

EXPLORING THE ENTREPRENEURIAL ANGLE IN MANAGEMENT OF E-WASTE IN INDIA

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Abstract

Every new development brings opportunities as well as challenges for a nation. This is very apt for the rapid advancements in information technology as along with enjoying the benefits of such development, India is facing a major problem of managing electronic waste. Heaps of e-waste has led to numerous health issues and environmental concerns. Considering such challenges some entrepreneurs across the world witnessed it as an opportunity and made an attempt to encash it. Across the globe various e-waste units have been set up which aim to manage and recycle e-waste by extracting the reusable precious elements contained in the material and carefully disposing off the harmful substances. Through this paper an attempt has been made to identify various entrepreneurs in India who are involved in the process of socially innovating new methods of dealing with e-waste.

Keywords:

E-waste, Recycling, WEEE, Entrepreneurship

1. Introduction

With the advent of Information Technology revolution, quantum of e-waste has increased tremendously. India is one of the largest producers of E-waste. According to the Global E-Waste Monitor 2017, India generates about 2 million tonnes (MT) of e-waste annually and ranks fifth among e-waste producing countries, after the US, China, Japan and Germany. In 2016-17, India treated only 0.036 MT of its e-waste. Table 1 shows the average life of different categories of electrical and electronic products. Despite of having a longer lifespan, various equipments are discarded much before they complete their lifespan which is another reason for growth of e-waste in the country. The cost of repairing is higher than the cost of recycling and hence consumers are demotivated for getting the damaged product repaired (King et al, 2006). Researchers have stated different

mechanisms for managing E-waste like recycling, reusing, incineration, landfills etc (Garlapati, 2016). An aspect of recycling was studied by two researchers in 2014 which stated that electronic devices that have stopped working are often sent for recycling by some consumers despite of the fact that they can be repaired for further use (Scott and Weaver, 2014).

With the alarming figures, it seems as if e-waste is a big challenge but entrepreneurs are the ones who find an opportunity in every kind of challenge. Some entrepreneurs explored that there is another dimension of e-waste management. As such all the content of e-waste is not creating a problem, because if recycled properly certain material contained in e-waste holds good value like metals, plastic, small wires, glass etc.

Table 1: Average life of different categories of electrical and electronic products as specified in E-Waste Management Rules, 2016

S.N.	Categories of EEE	Average life (years)
1.	Centralised data processing : Mainframe Minicomputer	10 5
2.	Personal Computers	6
3.	Laptop	5
4.	Notebook Computers	5
5.	Notepad Computers	5
6.	Printers including cartridges	10
7.	Copying equipment	8
8.	Electrical and electronic typewriters	5
9.	User terminals and systems	6
10.	Facsimile	10
11.	Telex	5
12.	Telephones	9
13.	Pay telephones	9
14.	Cordless telephones	9
15.	Feature phones	7
16.	Smart phones	5
17.	Answering systems	5

Source: E-waste (Management) Rules 2016

2. Objective and Methodology

The objective of this paper is to study the different entrepreneurial ventures in India which are dealing in e-waste management in India. Secondary sources of data have been used for this purpose. Literature and data have been procured from numerous Journal articles, websites of authorised International Organisations, government Websites, news articles, and other authentic sources.

3. Management of E-Waste

India being an overpopulated country is the third largest generator of e-waste (2 metric tonne in 2016) amongst Asian nations and largest in South Asia (Global E-waste monitor, 2017). Increasing population is not the only reason for growing amounts of e-waste, but rather it is also imported in India from several developed economies. The major issue concerned with e-waste management in India is growing influence and working of informal sector. More than 1 million poor people are involved in informal recycling of e-waste without having any clue of the harmful effects it is causing to their health and to the environment. The workers have low literacy levels and therefore are not aware of the consequences of improper disposal of e-waste. In the absence of any regulation, informal recyclers carry out the work at their discretion overlooking national and societal benefit (Honda et al, 2016). Consequently to regulate e-waste in India, some legislation has been issued which are shown in Table 2.

Table 2

<i>Laws and Regulations</i>	<i>With effect from</i>	<i>Issuing Authority</i>
E-Waste (Management & Handling) Rules 2011 (constantly updated)	1 st May, 2012	Ministry of Environment and Forests, Govt. of India
National Green Tribunal Act 2010	18 th October, 2010	
Municipal Solid Waste (Management & Handling) Rules 1999	25 th September, 2000	
The Environment(Protection) Act	23 rd May, 1986	

4. SWOT Analysis of an entrepreneurial venture for managing E-waste

SWOT analysis is one of the very famous techniques which entrepreneurs adopt before starting a venture. The analysis of Strengths, Weaknesses, Opportunities and Threats helps the person to check if the idea which he/she has conceived is feasible or not. Before

entering E-waste management industry, entrepreneurs must conduct a SWOT analysis. Few aspects identified in all four quadrants of a SWOT analysis are shown in Figure 1:

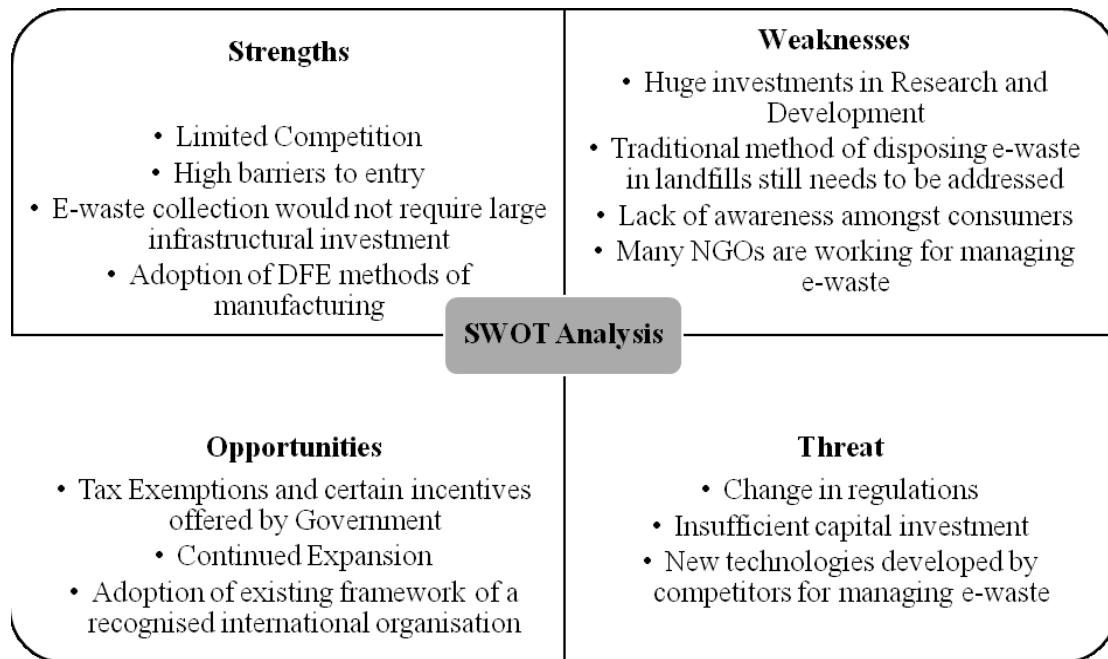


Figure 1: SWOT Analysis of E-Waste Management Industry

- **Strengths**
 - Limited Competition: The technological advancements have taken place since past two decades, and the awareness levels towards management of e-waste are very low. Consequently few entrepreneurs have ventured into this domain so far.
 - High barriers to entry: For managing E-waste, there is need of highly sophisticated machines. The recycling and disposal machines for e-waste involves huge cost which is one of the major barriers for any entrepreneur to begin with such type of business (Joseph, 2007).
 - E-waste collection would not require large infrastructural investment: The set up for recycling e-waste involves huge cost but industries can be set up for collection centres. Researchers have stated that the informal recyclers have a huge role to play in collection of E-waste. As the rag pickers and scrap dealers can collect huge amount of E-waste and then handover the collected e-waste to a

registered recycler so that it can be disposed off in an environment friendly manner. In this view some formal setup can be adopted for establishing collection centres of e-waste.

- Adoption of DFE methods of manufacturing (Leclerc, 2020) : With the growing advancements in technology, some companies are adopting Design for Environment methods under which the electrical and electronic goods are manufactured using environment friendly material.
- **Weaknesses**
 - Huge investments in Research and Development:
 - Traditional method of disposing e-waste in landfills still needs to be addressed.
 - Lack of awareness amongst consumers: Typically majority of consumers of electronic goods are not aware of the method of disposing it. Consequently a new recycling set up will initially have to spread awareness amongst consumers for not disposing e-waste with regular household waste.
 - Many NGOs are working for managing e-waste: With the growing levels of e-waste, many Non-Government Organisations have started working towards managing e-waste which may create hindrance in the working of the company.
- **Opportunities**
 - Existing framework of a recognised international organisation can be adopted for successfully managing e-waste.
 - Tax Exemptions and certain incentives offered by Government
 - Continued Expansion: Emerging advancements in Information Technology will lead to continuously growing e-waste for input for processing.
- **Threats**
 - Insufficient capital investment
 - New technologies developed by competitors for managing e-waste: Sweden is a nation known for developing and using technologies for managing e-waste. With the changes in taxes and duties on capital goods, such technology may be easy to be imported hence creating a threat for the budding entrepreneurs.
 - Change in regulations: As the growth of informal e-waste recyclers is causing certain problems, hence the government of India as well as of different countries are opting for improvised regulations towards E-waste management (Table 3). The time gap between conceiving an idea for setting an e-waste management

unit and implementing the actual set up is quite long and any legal change in that duration might be a threat for the recycling unit.

Table 3: E-Waste management policies in different nations

S. No	Country	Month	Year	Legislation
1.	Switzerland ¹	July	1998	Ordinance on the Return, Taking back and Disposal of Electrical and Electronic equipments (EEE)
2.	Taiwan ²	March	1998	Taiwan Waste Disposal Act
3.	Norway ¹	July	1999	Scrapped Electrical and Electronic Products Regulations
4.	Denmark ³	December	1999	Statutory Order from the Ministry of Environment and Energy No. 1067
5.	Netherlands ³	January	1999	Disposal of White and Brown Goods Decree
6.	Belgium ³	March	2001	Environmental Policy Agreements on the take-back obligation for WEEE
7.	Japan ⁴	April	2001	SHAR : Specified Home Appliances Recycling Law
8.	Sweden ¹	July	2001	The Producer Responsibility for Electrical and Electronic Products Ordinance
9.	South Korea ⁵	January	2003	EPRS: Extended Producer Responsibility System
10.	Finland ¹	September	2004	Ordinance on Electrical and Electronic Waste
11.	Germany ¹	March	2005	Electrical and Electronic Equipment Act
12.	Austria ¹	August	2005	Electro Ordinance (EAG-Verordnung)
13.	Ireland ¹	July	2005	Waste Management (Waste Electrical And Electronic Equipment) Regulations
14.	USA	July	2011	National Strategy for Electronics Stewardship (NSES)

SOURCE: ¹ Kaur and Goyal (2016); ²Rasnan(2016); ³Sinha et al (2006); ⁴Hiratsuka (2014); ⁵Yang et al(2015);

5. Entrepreneurship in E-waste management :

Businesses have been looking forward towards more innovations for tapping the uncaptured segments of the market. E-waste management provides a new domain for business ventures in near future. Few individuals have identified that some developed innovative business ideas for dealing with the emerging social issue of e-waste management. Mulgan (2006) states that *social innovation refers to innovative activities and services that are motivated by the goal of meeting a social need and that are predominantly diffused through organizations whose primary purposes are social.* Precisely stating According to Peter Ducker, an “*Entrepreneur is one who always searches for change, responds to it and exploits it as an opportunity*” Researchers also came up with a term of ‘*Social entrepreneurship*’ for the individuals who adopt a business proposal with the motive of social innovation (Crawford, 2020). Table 4 shows a list of few entrepreneurial ventures in India.

Table 4: List of Startups/ Entrepreneurial ventures in India

S N	Name of the startup/ Entrepreneurial venture	Founder	Location	Year of commence ment of activities	Website
1.	E-Parisaraa	Mr. Parthasarathy	Bengaluru	2005	http://ewasteindia.in/
2.	Eco Recycling Ltd	B.K. Soni	Mumbai	2007	http://ecoreco.com/
3.	Attero	Nitin Gupta and Rohan Gupta	Noida	2008	http://www.attero.in/
4.	Karma Recycling	Akshat Ghiya and Aamir Jariwala	New Delhi	2013	http://www.karmarecycling.in/
5.	Namo E-waste	Akshay Jain	Delhi	August 2015	http://www.namoe Waste.com/
6.	Eco eMarket	Meenakshi Chidambaram and S R Pejavar	Bengaluru	2016	http://www.ecoemarket.com/ECO_INFO/

- **E-Parisaraa**

E-Parisaraa Pvt. Ltd. is India’s first government authorised e-waste recycling. It was founded by Mr. Parthasarathy and follows approaches towards environment protection. It started its operation from Bengaluru and currently carries out activities in Chennai, Mumbai, Kolkata and Gurgaon. The prime processes at this set up are manual dismantling, shredding, hands on segregation and density separation. Due to

the innovative workings of E-Parisaraa, Mr. Parthasarathy has won National award-2010 for outstanding entrepreneurship by Ministry of MSME and from the then President of India, Dr. Mrs. Pratiba Devisingh Patil. In addition to it he has also been awarded with Entrepreneur of the year 2009 award by Trade Post in Mumbai.

- **Eco Recycling Ltd:**

Eco Recycling Ltd. (Ecoreco) is among the few Electronic waste management companies in India. It was founded by Sh. B.K. Soni in Mumbai and gives an option of franchise to expand itself. Ecoreco proposes that with investment of Rs. 7 lacs to 8 lakhs and with an area of 1000-1500 square feet, an individual can explore its franchise. The founder has identified that the main concern with e-waste is its collection. And in response to it he aims to establish 5000 take back points across the country which will be responsible for collection of e-waste from different locations (Koli and Hussain, 2019).

- **Attero:**

Attero is operating at a very huge scale in India with its innovations in e-waste recycling and customised solutions for electronic asset management. The Noida based company founded by Nitin Gupta and Rohan Gupta has raised USD 31 million in Venture Capital funding by 2017. Moreover it converted e-waste into a sustainable resource by developing a completely IT based reverse logistics system (Priya and Frenny, 2018). It is also actively engaged in e-waste take back mechanism and has also started an online platform by the name of atterobay.

- **Karma Recycling**

To conquer the battle of managing e-waste, couple of Delhi based entrepreneur stepped forward. In 2013, Akshat Ghiya and Aamir Jariwala founded Karma Recycling with the prime objective of handling discarded mobile phones. Till December, 2018 the company has collected 554,489 devices from customers and have paid them in return a sum of Rs. 15 crores. Karma Recycling uses online electronics trade-in service through which people from across twenty four cities in India to sell their electronic devices namely, smartphones, laptops or tablets. In return the company provides free pick up from the designated place and ensures quick payment to the customers.

- **Namo E-waste Management Company**

Namo E-waste Management Company is the brain child of Akshay Jain based in Delhi. At the age of 28, Akshay initiated the company with the motive of recycling e-waste and within a span of three years it is able to process averagely 20 tonnes of e-waste on a daily basis. It has its collection centres established in 12 states and union territories and its clientage includes, Tata Sky, Taj Hotel Resorts and Palaces, Godrej, Havells, Birlasoft, ICICI Bank, Flipkart, Airtel, Samsung, Canara Bank, Acer and many more.

- **Eco eMarket:**

In 2016, a startup named Eco eMarket used technology itself for dealing with e-waste which ironically is a result of rapid growth in IT industry. The startup founded by four professionals with diverse background of finance and technology provided an online platform to trade electronic waste as a commodity.

7. Conclusion

Despite of some efforts adopted by some private organisations, NGOs and certain government initiatives, the problem of electronic waste has reached at an alarming stage and now it is utmost important to deal with it. E-waste cannot altogether be managed unless citizens of the nation join hands with the government for adopting practices for sound disposal of used electronic products. For this awareness of consumers has to be raised through different workshops, programs, campaigns, seminars etc. Moreover youth of the country can actually see this segment as an upcoming opportunity and can explore it in form of a business venture.

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