

Media's Role in E-Waste Awareness - A Perspective of Rural and Urban Population of Maharashtra

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Abstract

Electronic devices have been one of the essential part of every individual across the globe due to the digital connect and requires contemporary electronic devices. Along with developed nations, India though being developing having an edge in the software services together with a demographic advantage having a population of 1.3 billion is also the second largest market of consumer electronics in the world. Increase use of electronic devices in Indian households has also led to a new stream of waste – e waste which gets generated by end of life electronic devices after their useful lifespan. Technological advancements and economies of scale of manufacturing electronic devices have been within the scope of all sections of society which has been reason for producing enormous amount of e waste. Usage of electronic devices has been considerable in rural areas, catching up with the urban areas and contribute in e waste generation. Current deteriorating solid waste management scenario in urban and rural areas have been of concern due to addition of e-waste. User awareness and medias role play an important role in management of e-waste in urban and rural areas. The authors in this paper have carried out a comparative study through a primary survey method with a structured questionnaire and field visits in Pune, a metropolitan city and Pandharpur, rural town in Maharashtra to understand the e-waste management scenario.

Introduction

In modern times E-waste which results as a waste from EOL electronic devices has been a concern area in the solid waste management challenge for both developed and developing nations irrespective of economic and social factors (Nandan, et al., 2017). Electronic devices have been an integral part of human life where in electronic devices often deemed to be obsolete in a short span of time leading to replacements attributed to fashion trend, preferences, need or just as status symbol. Many a times perfectly functioning electronic devices attain premature end of life (EOL) and find their way towards the waste stream as e-waste (Shevchenko et al.,2019).

India has been one of the largest market in the world for electronic devices among the developing countries as the approach of consumer targeted growth policy combined with rapid product obsolescence and technological advances have generated a new environmental challenge in the form of e-waste. Although lifespan of electronic devices has been higher in India than in the developed nations, still sheer size and population contributes to higher volume of consumption and disposal resulting in 5.2 MMT by 2020 as ASSOCHAM study. Various electronic gadgets contributed to tons of electronic waste being generated in India, 95% gets handled by the unorganised sector which uses non-scientific

techniques for treating e-waste leading to harmful effects on human health and environment (Chaudhary. and Vrat, 2019).

In line with many initiatives taken worldwide to streamline e-waste management, Government of India's Ministry of Forest, Environment and Climate Change (MoEFCC) have implemented the rules for handling electronic waste since May, 2012. E-waste (Management and Handling) Rules, 2016 have clear guidelines with a focus on the producer's responsibility of their products not only during production but till their end of life referred Extended Producer responsibility(EPR) (Bhaskar and Turaga, 2018). EPR, an internationally accepted framework for e-waste management states producers accountable for products in their entire life cycle starting from the production till their end-of-life. Manufacturers have to set up a mechanism to ensure that the EOL product reaches them through the collection centres and then these EOL products have to be channelized for disposal and recycling in an environment-friendly manner (Leclerc. and Badami, 2020).

As per the statistics, India's annual electronic waste (e-waste) has been forecasted to reach 5.2 million MTs by 2020. Among the top ten e-waste generating cities, Mumbai stands first and then Delhi, Bengaluru, Chennai, Kolkata, Ahmedabad, Hyderabad, Pune, Surat and Nagpur follow the list. The authorities, public and private sectors acting as primary sources of e-waste, accounts for 70 % of e-waste, individual families make a contribution of around 15% and the balance 15% is produced by manufacturing industry (Borthakur and Govind 2018). The consumption of electronic devices is not restricted to urban population and hence rural population also contributes to e-waste generation. E-waste generation has many different dimensions in all strata of the society but due to either lack of awareness or due to lack of facilities, the recycling and scientific disposal of e-waste has not been a successful initiative. Almost 6 years after the introduction and amendment of e-waste rules in 2016, both urban and rural population still has been far neglected in terms of spreading awareness and e-waste management (Sreedha and Sivasubramanian, 2018). Many factors contribute to managing e-waste wherein the stakeholders play a important role. Awareness of e-waste related issues and the role of media to spread awareness among masses have a relationship and they play a crucial role in making the situation better (Garg and Adhana, 2019). These electronic devices which have been the concerns also play a vital role in spreading the awareness about e-waste as well. Amidst widening gaps in politics and demographics, urban and rural areas have similar challenges in e-waste management and hence authors in this study have attempted to understand the e-waste awareness and role of in e-waste awareness by way of a comparative analysis between rural (Pandharpur) and urban (Pune) areas of Maharashtra.

Pune waste management scenario:

Pune, the second largest city in the Maharashtra state with a Public Private Partnership (PPP) model for managing waste and has been termed as a model city in India for solid waste management. Pune Municipal Corporation (PMC) and Pimpri-Chinchwad Municipal Corporation (PCMC) together is known as Pune region, which works with a co-operative named (SWaCH) - Solid Waste Collection and Handling Seva Sahakari Sanstha Maryadit,

formerly called Kagad Kach Patra Kashtakari Panchayat (KKPKP), have been successfully working together for solid waste management. Most areas in Pune have been covered by the door-to-door waste collectors and have achieved a considerable success in segregated waste collection (Chikarmane, 2012; Malhotra, 2014). Pune's smart city proposal with an aim of attaining zero waste status by 2019 with a systematic operational plan, also includes management of e-waste. Currently, like many other Indian cities, e-waste management scenario in Pune has been controlled by informal sector and needs intervention from local governing bodies and participation from various stakeholders (Saoji, 2012; Wath et al., 2010).

The smart city project proposal for Pune had outlined an Integrated Solid Waste Management System (ISWMS), which was to be operational from 2017 with positive steps towards e-waste management. Pune residents have been active participants in the segregation of dry and wet waste (i.e. Municipal Solid Waste – MSW), but still have not been sensitized to the dangers e-waste poses when disposed of with dry waste (Bhat et al., 2012; Zurbrügg et al., 2004). Waste collectors do collect the batteries, chargers, cables, broken mobile phones, etc., which they get along with the MSW from households, repair shops, small business houses and repair houses finding their way towards the dumping sites for landfilling (Bhat et al., 2012; Mistri and Kakade, 2015). The landfilling sites such as Devachi Urali, Phursungi, Moshi, Bhekraingar, Manjari Budruk, Shewalewadi and Loni Kalbor faces the pollution menace affecting soil, water, air and human health of nearby residents (Borthakur, 2016; Mundhe et al., 2014).

For the effective e-waste management participation by various stakeholders has been regarded as the key issue, and hence the project investigator decided to study the e-waste management scenario in Pune region with reference to residents as a main stakeholder (Kahhat et al., 2008; Ylä-Mella et al., 2015).

Pandharpur waste management scenario:

Pandharpur, a well-known pilgrimage town in the district of Solapur of Maharashtra state has a population of 98,000 as per 2011 census of India. The Municipal Corporation Authority in Pandharpur have been facilitating solid waste collection and segregation using ghanta gaadi under government initiative of Solid and Liquid Waste Management¹ (SLWM). Under the Swachh Bharat Mission (SBM) (G) project to bring in improvement in cleanliness, hygiene and the general quality of life in rural areas with the help of initiatives like Open Defecation Free (ODF) country, the municipal authorities are actively involved (Kale and Yehuda, 2018; Rahman et al., 2017).

Irrespective of the type of habitat, be it rural or urban there have been negligible efforts in managing the waste generated from EEE in terms of spreading awareness, waste collection, disposal, etc. Even though people know about the harmful effects of e-waste, and even if they collect it, they have not been facilitated by the local infrastructure. No registered vendors or collection centres have been there to collect the e-waste door to door irrespective of the quantity produced.

Due to the technological advancements which is bringing in the world closer, the people in rural areas who have been regular consumers of EEE also have been conscious about the damaging effects of e-waste. The role of television, internet, etc. in spreading awareness has been considerable but to carry out the responsible disposable act, people need to be supported by infrastructure. In order find out the e-waste related awareness and media's role the objectives of the study have been discussed below.

Objectives of the study

The study was undertaken with the following objectives:

1. To gather the data about awareness of e-waste and its scientific disposal in both rural and urban areas.
2. To study comparatively about e-waste awareness in urban area of Pune and comparatively rural area of Pandharpur in Maharashtra India.
3. To find out the residents' perception about e-waste harmful effects on public health and the environment.
4. To analyse the medium through which people get information regarding e-waste management.

Research methodology

The preliminary survey for data collection was carried out by questionnaire administration to households in Pandharpur and Pune, with different income groups. The sample size of survey was 167 in Pandharpur which is 0.0167% of the population and 508 in Pune which is 0.015% of the population. The survey respondents belong to different age groups and possess varied qualifications. The respondents were asked to respond with reference to the general waste management and e-waste management in specific. The questionnaire has two sections with section 1 capturing demographic data such as age, education qualification, income, location and gender and in other part, capturing responses related to e-waste awareness and disposal practices of Pune and Pandharpur households.

Results & discussion

As most of the e-waste gets disposed of with MSW in Pune region, the need was felt to understand whether the households had awareness that the disposal with MSW can cause ill effects. Further the investigator questioned them whether they think, there is a need to treat specially and not with regular MSW. Fig. 1.1 and 1.2 depicts the responses from the household awareness about ill effects and also special treatment required for e-waste in Pune. In Pune, when the respondents were questioned related their e-waste awareness and meaning of e-waste 67% were aware whereas 33% were not aware (Fig.6.1). When the respondents were asked whether they know that e-waste current disposal practices will impact the health and environment, 78% were aware about it and 22% were not aware whether there is any impact as such (Fig. 6.2). The findings show that if people are aware about the harmful effects of e-waste, they are also aware about what the e-waste is.

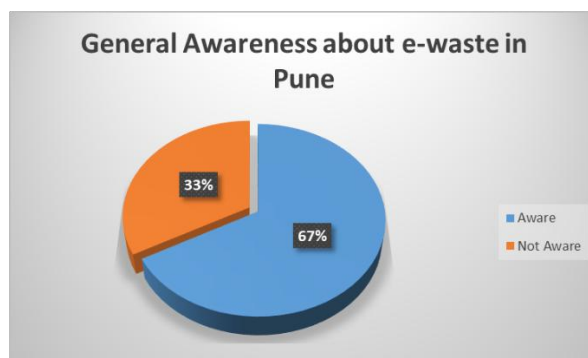


Fig.6.1 Knowledge – About e-waste (Pune)

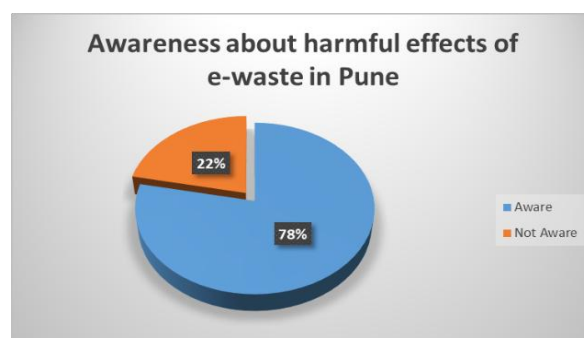


Fig.6.2 General Awareness – About ill Effects of e-waste disposal (Pune)

In continuation to the traditional disposal practices followed currently for e-waste in Pune region, 64% respondents felt that e-waste needs special treatment (Fig.6.3).

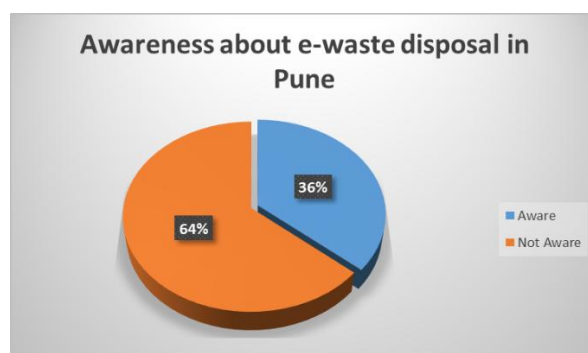


Fig.6.3 Awareness about e-waste disposal (Pune)

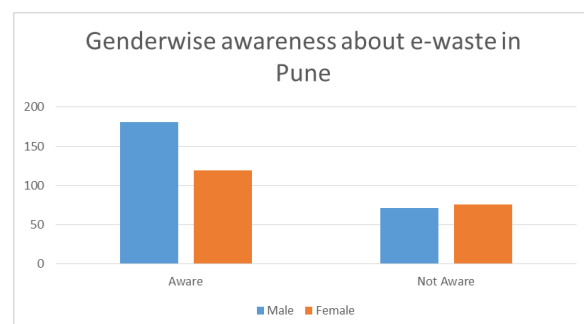


Fig.6.4 Gender wise awareness about e-waste (Pune)

The data suggested that male population in Pune are more aware about e-waste as compared to female population (Fig. 6.4).

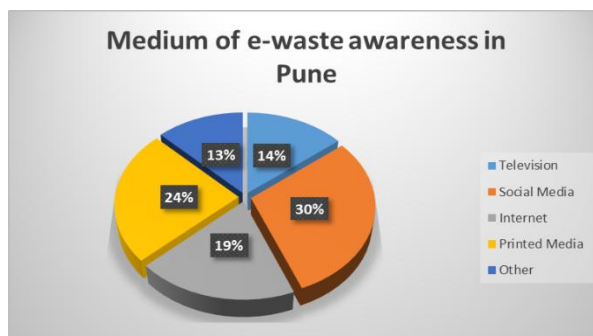


Fig.6.5 Medium of e-waste awareness (Pune)

It was also observed that internet and social media are playing important role in spreading the awareness among people about e-waste (i.e. 49% together) (Fig. 6.5).

On the similar ground, the survey was also conducted in Pandharpur. Where similar set of questions were asked and the primary data was collected.

From the primary data analysis it is observed that 56% people said they are aware about the e-waste and its harmful effects and 44% are not aware about the same (Fig. 6.6). But on the other hand 71% people said that they are aware about the harmful effects of electronic waste and 39% said they don't (Fig. 6.7).

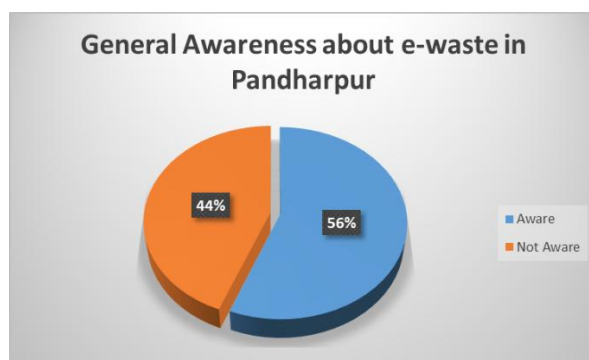


Fig.6.6 Knowledge – About e-waste (Pandharpur)

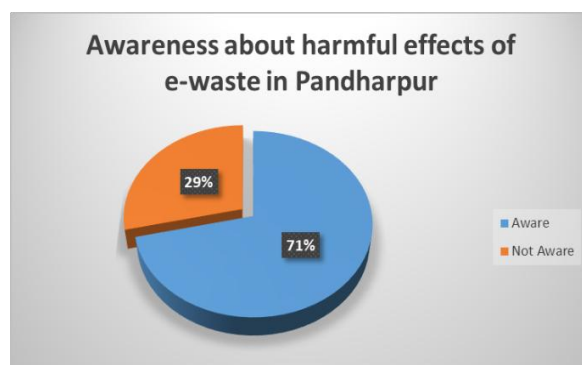


Fig 6.7 General Awareness – About ill Effects of e-waste disposal (Pandharpur)

The awareness about scientific disposal is also a critical aspect in the cycle of e-waste disposal. 61% people from Pandharpur know about the e-waste disposal, and 39% were not aware about how the e-waste should be disposed (Fig. 6.8).

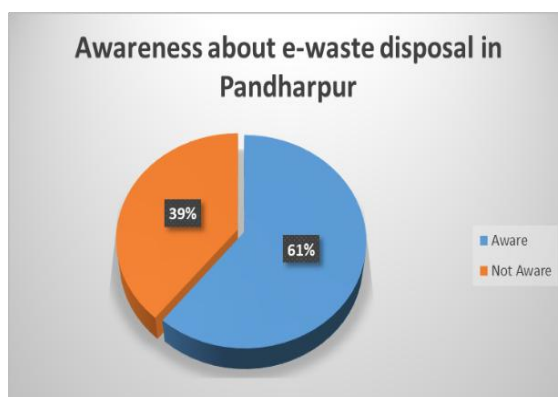


Fig.6.8 Awareness about e-waste disposal (Pandharpur)

Similar to Pune, in Pandharpur also it was observed that the male population are more aware about the e-waste than the female population (Fig. 6.9).

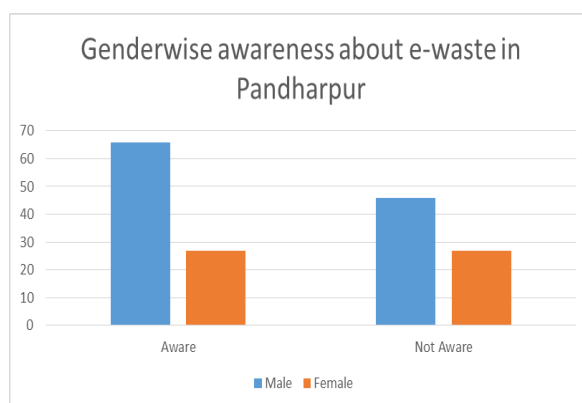


Fig.6.9 Gender wise awareness about e-waste (Pandharpur)

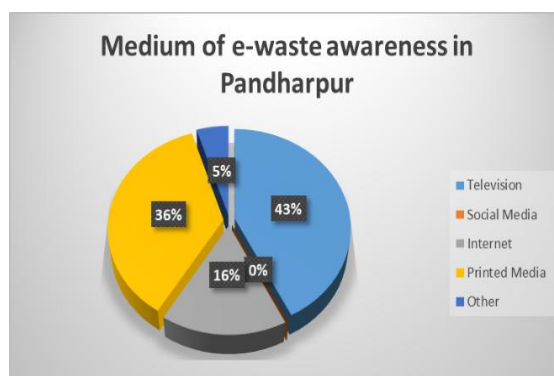


Fig.6.10 Medium of e-waste awareness (Pandharpur)

Adding on to that the medium through which people are getting information about the e-waste are analysed, where majority i.e. 43% people got to know about e-waste through Television followed by Printed Media (Fig. 6.10).

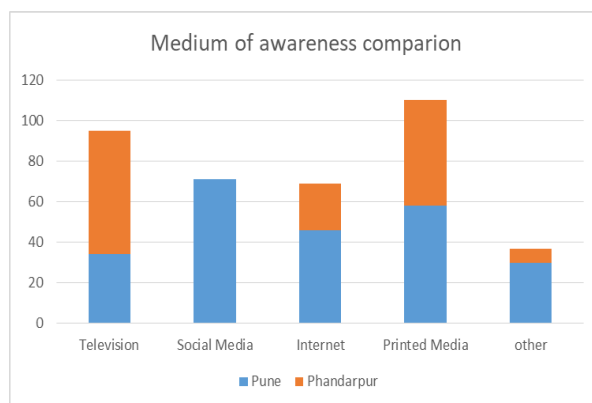


Fig.6.11 Comparison of awareness about e-waste between Pune & Pandharpur with the various media platforms

The study results indicate that be it rural or urban areas the awareness related to the term e-waste, the harmful effects of e-waste improper disposal have been good. The role of Social media and internet play an important role urban areas in spreading awareness whereas the traditional mediums such as newspapers and Television have been instrumental in the rural areas (Fig. 6.11).

Conclusions

The comparative analysis of the awareness between metro city Pune and comparatively rural Pandharpur shows that the gap between them has not been considerable in e-waste related issues. The fact that technological advancements in media and communication to the masses has been changing the scenario about the lack of awareness amongst the people, irrespective of their location. With very effective mass communication through Televisions and highly customised and user driven communication through internet, digital media has wide reach to the masses, and can be used as a very effective medium of spreading the awareness about e-waste. The problem of e-devices as source of e-waste can also be a used effectively for finding an appropriate solution for managing e-waste through various media.

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