



MOHAMMED BIN RASHID SCHOOL OF GOVERNMENT

# POLICY ANALYSIS EXERCISE

## Summary

Waste generation has been a worldwide environmental challenge. The United Arab Emirates ranks as one of the highest when it comes to waste production compared to other countries in the world. Hence the UAE National Agenda aims to eliminate 75% of waste in landfills by the year 2021. Since individuals are one of the main waste producers, their contribution to the solution is essential. Authorities have implemented great efforts to engage residents to participate in solving waste issues by reducing waste generation, and encouraging recycling. For example, Dubai municipality has launched smart sustainable recycle centers in different residential areas in Dubai to motivate the practice of recycling. This policy brief is based on a study that was conducted in 2018 which aimed to explore the perceptions, attitudes, and behaviors of Dubai residents towards waste management, and to set policy recommendations based on the results. Understanding how people perceive the waste problem in Dubai and mapping their attitudes and behaviors towards waste management are essential components in solving this environmental problem.

**Author:** Dina Al Dajani, Master in Public Administration 2015

## Perception and Attitude of People in Dubai Towards Waste Management

Waste generation is one of the major environmental challenges that the UAE is facing. The total amount of solid waste generated in 2017 in Dubai is around 6,432,460 tons. The estimated daily municipal waste generation is about 1.47 KG per capita. These statistics are expected to increase along with the population and industry growth (Center, 2017). The UAE faces different environmental challenges due to the rapid economic growth, and as a result of the constant increase in population, there is a higher demand on water, food, and energy to fulfil the development's requirements. Unfortunately, this necessary consumption increases the quantity of waste, which ends up in landfills or dump sites that generate large amounts of methane, a potent greenhouse gas. The findings of a recent global study by the World-Wide Fund for Nature (WWF) announced that the UAE has one of the highest carbon footprints in the world (Todorova, 2010).

## About the PAE Series

The Policy Analysis Exercise (PAE) series is a student-led policy publication series. The PAE Series is a platform that highlights the contribution of MBRSG postgraduate students to policy. The Policy Briefs in this series identify and analyze real policy issues and provide concise advice and solutions for policymakers. The Series contributes to bridging the gap between educational output and real policymaking. It highlights the impact of MBRSG's educational output on policy through high quality research outcomes by MBRSG students. For policymakers, the Series provides valuable practice-driven policy analysis, advice, recommendations and solutions that can contribute to better quality of government.

As a response to the environmental challenges, the government has coordinated with the environment and waste management local authorities, and handled the issues through promoting recycling and converting waste to energy and resources, as well as adopting new technologies, and developing waste collection and separation systems. However, individuals are also one of the main sources of generating municipality solid waste. Hence, the UAE residents are a key element in solving the issue at hand, and that is by reducing the amount of waste production and improving disposal practices and recycling culture.

### **Waste management in Dubai**

Dubai generates 9,300 tons of domestic waste per day. To help achieve the UAE National Agenda's goal of reducing waste sent to landfills by 75 percent by 2021 and zero waste within 20 years, two new plants will be launched along with the existing facility of Tadweer in Al Warsan. Altogether, they will be able to process 5,000 tons of domestic waste, allowing Dubai to surpass its goal (Saseendran, 2018).

This integrated plan includes establishing the largest plan in the Middle East to convert solid waste to energy in Warsan district. The first phase of this project will be activated in the second quarter of 2020. It will produce 60 megawatts per day of green energy through the incineration of 2,000 metric tons of municipal solid waste.

### **United Arab Emirates surveys of household behavior versus waste management**

A study conducted by Hamdan Bin Mohammed Smart University students in 2017 examined the level of awareness in the Emirati household, and their willingness to participate in recycling and compost programs. Data was collected through interviewing ten Emirati households

(Almansoori and Moussa, 2015). The survey's findings correspond to the findings of a survey conducted by the Organization for Economic co-operation and Development (OECD, 2011).

The results showed that 60% of the households depend on housemaids to dispose of the waste, while only 40% depend on a family member. The contribution of housemaids was not discussed in previous surveys and it demonstrated the demographic development, and the changes in the distribution of household duties. However, the questionnaire only included family members, not the housemaids, and participants reported that they did not share information regarding waste management with their housemaids.

The similarity between the Emirati household survey Almansoori and Moussa (2015) and the OECD's survey (OECD, 2011) is that both reported the respondents' concerns about health issues and diseases that result from mismanaging wastes, and the importance of recycling and the availability of waste collection facilities in the neighborhood. Another similarity is that participants from both surveys were willing to partake in recycling programs if available. They both also believe that their purchasing decisions could affect the rate of waste generation. However, the OECD survey put the responsibility on the manufacturers, retailers, and governmental policies that do not support less packaging, while Almansoori and Moussa, (2015) stresses the impact of consumers' choices. The OECD results also showed that income level correlates with waste generation.

Worth noting here that UAE has implemented prevention policies, such as producing degradable plastic bags, so individuals would have the facility to follow environmentally friendly practices (Environment Agency in Abu Dhabi, 2013). With policies like this, it becomes easier to share the responsibility between the government

and the residents. Adding to that, it is important to support the industries that produce durable products and minimize their disposal, as well as reduce packaging waste (Aljasmi, 2016).

## Public attitude towards waste management

Dr. Jennifer Eileen Cross, a well-established community sociologist in Colorado USA, who studies people's behavior in communities (Cross, 2001), stated in one of her lectures that common sense is the greatest adversary for choosing or creating a message to change the behavior of people (Cross, 2013). She maintained that instead of addressing people priorities and desires, looking at social norms' patterns would be more effective (Cross, 2013). With this idea in mind we can change the way people perceive recycling and get a better outcome by simply advertising it in a different way which appeals to the audience's sense of community and integrate it as a social norm.

Therefore, an important aspect to consider in the waste problem is educating people to change their behavior. An example for such behavior is energy saving in buildings, since energy consumption accounts to a large percent of greenhouse gas emission (Cross, 2013). The effectiveness in reaching greener cultures lies in the way information is presented to people. In order to achieve better outcomes, the information must be presented as tangible (Cross, 2013). Therefore, when presenting the relatively new idea of recycling, explaining the extent of the issue in a tangible way will have a better impact on the results and will resonate in people's minds more.

The second important aspect to consider is that people are loss averse, meaning that they hate losing things in general. Drawing links between generating waste and losing would encourage them to change their behavior, without paying attention to how big or small the loss is.

Therefore, stressing loss will be more effective than stressing gain (Cross, 2013).

But not much can be done without first understanding people's underlying values which guides policymakers towards better results. Citizens care about saving money, while the environmentalists care about saving the environment, its resources, and eliminating wastes (Cross, 2013). People's feedback should be considered from a non-judgmental perspective, if the desired target is raising people's awareness in an effective manner. This is important because although the government have a defined strategy, it might be utilizing less effective techniques, by prioritizing common sense rather than social norms in an attempt to alter the behavior of the people.

## Perception and Attitude of People in Dubai Towards Waste Management – The Study

Through the use of questionnaires, the study in this policy brief focused collecting data from Dubai residents who live in areas that have implemented an inaugurated a project called "Smart Sustainable Oasis" by Dubai municipality. These centers have been located strategically around residential areas, allowing easy access for users. This project's main benefit is to serve as a convenient facility for anyone who wishes to recycle wastes.

The study sample represents 52.5% UAE nationals, and 47.5% expatriates, excluding tourists and laborers. 63% were females, and 37% were males. The age group ranges from 18 to 50, and with 62% of the sample holders of university degrees.

When asked about what motivates them to manage waste, 71.3% voted for health and hygiene, 59% voted for saving the environment, and only 23% voted for economic reasons.

These results reflect that the waste management department in the municipality of Dubai has achieved its target in the mission of raising awareness regarding the link between the importance of waste management and the

commitment to cleanliness and environmental safety. The fact that participants gave “economic reasons” a low ranking as a motive for recycling and reducing wastes is interesting.

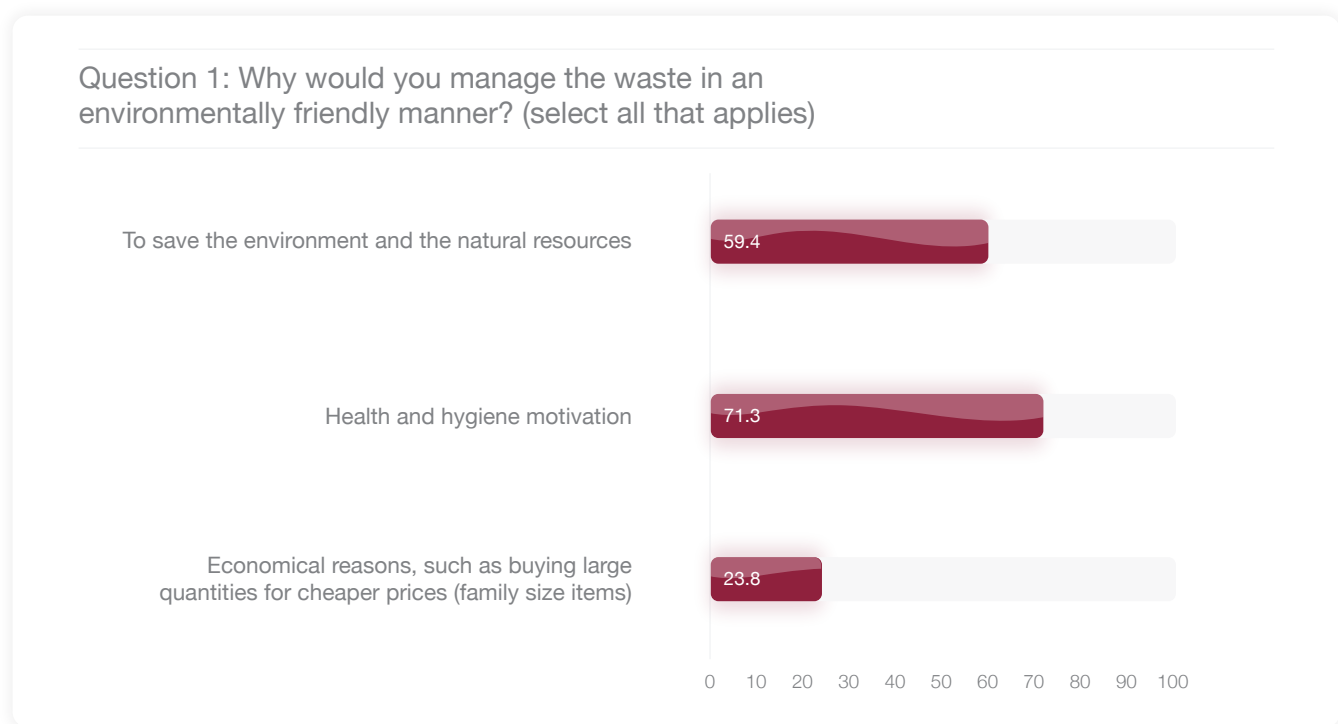


Figure 1. Responders' motive toward waste management action, by percentage.

The main source of information about waste management was found to be advertisements (TV, radio, or newspaper) as 50%, followed by social media as 22.5%. Media campaigns, and littering fines (for example Dhs 500/126\$ fine for throwing cigarettes in Dubai) as 22%.

It can be inferred from these findings that there is a certain degree of trust in the imposed policies and the government's efforts to educate people about waste management, rather than indicating the powerful channels that affect the behavior of people towards waste management.

Although social media is a powerful tool to spread information and awareness in our modern times, it was not ranked the highest. Instead, TV, Radio and newspapers have been ranked

as more powerful tools. This indicates that the government's messages are within reach of people, since people consumed the information that has been announced on TV, radio, and newspapers more than other sources. Also, rating the social media avenues in the second place means that waste management knowledge is covered effectively by all channels. With a slight difference between it and social media, the Environmental organizations (Dubai Municipality, Beaa, and other environment group) ranked third. Campaign and litter fines come after that. The low ranking can be due to the fact that they are not as frequent as the others. School educational programs scored low, which can be attributed to the fact that school student (less than 18 years of age) were not included in the study.

Question 2: How do you know about waste management issues? (Select all that applies)

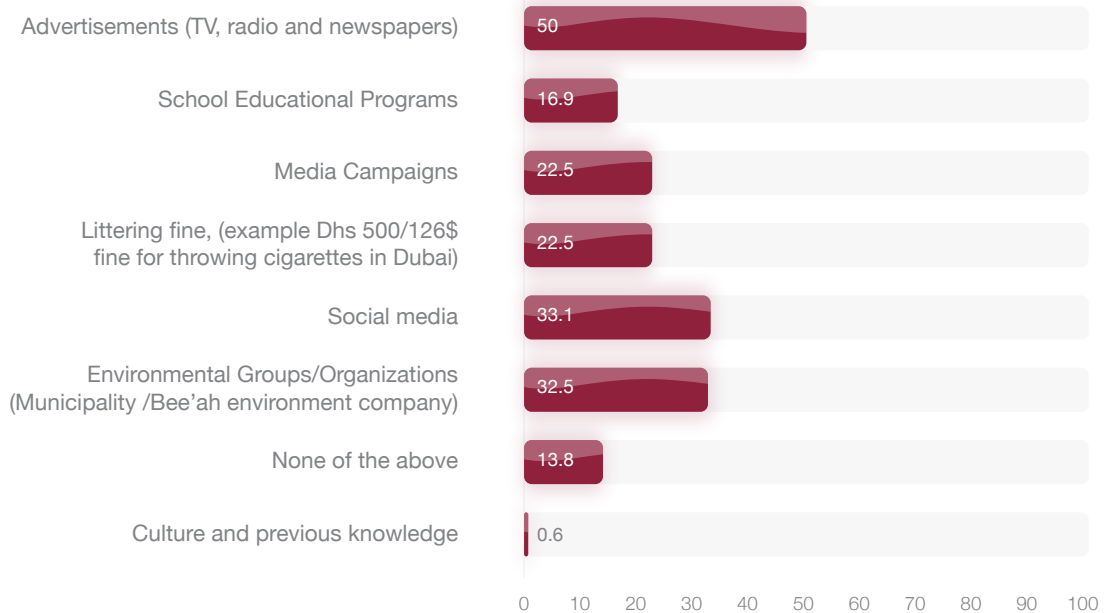


Figure 2. The source of responders' awareness about waste management issues, by percentage.

When asked about the challenges they encounter in waste disposal, the results were as follows: disposal of electronics (49.1%), used furniture and medicines scored (44.7%), batteries (41.6%), chemicals (31.1%), and old books (27.3%).

In another question, 14.3% of the respondents selected "never think about disposing", and 7.5% selected "none of them". These two figures are minor, but they represent the people who are not aware about the hazards of their generated wastes. Since recycling is not mandatory, and such hazardous waste materials would be sorted later after general waste has been processed, it is understandable why some people might not be concerned with this category. Nonetheless, this is an important area to be discussed in the future when sorting wastes at home will be mandatory,

and it should be considered by the policy makers as well.

The question "Did you ever reuse any of the following items in your house" was answered as follows: plastic bags: 64.6%, glass containers: 59.6%, plastic containers: 49.1%, papers: 45.3%, and clothes: 42.9%.

This shows that people in Dubai have positive attitudes towards reusing items, and that can be attributed to the habits in their lifestyle, and the benefits they get from reusing items. This indicates that people obtain the behavior of waste reduction, even if the intention is different. It might also indicate that they are willing to recycle in the future.

Question 3: Did you ever reuse any of the following in your household?

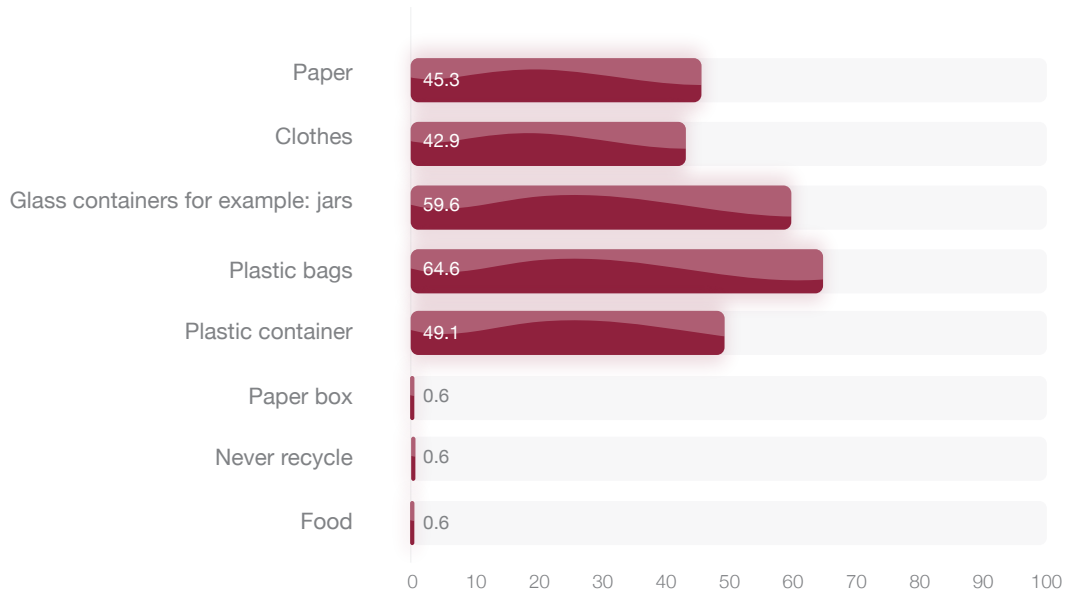


Figure 3. Items reused by the respondents, by percentage.

## Recommendation

1. The first strategy that should be followed in waste management in Dubai is prevention by reducing wastes. The survey's results have shown positive attitudes towards reusing materials, which is a way of reducing waste. More awareness should be raised regarding reducing wastes, such as encouraging smart purchasing that would prevent waste production and is also economically effective. Moreover, smart shopping could be done by consumers through:

- Saying no to single use plastic carrier bags at the supermarket and use reusable 'bags for life'
- Avoiding over-packaged goods – buying unpacked fruit and vegetables
- Avoiding disposable products, such as batteries, cleaning cloths, razors etc. Think about buying rechargeable, reusable or replaceable items to reduce rubbish and save money.

- Education should also be provided about the consequences of disposing of hazardous wastes such as electronic devices and medicines.

2. Another strategy that may aid in the reduction of waste production is charging households for waste disposal in the general waste bin. This might motivate individuals to recycle instead, and therefore reduce the amount of waste being sent to the landfills. The billing systems could be adapted from countries following this strategy and adjusted to fit the UAE system.

For example South Korea has organized a waste management system, known as jongnyangje, which has been established by the Ministry of Environment, and organized by the Municipality. The waste is segregated from the consumers' side as household food waste, recyclables, non-recyclables, and other large objects. It is mandatory that all waste is separated, otherwise a penalty will be charged for non-compliance, as well as financial rewards for reporting any non-

compliance. Although there is no direct charge for garbage collection, every household has a chargeable electronic card to dispose waste. They also have to buy color coded garbage bag.

3. Educating the laborers about the efforts put into waste management and recycling and encourage them to separate their wastes is a necessity, since Dubai's demographic distribution shows that 72% of the population are males, 11.48% are native residents, with the remaining 88.5% expatriates, and 48% of the expatriate are laborers, who are generally not exposed to recycle awareness due to the nature of their work.
4. Invest in a door-to-door drop-off system to encourage people to recycle. There are wide variations across countries regarding the material separation and the recycle service scheme, as well as the location of the facilities. Door to door services are dominant in Australia, Canada, Japan, Korea, and to a lesser extent in the Netherlands. Other countries where drop off centers service are common, such as Sweden and Switzerland. Chile appears to have the least available recycle services, which causes low levels of separation of wastes. however, recycle services may be available in the country, inconvenience could be a hurdle to recycling, as the study shows that door to door collection services are more preferred than drop off centers.
5. Address the younger generation and educate them about waste management to invest in a long-term strategy of the Dubai waste management plan. As some of the studies conducted by the OECD (2011) about waste management and households show a strong correlation between age and management attitudes. Younger people are more aware about the importance of waste segregation than older people are. What is interesting in this finding is that it shows that younger people are more likely to separate wastes, and would be more alert to reduction of waste production. This gives a positive indicator that younger people have better waste management habits that would be carried with them as they get older. Waste management in Dubai has started in 2012, so we do not yet expect the older generations to know a lot about this subject especially that the campaigns and advertising methods were mainly targeting the younger people as they will carry those good habits with them as they get older passing them on to future generations.
6. Awareness messages should be conducted on scientific basis, especially when the aim is behavioral modification. Usually federal organizations use the least effective messages, because they depend on what people say, but as mentioned previously, people think they know what they want, but they do not. Dr. Jennifer Cross has addressed a study done by hotel owners as a part of environmental stakeholders who try to motivate saving the environment behavior through their clients. They used the following message to motivate people to change their behavior: "Kindly reuse your towel, support us to save the environment". Unfortunately, this message was found to be the least effective method to motivate people to reuse the towels. Based on experiments conducted by psychologists to see the effect of messages in changing people's behavior, they found that 58% of hotel clients reuse their towels when they have read that "75% of our hotel clients reuse their towels" in comparison with the message of "reuse the towel to save the environment". Although hotels decided to use save the environment signs, the result of the questionnaire that has been conducted asking people what would motivate them more, concluded that in order to have an effective campaign, instead of addressing people's priorities and desires, addressing social norms' patterns would be more effective.
7. Since food waste is one of the most generated waste in a household, encouraging the implementation of food compost programs will be an effective way to reduce waste and

simultaneously benefit from it by extracting organic fertilizers, biogas, and biofuel from the organic wastes. This point would be supported by collaboration with point two, as if UAE implement the waste fee system, people will follow any program to reduce their waste, such as composting program. One of the most common types of wastes among the survey responses was plastic. A solution to this can be enhancing the use of biodegradable plastic, and thus reducing the negative effect on the environment. However, some environmentalists and recyclers question whether they degrade as fully as their proponent's claim.

8. Benchmarking the successful achievement, and unifying the policies across the seven Emirates may reflect positively on solving the problem of waste management. Although Sustainability and environment efficiency are the cornerstones of all environmental policies, the variety of the waste management procedures and process in each emirate are taking a competitive path, which would be improving the waste system in some emirates, but in the other had confusing individuals which system to follow and resulting in unstable decision and policy.

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## About MBRSG

The Mohammed Bin Rashid School of Government (MBRSG) is a research and teaching institution focusing on public policy in the Arab World. Established in 2005 under the patronage of HH Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the United Arab Emirates and Ruler of Dubai, in cooperation with the Harvard Kennedy School, MBRSG aims to promote good governance through enhancing the region's capacity for effective public policy.

Towards this goal, the Mohammed Bin Rashid School of Government also collaborates with regional and global institutions in delivering its research and training programs. In addition, the School organizes policy forums and international conferences to facilitate the exchange of ideas and promote critical debate on public policy in the Arab World.

The School is also committed to the creation of knowledge, the dissemination of best practice and the training of policy makers in the Arab World. To achieve this mission, the School is developing strong capabilities to support research and teaching programs, including:

- Applied research in public policy and management
- Master's degrees in public policy and public administration
- Executive education for senior officials and executives; and,
- Knowledge forums for scholars and policy makers.

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### Acknowledgement:

The following individuals have contributed to this publication

- **Editor:** Lama Zakzak, Associate Researcher at MBRSG
- **Production Team:** Engy Osman | Amal Anwar Elsisy | Ghaith Yagan | Shuaib Kunnoth

## Contact:

For general information or comments on the PAE series and publications, please direct emails to: PAE@mbrsg.ac.ae.



كلية محمد بن راشد  
للإدارة الحكومية  
MOHAMMED BIN RASHID  
SCHOOL OF GOVERNMENT

## Mohammed Bin Rashid School of Government

Convention Tower, Level 13, P.O. Box 72229, Dubai, UAE  
Tel: +971 4 329 3290 - Fax: +971 4 329 3291  
www.mbrsg.ae - info@mbrsg.ae

