

A Survey on Public Attitude and Awareness towards Recycling in Jaipur City

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Abstract

Introduction: Recycling entails participatory waste management, which includes social, economic, and environmental alternatives and requires people to invest time in separating discarded material and returning it to the industrial process. A variety of variables have been used to understand pro-environmental behaviour, including peer influence, motivation to recycle, environmental beliefs, altruism, level of information, and environmental perception.

Methodology: For present study a random survey was conducted amongst the residents of Jaipur staying at different locations and area. The questionnaire consisted of a total of sixteen questions based on the methods of recycling, recyclable items and attitude of public towards participating in recycling.

Observations and Result: Most of the participants were aware of the recycling process and its necessity in present scenario. Still they have their own reasons for not being able to fully participate in practising it in day to day life.

Keywords: Recycling, Waste Management, Pro-environment, Garbage, Energy from Waste, Biodegradable

1. Introduction

Recycling is a method which converts waste materials into usable materials and objects. The process includes the concept of Energy from Waste. Most of the items in our daily waste are recyclable which should be recovered wisely before disposing off the waste.

Jaipur is the capital city of the Rajasthan state. As of 2011, the city had a population of 3.1 million, making it the tenth most populous city in the country. It is also known as the Pink City, as the old city was being constructed using pink coloured stone. It is also known as the Paris of India and Dr. C.V. Raman named it as Island of Glory.

Being a big city and centre for many industries, the daily production of solid waste management is almost 1,150 tonnes per day. Of these, approximately 200-250 tonnes, in the city's streets and roads, i.e. the removal efficiency was about 80%. The production of municipal solid waste per capita per day is about 450 g. The composition of the waste constantly changes from season to season. In the summer, there will be more biodegradable waste due to the large amount of vegetation. The composition of the plastic waste is likely to go down as a result of the ban on plastic bags as well as growing awareness among the public about its harmful effects on environment.

Rajasthan government has come out with a scheme in which the state government will buy outdated electronics items – computers, desktops, routers, basically any e-waste items that are lying unused, from the consumers. The scheme was officially launched by the government on the occasion of 45th World Environment Day on June 5.

The government along with the state pollution control board, Indian Oil, Instacash, and Greenspace, has started a campaign to create public awareness against e-waste and plastic so that a common man is made aware on about the importance of e-waste management.

The government has also set up 20 collection points for e-waste and plastic bags at the Indian Oil petrol pumps in Jaipur, where one can simply come and deposit their e-waste and plastic bags. While cash will be given against e-waste, jute bag will be provided in exchange for plastic bags.

Recycling of materials such as plastics is not very well documented. E-waste recyclers use processes such as open incineration and acid-leeching. This situation could be improved by creating awareness and improving the infrastructure of recycling units along with the prevalent policies. The majority of the e-waste collected in India is managed by an unorganized sector.

The landfill is one of the most dangerous sites contaminated by human health and is most harmful to the environment. Many scientific studies and research have proved the seriousness of the problems to be caused by them and have also warned of its consequences.

The environmental scenario requires the participation of the society as individual responsibilities to reduce the burden of waste. The recycling pro-environmental behaviour contributes to the proper disposal of solid waste, a major challenge in urban public management. The article aims to analyse the public awareness and their attitude towards saving the resources by practising recycling at home. Societal attitudes and behaviour to recycle are related to social norms, motivation, identity, altruism and awareness; these should be considered when planning public policies and environmental awareness actions.

Improper municipal solid waste disposal is an environmental problem that can lead to soil degradation, the contamination of water bodies and groundwater through the infiltration of soluble substances in the waste material, emission of gases that are harmful to human health, as well as flooding during heavy rains caused by the blockage of drainage channels. Commonly called “garbage”, waste consists of organic and non-organic materials discarded by households, businesses and government. The rapid rise

in solid waste generation stemming from a social context characterized by the accelerated pace of technological change requires the adoption of new patterns of consumption, which in turn calls for greater public participation waste management. In this respect, when collection and recycling systems are implemented, waste adds value for the people involved in this activity.

The “Three Rs” rule, which is based on economic and social principles, is widely employed to this end. The first “R” for Reduce, consists of slowing the pace of consumption and using only what is necessary when it comes to water, electricity and consumer goods. The second “R” is for Reuse, which entails finding new uses for discarded materials. While the third “R” is for Recycle, which involve separating material that would otherwise be discarded, and physically or chemically transforming it into a new product.

Recycling entails participatory waste management, which includes social, economic, and environmental alternatives and requires people to invest time in separating discarded material and returning it to the industrial process. Recycling therefore poses a challenge for public sector managers because it involves a complex array of social factors and behaviours that information-focused and conservative environmental education is unable to address satisfactorily.

A variety of variables have been used to understand pro-environmental behaviour, including peer influence, motivation to recycle, environmental beliefs, altruism, level of information, and environmental perception. Studies have shown that public campaigns and environmental education can lead to an increase in pro-environmental behaviour such as recycling and citizen participation.

India is a rapidly developing nation. With development comes waste generation, and India is no exception. Right from municipal solid waste, plastic waste, to automobile waste, the amount of waste is expected to be 3 times by 2025. Recycling is the way forward for a sustained and robust waste management ecosystem in India.

1.1 Need for the Study

Jaipur is a popular tourist destination in India and forms a part of the west Golden Triangle tourist circuit along with Delhi and Agra (240 km, 149 mi). Jaipur is a rapidly developing city of Rajasthan. Growing technological development is resulting in growing waste generation also. Recycling is the process of converting waste materials into new materials and objects. The recovery of energy from waste materials is often included in this concept. The recyclability of a material depends on its ability to reacquire the properties it had in its original state. The first step to restrict this huge amount to reach landfill sites is to make public aware about its consequences in a way which express their own benefit along with the environment.

Recycling is helps us in many ways:

- It reduces stress on natural resources.
- It reduces the stress on waste disposal mechanisms.
- It maintains sustainability in environment.
- It works on the principle of converting garbage into gold.

- It improves the status of the country.
- It reduces the pollution.

2. Review of Literature

Several studies have been conducted to explore individual recycling behaviour.

Jenkins et al. (2000) conducted a study on “The determinants of household recycling: A material specific analysis of recycling program features and unit pricing” [6]. According to the study, the recycled materials were: glass bottles, plastic bottles, aluminium, newspapers and yard waste. The findings of this study were that the access to curb side recycling had a positive effect on recycling behaviour and improved percentages of materials that were recycled, thereby lending credence to the possibility that the convenience of curb side access is a factor that impacts upon recycling behaviour. A curb side program tends to reduce both time and expense for the customer [6].

Laroche et al. (2001) identified the factor of inconvenience as reflecting the extent to which it is convenient for the customer to engage in recycling behaviour. This factor holds good in the case of purchase of recyclable products as well as active participation in curb side collection programs – a customer may perceive recycling itself as important but may not actually engage in it actively because of the perceived level of inconvenience. This appears to suggest that customers are not as likely you recycle items if they have to go out of their way to find collection centres for certain waste items [7].

According to a study conducted by Soong (2002), which explored the responses from participants in the Latin American study of recycling behaviour taking into account socio economic levels, it was found that contrary to what might have been expected, people from the lower classes tended to be more careful in recycling. This was a surprising finding because the natural assumption was that the better educated people would be the ones who would be more conscious about recycling and take more effort to do so, rather than the poorer sections of society. But this study appears to show a more highly developed sense of the value of recycling in those from lower socio economic groups [12].

According to a study conducted by Gonzalo Dias Menezes (2005), in which the socio demographic profile of recyclers was examined revealed that recycling behaviour is multi dimensional and depends upon a combination of factors. This study showed that recycling behaviour tended to improve with age and older members of the population appeared to be more conscientious in recycling on a regular basis [4, 5].

According to Loureiro (2005), recycling poses a challenge for public sector managers because it involves a complex array of social factors and behaviours that information-focused and conservative environmental education is unable to address satisfactorily [9].

A study conducted by Brasil (2010), geared towards an environmental commitment that meets political, socioeconomic, and demographic needs, environmental policy began to take shape in Brazil after the United Nations Conference on the Human Environment held in Stockholm in 1972. In response to concerns about the environmental impacts of waste generation and disposal, measures were developed

that shared responsibilities between the public sector and society. In 2010, the Ministry of the Environment approved the National Solid Waste Policy (PNRS, acronym in Portuguese - Law 12.305/10), which provides for integrated waste management and the implementation of instruments designed to promote recycling and reuse of waste with economic value [2, 3].

The study conducted by Pato et al. (2011) emphasis on the dialectical process, environmental psychology seeks to understand the relationship between people and their social and physical environment, focusing on how environmental conditions influence people as well on how individuals perceive and act on the environment. One of the fields of study within environmental psychology and one of the most widely studied concepts is environmental behaviour, also known as pro-environmental behaviour. This can be understood as human actions aimed at promoting sustainability and protecting the environment, including the proper separation and disposal of waste. For a behaviour to be characterized as pro-environmental, it is must involve conscious and intentional actions, as opposed to actions undertaken autonomously or where environmental preservation is not the motivating factor [11].

According to Stephanou (2013), the “Three Rs” rule, which is based on economic and social principles, is widely employed to this end. The first “R” for Reduce, consists of slowing the pace of consumption and using only what is necessary when it comes to water, electricity and consumer goods. The second “R” is for Reuse, which entails finding new uses for discarded materials. And the third “R” for Recycle involves separating material that would otherwise be discarded and physically or chemically transforming into a new product [13].

According to a study conducted by Garcia et al. (2015), recycling entails participatory waste management, which includes social, economic and environmental alternatives, and requires people to invest time in separating discarded material and returning it to the industrial process [1].

The present study was conducted to study the public awareness about recycling and various methods involved to carry out recycling. Through the study they were also told about its importance and were motivated to participate as much as possible.

3. Methodology

The present study was conducted to check the knowledge about recycling methods, recyclables and its importance amongst the residents of Jaipur and also to know their attitude about participating in recycling of waste products.

To carry out the present work, a random survey was conducted amongst the residents of Jaipur staying at different locations and area. The questionnaire consisted of a total of sixteen questions based on the methods of recycling, recyclable items and attitude of public towards participating in recycling.

There were a total of 150 participants belonging to different colonies of Jaipur including Vaishali Nagar, Mansarovar, Malviya Nagar, Jawahar Nagar, Jagatpura, Raja Park and Pratap Nagar. The survey was conducted through face to face interview so as to make them understand the question clearly and also to solve their query if any. They were also asked to share their ideas or suggestions about recycling.

The study was helpful to understand the attitude of public and the problems faced by them to participate in recycling programme.

4. Observations and Result

A random survey was conducted among the residents of Jaipur. Most of the participants (67%) were permanent residents of Jaipur, and others (38%) have shifted due to some reason.

26% of total participants are staying for more than 21 years, and 25% of them have recently shifted here.

On enquiring about whether the waste is segregated before it is finally dumped off at landfill sites, 41% people didn't have any idea about it, 38% people replied that it is segregated by the municipal corporation, and 26% participants were sure that the procedure is not followed by municipality.

63% participants were practising recycling at their house either to reduce waste or for their interest. A few were practising it to earn money. Rests of them were either lacking time or were having no idea about how to do. There were people who even didn't feel it necessary.

69% of participants were aware about the recycling of Paper and Plastic and were also participating in recycling of these items. 45% knew that the garden waste can be recycled, and most of them accepted that they were practising it at home. Only 35% of total participants were aware about the glass and metal recycling, and most of them participate also in their recycling.

72% of participants were interested for attending the recycling training program if conducted near their place, while rest of them clearly denied to do so as they were either too busy or were not interested.

64% of participants throw the item in trash if they had no idea about whether the item is recyclable or not, while rest of them either take it to the recycling centre or wait for the vendor to visit their place. In the later case, they even accepted that on not being able to do either of this they would try to contact the vendor.

57% of participants said that they reuse the plastic bags or polythenes before disposing them in trash, while rest of them either put them directly in trash or return to the vendor.

83% of participants did not have any idea about recycling centre near their house, while rest of them knew about it. 96% of participants agreed with the necessity of recycling, while others didn't bother about it.

Majority of participants gained knowledge about recycling from social media and net surfing while the other sources were newspaper, books, friends, family members, relatives and television.

5. Discussion

In present scenario, recycling has gained utmost importance in protecting the environment from degradation either by reducing the waste generation or by conserving the natural resources. In present study emphasis was given to motivate the participants to reduce waste generation at doorstep and ultimately to contribute in improving the country's economy. It was an effort to educate public about the need for recycling and how to practice it at home.

76% of total population of Jaipur city and 100% of participants of present study are literate. Residents of Jaipur city are qualified enough to understand the importance of recycling but it depends on ones habit and attitude towards their duty to save natural resources.

As per the survey conducted, it is quite clear that people do understand the necessity of recycling and are willing to practice it at home as well. Some of them even shared their ideas about the steps needs to be taken in order to improve the recycling habits. The survey revealed that imparting proper knowledge would probably motivate the public to do even more. The study was an effort to understand whether and why people chose to recycle.

Looking at present condition of natural resources, most of our industries are diverting to produce recycled products. This would probably be an important step towards sustainable development. Apart from reducing the demand of scarce natural resources as raw material, it would help to reduce the waste generation. Thereby would solve the problem of waste management as well. As per the survey people do understand the problem and are interested in buying recycled products but the only problem faced by them is the cost of recycled item. Most of the recycled items are unaffordable for them which ultimately affect on their market value. As per the public's opinion government should look into the matter and should take necessary steps to mitigate this problem.

A major role is being played by the social media and net surfing to spread awareness about importance of recycling and imparting innovative ideas for how to practice it at home. The survey also helped to understand the barriers which restrict people to participate in recycling.

6. Conclusion

The overburden of solid waste generating every new day needs to be taken care of with utmost priority. As we all are a part of environment and each one of us generate solid waste in our day to activity, the solution of the problem will probably arise at our end. Government and public sectors are constantly engaged in innovating new ideas to reduce the burden of waste. But their efforts will be successful only with the cooperation of public. No space has been left to create new landfill sites, which too in turn complicates the problem by spreading environmental pollution. Thus the best way possible is to implement the principal of 4 R's, i.e., Reduce, Reuse, Recover and Recycle. The present survey was conducted to understand the public attitude towards practicing recycling and also to motivate them to make it a habit to participate in the process of recycling. Recycling is the way forward for a sustained and robust waste management ecosystem. As per the study, social media plays a very important role in enhancing public awareness and thus more and more content should be posted to educate common people about the problem of waste generation and its possible solutions. Recycling entails participatory

waste management, which includes social, economic, and environmental alternatives and requires people to invest time in separating discarded material and returning it to the industrial process.

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