

Perception on Recycling Issues between General Public and Other Stakeholders in Malaysia.

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EXECUTIVE SUMMARY

Reduce, Reuse and Recycling or 3Rs practice has been identified as a strategy to improve waste management practices in moving towards sustainable development. Thus, participation from various parties namely the stakeholders and public is very crucial in ensuring the success of the 3R strategies. This paper will analyze the perception of the general public and the relevant stakeholders in Malaysia with regards to 3Rs namely recycling issues. The perception between these two parties will be scrutinized to determine the factors causing such responses. Perceptions from the general public were obtained via public survey involving 655 respondents randomly selected in the Klang Valley. The survey consisted of 30 questions related to 3R issues in Malaysia. On the other hand, relevant stakeholders' perception was obtained via a focus-group-discussion where similar question for public survey, were given. Results indicated that the general public (31%) has much lower awareness and knowledge on 3Rs issues pertaining to the recently passed laws and regulations in Malaysia than that of the relevant stakeholders (72%). As for the potential improvement in 3Rs resulting from the implementation of the newly passed regulation, both parties are optimistic that future waste management system will see that 22% recycling rates by 2020 is achievable. As for source separation of MSW, the general public has higher perception (64%) as compared to that of the relevant stakeholders (56%). This was probably due to the fact that stakeholders might foresee some obstacles before source separation can successfully be implemented. It can be concluded that perceptions of the general public and the relevant stakeholders are very different in some aspect while similar responses were obtained for other aspects of 3Rs practices. Therefore, it is necessary that the existing gaps (between policy and implementation) are analyzed as a measure to identify the weakness in the implementation of 3Rs practices in Malaysia.

INTRODUCTION

World Bank had reported that improper waste management is one of the three causes of environmental degradation in Asia (World Bank, 2008). This is highly relevant to the scenario in Malaysia where 3% annual increase in MSW generation alarmed the waste managers as landfill space become rapidly exhausted and pollution emitted from landfills contaminate the surrounding area (Fauziah et al, 2004). However, Malaysia lacks the driver of proper waste management system that the improvement in the country's waste management system is yet to be achieved (Agamuthu et al, 2009).

The episode in 2006 where landfill leachate was reported to have contaminated the water catchment area in the Klang Valley has resulted with huge public uproar (Agamuthu and Fauziah, 2008). As a result, government directed all operating landfills adjacent to rivers and other risky sites to cease operation immediately. This eye-opening event had initiated various concerns on impact of landfill emission. Thus, some strategies towards effective waste management in the country have been identified.

Current daily generation of MSW by Malaysian averaged at 1.3kg/capita and the rate can be up to 2.0kg/capita in some urban areas namely Kuala Lumpur, Petaling Jaya and Georgetown (Agamuthu and Fauziah, 2011). Due to the high per capita generation, daily generation of MSW in Malaysia totaled to more than 31,000 tonnes where 95% of it will be sent to landfill. The practice is absolutely unfavorable in most of the developed nation as it will result with total loss of resources to landfilling process.

Landfilling is the most favored practice in Malaysia since recycling or material recovery only covers 5% of the total waste generated (Fauziah and Agamuthu, 2009; Fauziah and Agamuthu, 2006). To make matter worst, more than 90% of these disposal sites are non-sanitary landfills that lack of appropriate landfill liner system, thus create high potential of contamination to the surrounding area. Though sanitary landfills are replacing non-sanitary landfills for MSW disposal after the 2006 incident, the ever increase in waste generation will not put the issue to rest. Therefore, good waste management practice need to be incorporated into the current system. Among the most familiar strategy is the implementation of 3Rs practice.

Implementation of 3Rs would be able to recover at least 70% of the Malaysian MSW which comprised of more than 80% recyclable materials (Fauziah and Agamuthu, 2008). Theoretically, full recovery will allow waste manager to reduce waste volume to more than 80% from landfilling option, thus not only save landfill space and prevent the environmental pollution but also generate good source of income from the recyclables (Fauziah and Agamuthu, 2008).

The practice to recover the material from the MSW stream is not yet conceivable since Malaysian MSW is highly mixed and with high moisture content. Hence, recovery of recyclables at landfill site or transfer station resulted with soiled and dirty recyclable materials. Not only it would require additional cost for cleaning purpose, the quality of the retrieved materials is reduced significantly. Therefore, in order to ensure that the recyclables collected is of satisfactory quality, it is crucial that these items are segregated at source, i.e. by the waste generator. With the participation from relevant parties, recycling can achieve a higher rate and it will make the implementation of the other remaining "R" workable in Malaysia.

Generally, participation from various parties namely the stakeholders and public is very crucial in ensuring the success of the 3R strategies. These groups should have positive attitude in

order participate in the 3Rs practice. Therefore, it is necessary that current perceptions of public and relevant stakeholders are assessed prior to the implementation.

The objective of this study is to analyze the perception of the general public and the relevant stakeholders in Malaysia with regards to 3Rs issues namely recycling. The perceptions between these two parties will be scrutinized to determine the factors causing such responses, thus appropriate strategies can be recommended.

MATERIALS AND METHODS

Perceptions from the general public were obtained via public survey involving 655 respondents randomly selected in the Klang Valley. The survey consisted questions in regards to 3R issues in Malaysia.

Perceptions from the relevant stakeholder were obtained through a focus-group-discussion where similar question for public survey, were given.

The results obtained from the survey were analyzed and computed into Statistical Package for the Social Sciences (SPSS) to derive the correlation and to determine the statistical significances.

RESULTS AND DISCUSSIONS

Generally, the respondents were 12 to 59 years old with the majority being males. Professionally they ranged from students to blue and white-collar workers to business personnel. Their perceptions are discussed in the subsequent paragraphs.

Waste Separation by Public

The survey indicated that only 35% of the respondent currently separate waste that they generate while the remaining 65% did not separate. This generally would be due to the lack of participation in the 3Rs practice that wastes are not separated for reduction, reuse or recovery purpose. Analysis of the survey indicated that there is a significant correlation between gender and waste separation practice where more female respondents are more participative than their male counterpart. This is possibly because females generally are more involved in household chores than the males that waste separation has become a routine task for them.

The study also indicated a significant correlation between waste separation and race (0.231) indicating that non-Malays are more susceptible in waste separation than the Malays. This is agreeable with the findings of a survey in Kuala Lumpur by Irra (1999) where the non-Malays were more involved in source separation than the Malays.

A significant correlation was also derived (0.224) between level of income and waste separation practice. Higher income group tend to be more involved in waste separation than the low-income group. This probably contributed to the fact that high income group can afford to utilize goods which are easily separated for recycling purposes. In addition, high-income household

normally hires maid that waste separation is taken care by the maid (Fauziah and Agamuthu, 2005). Also, since economic drive is not effective in Malaysia, the tendency for the lower income group to separate their waste for recovery purpose would be much lower. This is because waste separation probably is considered not practicable. Between age and waste separation activities, significant correlation (0.195) was derived indicating that more of the older generation are involved in waste separation as compared to the younger generation. This probably is due to the awareness among the adults to separate their waste for the convenience of the waste collector while being the main player in handling waste in their household.

The Meaning of Recycling

As much as 12% of the public respondents did not know the concept of 3R particularly the meaning of recycling. This indicates the need for more serious and intensive campaign on 3Rs practices and other related issues. Similarly finding was also obtained in studies by Irina and Chamhuri (2003) where a small percentage of the public has no understanding of the issue. With the majority having the understanding on the recycling concept, significant correlations were derived between ages of respondents (0.333) and their knowledge in recycling. This negative correlation indicates that younger respondents have better knowledge in recycling rather than the older group. This was probably contributed by campaigns and teachings in schools and learning institutions. This is agreeable to findings obtained from previous survey conducted in Klang Valley and other parts of the world (Graham *et al.*, 2009; Wada *et al.*, 2009; Irra, 1999).

From gender point of view, females have better understanding in recycling than the male respondents. This is also agreeable with previous findings by Irra (1999). Women were more aware of environmental issues including recycling as compared to their male counterpart (Irina and Chamhuri, 2003; Irra, 1999).

Recycling Practices

Even though 88% of the respondents knew the meaning of recycling, only 60% practiced it, while 40% are not involved in recycling activities. This was most probably due to the "not bothered" attitude among the public. Similar findings were also obtained from previous survey conducted among the public in Klang Valley and Malacca (Aziana, 2003; Irra, 1999).

Though the survey indicated that more of the older respondents separate the waste they generated, the younger generations are more participative in recycling practice. Significant correlations were derived between age and recycling practices respondents (0.199). While older generation separate their waste for other purpose namely reduction and reuse purpose, the younger ones are more involved in recycling. This could be influenced by the campaigns and environmental talks launched at schools and other learning institutions. Again, knowledge and awareness were found to promote improvement in a waste management system, aligned with findings from most studies (Refsgaard and Magnussen, 2009; Rathi, 2005; Siebenhand and Winkler, 2000; Wang, 2000; Irra, 1999; Lake *et al.*, 1996).

Approximately 92% of the respondents agreed that more recycling centers should be established in order to promote recycling activities. This is in accordance to the response from the stakeholders where 96% agreed that sufficient recycling facilities are important in making

recycling a success. Establishing more recycling stations would create convenience for the public to participate (Refsgaard and Magnussen, 2009).

Among the public, respondents of higher education were more agreeable with the establishment of more recycling centers than respondents of lower education level. The correlation is 99% significant (0.317) probably contributed by the fact that the higher their education level, the more they understand the importance of having more recycling facilities. This is agreeable with results obtained by previous studies (Fauziah and Agamuthu, 2005; Irina and Chamhuri, 2003; Irra, 1999). The increase in facilities to manage and collect recyclables not only promotes recycling activities but would also help to improve the economy of the participating individuals. It was proven by previous studies that recycling can be promoted with appropriate facilities in order to create an environment whereby the public find it convenient and comfortable to participate (Refsgaard and Magnussen, 2009; Read, 2005; Fahmi, 2005; Muller *et al.*, 2002; Bulle, 1999; Wegelin and Borgman, 1995). Convenient environment encouraged recycling activities that it is no longer a hassle to an individual to willingly participate for an unlimited time. Majority of the stakeholders (96%) agreed that providing more adequate and user friendly facilities can encourage participation from the public in the 3Rs practices.

Solid Waste Management Act 2007

The Solid Waste Management Act 2007 contains clauses that promote 3Rs practices in Malaysia. However, the act is to be implemented in September 2011 that public response is yet to be seen.

Results indicated that the general public (31%) has much lower awareness and knowledge on 3Rs issues pertaining to the recently passed laws and regulations in Malaysia than that of the relevant stakeholders (72%). Figure 1 illustrates the different level of awareness among the respondents on the Solid Waste Management Act 2007 and the Solid Waste Management Cooperation.

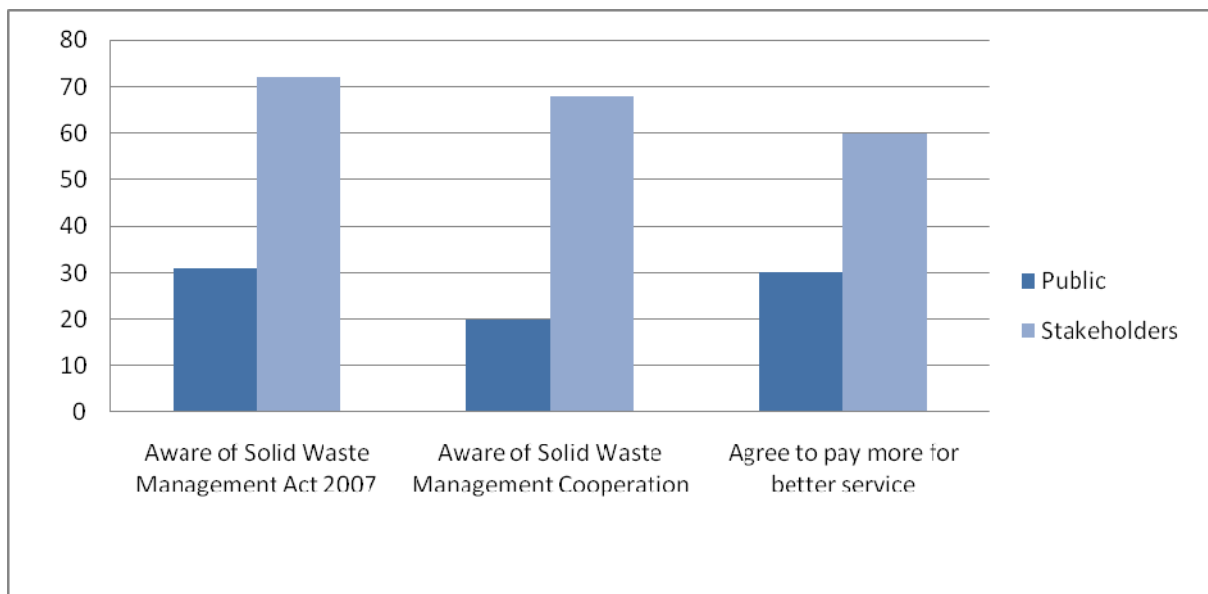


Figure 1. Level of awareness on the Solid Waste Act 2007 and agreement to pay for waste management service.

The major gap between the two groups is understandable since general public has less concern regarding the directive on waste management, as compared to the stakeholders who will be affected directly. While the awareness among general public on the passed Act 2007 is rather low (31%), much lower percentage of respondents are aware of the existence of the Solid Waste Management Cooperation that is responsible to handle the waste management and issues pertaining to the implementation of the Act 2007. Therefore, this called for a major dissemination of information to the general public on the existence of both entities. This is necessary so that future plans and strategy sourced from either the Act 2007 or the Cooperation will not take the public by surprise.

Included in the Act 2007 is the clause mandating that waste generators are to pay for waste management services. It is only agreeable to 30% of the public respondents while higher percentage of the stakeholder (60%) take this issue positively. Again this probably resulting from the fact that public has less exposure on the cost of waste management as compared to that of the stakeholders. Therefore, imposing separate payment for waste management service would be unacceptable for them.

The provision on the monthly fees charged to the waste generator was negatively received by the general public. The majority (91%) disagree with the monthly payment system because it will affect their household income. Since waste management service charged has been imposed at a very minimal rate and being incorporated into the annual assessment, the fees are taken as an additional cost for them to bear. In order to resolve the issue, it is necessary that more comprehensive detail is provided to the general public regarding the existing fees imposed on them and future levy after the implementation of the Act 2007. Again, there is an urgent need for the government to make public aware that waste management cost is utilizing significant portion of the local councils' income that extra payment is necessary to improve the current waste management system.

Improved Waste Management System

As for the potential improvement in 3Rs resulting from the implementation of the newly passed regulation, both parties are optimistic that future waste management system will see that 22% recycling rates by 2020 is achievable (Figure 2).

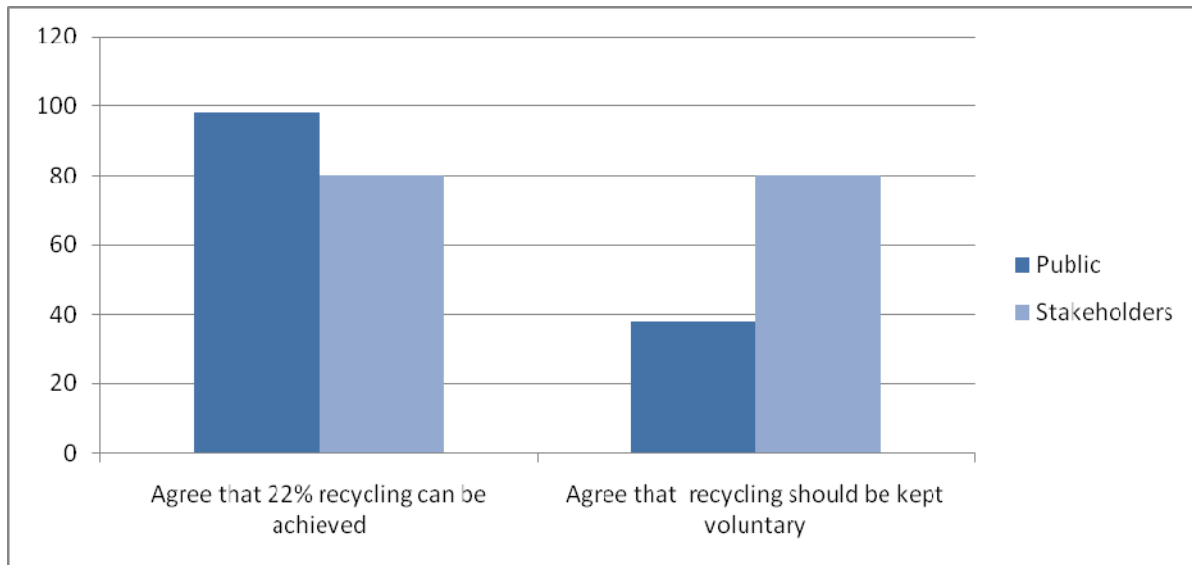


Figure 2. Responses on the recycling target and practice.

Surprisingly, in terms of implementing recycling as a voluntary practice, conflicting results were obtained from the public respondents and the stakeholders. Majority of the public respondents disagree that recycling should be kept voluntary. This reflected that the public need the regulation or directive from the government to ensure their participation in recycling. Currently, the 5% recycling rate in Malaysia is seen as a failure that the public realize that voluntary recycling practice will not improve the recycling rate. Thus, majority disagree (61%) that recycling should be kept as voluntary practice in Malaysia. On the other hand, 80% of the stakeholders believed that recycling should be a voluntary practice. This probably based on the fact that voluntary activities avoid retaliation thus would be successful in the long run.

As for the readiness to change as the result of the Act 2007, public respondents are more optimistic than the stakeholders. For source separation of MSW, the general public (64%) agreed that Malaysian are ready to conduct waste separation while this view in is agreeable by slightly lower percentage of the relevant stakeholders (56%). This was probably due to the fact that stakeholders might foresee some obstacles which are yet to be faced before source separation can successfully be implemented (Figure 3)

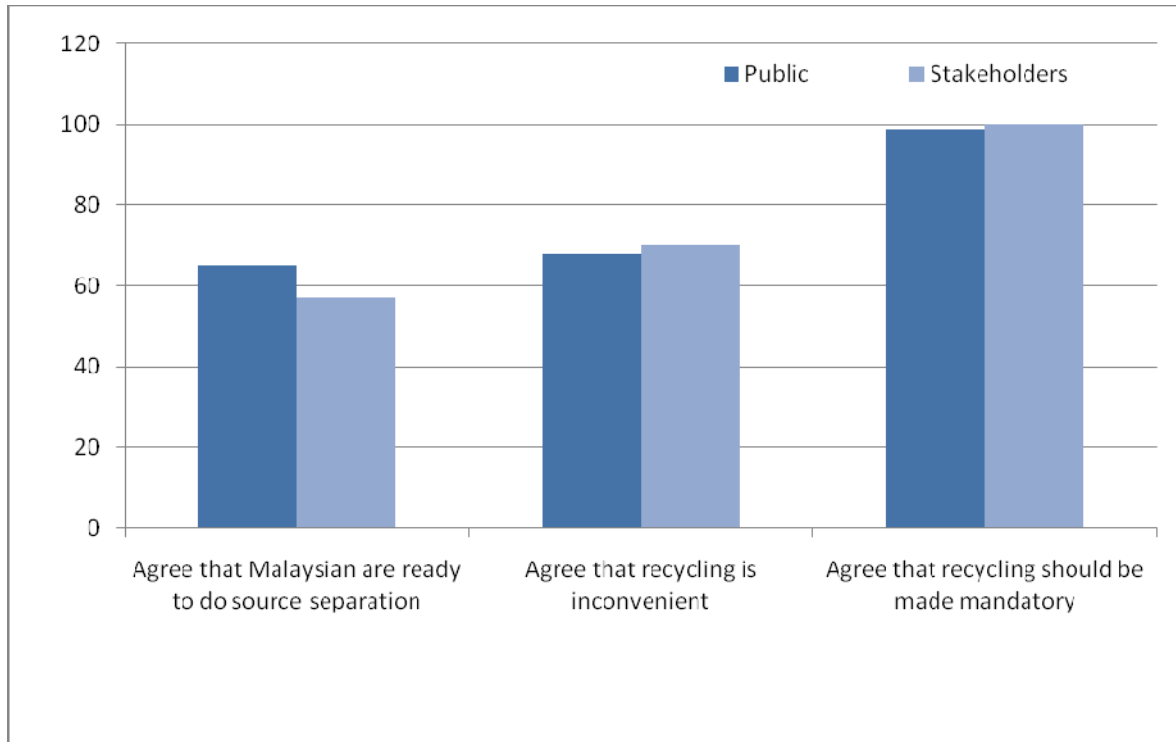


Figure 3. Response on the readiness to separate waste and selected recycling issues.

The majority of the public respondents (64%) was also found to agree to separate their waste at home. This indicated the willingness of the public to change their normal habit of chucking in all waste type into a common bin. It can be seen as an improved awareness among the general public on waste management issues in the country. This is probably a result from the serious advertisement on the mass-media, on the impacts of uncontrolled waste generation by citizen in the future. The minority (34%) which disagrees to conduct home segregation probably due to their indifferent attitude, refusing to change their daily routine in addition to their low awareness on environmental issues.

The positive response from the general public on the source separation is an indication that the public has been every anxious to see improvement in the waste management system that they are willing to change. This probably is resulting from the frustration on the low recycling rate in the country which has never changed from the 5% label.

In the view of whether recycling is inconvenient, majority of both public (68%) and relevant stakeholders (70%) agreed. Generally, recycling would require additional effort to conduct waste separation and space to collect the recyclables according to types. Thus, it is a time-consuming activity. For occupants of small premises, the limited space would make recycling an activity which creates mess and uncomfortable hassle. Therefore, it is undeniable that recycling can be an inconvenient practice unless these issues are tackled. Inconvenience in recycling can be alleviated by providing effective collection system and consumer-friendly recycling facilities. In order to optimize the use of recycling facilities provided, it is necessary that the participation is high. This can be achieved by making recycling mandatory.

Almost all respondents including public (99%) and the relevant stakeholders (100%) believe that making recycling mandatory will improve the recycling rate in the country. This probably due to the fact that institutional drivers can impact and encourage the public to participate in recycling if it is a by-law requirement (Agamuthu et al, 2009).

The respondents probably see the making of recycling mandatory as a regulation which comes with fine and punishment if they failed to comply. Additionally, if recycling becomes mandatory, it will come together with the establishment of more recycling facilities in the country. As a result, these facilities will improve public convenience and thus participation in recycling activities can be enhanced. Various studies indicated that insufficient recycling facility is one of the obstacles towards successful recycling, particularly in developing nations (Agamuthu et al. 2010, Agamuthu et al, 2009).

The survey also indicated that more than half (66%) of the general public felt that there is a need of a more stringent regulations regarding the waste management system in the country. This probably based on the fact that stringent rules and regulations imposed by the government in general and the Act 2007 in particular will help to improve public attentiveness on waste management issues and positively alter the existing habit of Malaysian towards becoming a more responsible waste generator.

CONCLUSIONS

In general the perceptions of the general public and the relevant stakeholders vary in some aspects particularly on the awareness of the Solid Waste Management Act 2007 and its relevant issues. On the other hand, other views indicated the public and relevant stakeholders are in agreement on other issues. The view in making recycling mandatory is seen as an excellent step by both groups in promoting good 3R practices. Nevertheless, the existing gaps between public and the relevant stakeholders highlighted the fissure between the actual and on-ground implementation, and the stipulated policy. Thus, it is crucial that necessary actions are taken to amend the gaps in order to allow successful implementation of 3Rs practices in Malaysia.

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