbage can be can be proceed to new purposes. The survey results showed 48.4% of respondents never make crafts from recycled materials, only 3.3% of respondents stated that often make crafts from recycled materials. Utilization of used goods need to be considered given unorganik garbage will biodegrade if disposed only in a very long time period, so transforming them in handcrafting process was part of an environmentally friendly waste reduction.

Efforts to save the item and choosing materials that contain little trash can also reduce the amount of rubbish. Based on the survey results apparently still a few respondents who are trying to reduce the amount of waste by reducing the use of materials by choosing materials that contain little trash. 10.7% of respondents said often limit their consumption according to the needs. 7.9% of respondents stated that they often choose materials that contain little trash. Community’s awareness to reduce the consume goods that generate a lot of garbage needs to establish continously aimed that the amount of garbage can be reduced.

The survey conducted also learn about availability of the facility and infrastructure and fasilita for successful waste management program 3R. The early description showed that organic waste can be recycled into compost as fertilizer for plants. Processing organic waste into compost can be done at the household scale. But unfortunately the results of the survey revealed the ownership of cans or bins for composting turned out to be very small. 86% of respondents stated that they do not have nor tempt garbage cans that could be used for composting.

Integrated waste management with the 3R concept will be able to run properly if there are proper waste management center to accommodate organic and unorganic waste that is environmental friendly. Ease of access to the center of integrated waste management center will bring success 3R program. The survey showed several public response toward the availability integrated waste management center in each district in the city of Randegan. 53% of respondents agreed if any integrated waste service centers in each district, while 44% disagree. This implies that people who disagree with the existence of the centers of the waste management needs to be given comprehensive information that the integrated waste management facility is managed properly and clean and environmental friendly.

The next chart will show the results of a survey on public opinion concerning the availability of means of support 3R waste management in the city of Randegan. 55.3% of respondents said facilities and equipment for recycling and waste reduction as recycling cans easily obtained, while 21.9% of respondents disagree. This is consistent with the observation team that suggestions for recycling as recycling cans relaitf rather difficult to obtain. The adequacy of facilities for mendulung program of
waste reduction and recycling is that waste management program 3R successful. It is powered by a response of 73% which menyatkan importance of adequate facilities and recycling facilities.

Active participation of the community for environmentally friendly waste management should be stimulated with the provision of adequate and easy facility to encourage community participation in the activities of 3R. The survey results show by 66, and% of respondents stated agreed with the availability of a complete advice to encourage community participation in waste management 3R program.

4. Conclusion
The waste management in Randegan has been improving which the garbage is no longer Open dumping system in Mojokerto. The current waste approach is end of pipe concept, the garbage is collected by cleaning worker than collected temporarily in TPS and furthermore transported to Randegan, Mojokerto for final disposal (TPA). Since no area for sanitary landfill in Randegan, disposing Mojokerto’s garbage to TPA Randegan brought the consequences of financial redistribution made by the local government Mojokerto Rp.20.000 per tonnage of garbage. 3R waste management concept is insufficiently implemented by the local government due to lack of adequate campaign, media communication, supporting facility and regulatory jurisdiction. People of Randegan are willing to cooperate and play active role to contribution to 3R waste management program. More intensive and program campaign and extension service are needed to push the program run properly and effectively. Adequacy of economic incentive and supporting infrastructure as well as facility are strongly required to better achievement of the program.

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