

## Circular Economy and Waste Management Can Together Resolve the Crisis of Climate Change and Adopt Sustainable Lifestyle

<sup>1</sup>Dr.Sumanta Bhattacharya

*Research Scholar at MAKAUT , Public-Foreign-Defence Policy Analyst , C.E , CH.E , CCIO ,M.Tech (Chemical Processing in Textile Technology ) MA in Development Studies, LLB , MA in Security and Defence Law ,DIA&D , DG&GS ,PGCPP&A , MPI(oxford University) ORCID ID : 0000-0003-2563-2787,*

<sup>2</sup>Dr Sparsha Moni Chatterjee

*Ex Vice Chancellor of IIST shipbur , Member of Executive Council AICTE ,Former Director of Technical Education, Chairman of BOAA,IIHT , Ministry of Textile (Govt of India).Member of Development commission (Govt of India).*

<sup>3</sup>Bhavneet Kaur Sachdev

*Political Science hons (Calcutta University) Masters in Development studies , ORCID ID : 0000-0001-9156-0086*

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### ABSTRACT

Achieving sustainable development is the key element of majority of the countries where waste management is one of the main component. Circular Economy a new dynamic which aims to reduce waste management of any kind , the concept is reusing , recycle and repair of the products , circular economy has a great role to play when it comes to E waste . Today waste is being used for the production of new materials like agriculture waste is being used as raw materials for the textile industry to product raw materials i.e natural fibric , plastic waste for the construction of roads , homes which can element the crisis of unemployment and housing in many countries . for a country like India circular economy has a huge scope and is an important pillar to reduce waste management for the textile, industries , agricultural , food , green waste , water waste treatment , plastic waste and many more . We can eliminate of poverty , hunger and unemployment if proper strategies for adopting circular economy in waste management in done from waste to generating power in the country . Waste management in the need of the hour and circular economy is a vision for it .

**Keywords:** Sustainable development , e waste , waste management , circular economy , plastic waste , textile industry

### I. INTRODUCTION

Ever since Human civilization , people have been finding new things and trying to construct something new which the available resources , earlier the population was less so was the amount of production , Agriculture revolution which is regarded as the first phase of development which started with the process of deforestation , no one hardly imagined that agriculture would be associated with waste and pollution . With no technology and mechanism , human labour was the only process of cultivation , soon with digging and mining we found different kind of natural resources and we started using it for different purpose , with that the Industrial revolution starts and the beginning of the crisis of waste . People since ages have been producing a lot of items and for the production/ manufacture of a product the finest shape or material is required from a huge sum where as the rest of the portion is thrown into the bins or in the landfill or burnt etc , The worst of all the waste is the food waste which is 90 % responsible for the

rise in climate change ,Plastic which are used once and thrown away , these plastic are cheap and doesn't get dissolve for years ,in fact above 275 million tonnes of plastic is generated each year and they enter into the water bodies or thrown into the forest eaten by animals and fishes making their life miserable followed by us . It also has an bad influence on our environment with rapid burning of waste , we have many kinds of waste which includes food , water , industrial , Agriculture , organic , green waste , reused waste , biomedical waste , grey waste , Domestic waste ,electronic waste ,textile waste . Textile waste is also produced in huge amount , a lot of cloth is wasted in the process of manufacturing the best quality work and design , as fashion keeps on changing , so we don't find some clothes all the time , companies keep on producing more and more waste , where as the waste produced by any of the above mentioned kind of waste have an equal impact on water bodies , all kinds of waste are ultimately disposed into the water bodies , industrial wastes from toxic chemicals , where as the textile waste effects the water bodies as well as the land , as you will notice huge sum of small ton clothes thrown near the landfill which can be used for no purpose in the society . Today with rise in climate change and environmental degradation , people are adopting new ways on how to use this waste for producing something productive , trying to recycle or reuse it for some other purpose , earlier plastic bottles were used for storing water at homes , even today it is used for planting , storing necessary items , there are millions of plastic products in this world which has just one single use . So applies for food waste , agricultural waste and many more , fruits peels , vegetable peels , domestic waste forms a good amount of waste in the society .

## II. RESEARCH METHODOLOGY

For the purpose of this exploration , I have used a amalgamation of two of the archetypical social sciences research tools application –as they are authentic and brilliant method to assemble statistics from multiple appellants in an methodical and convenient way . Question were asked to the common youth , public policy Analyst , rural people ,survey , interviews –consisting of several interrogation which were dispersed among representative of each contender group .

### Objective of the Research Paper

The main areas of exploration in this paper incorporates

1. Understanding waste management and waste manufacturing

2. What has been the causes of waste management in the world
3. How is the world tackling waste management and its uses for other sectors .
- 4., Can Circular economy help to reduce waste production and promote waste management

## III. LITERATURE REVIEW

The major problem of our society is poor collection system of waste , near the seas side in India we find huge amount of plastic waste thrown , starting from water bottles to packets of chips , biscuits . In our own homes we have almost 90% of the products which are covered with plastic . India also produces the maximum amount of food waste where 60% of the food turn rotten due to lack of cold storage , transportation system . What is most important when it comes to waste management is proper collecting , transportation , reaching it to collect location , segregation of dry and wet waste . Waste are of 4 types basically refuse , garbage , trash and rubbish . Waste management today has got serious focus taking into account the current climate change which is a crisis of the hour , Today people are concerned about water waste management , food waste management , agriculture waste , e waste , textile waste , each government and country is finding into wastes to reduce their waste production , followed by bringing in new polices or reusing this waste for alternative purpose , like agricultural waste is being used for the production of biomass / biofuel , alternative energy is being produced through the use of agricultural waste including homes , plastic bottles are being used to construct homes , roads in different countries including India , different brands have started producing environmental friendly electronic goods , if we talk about the pandemic time , the sell of electronic products was gaining high profit compared to the other industries , demand for laptops , smartphones , Tablets , airpods , headphones , companies like HP, Acer , Boat , Realme , One Plus has humongous sell and profit compared to the rest of the years ,with every single thing going digitally in this world with a complete lockdown in almost all countries , Education to office work went online ,along with that the there was rise in E-waste in the world , where waste production has an impact on many countries including the place where the manufacture is happening to the country where the materials and different parts are being produced to the place where it is thrown as a trash , for instance the automobile industry produces huge amount of waste where the trash cant be used for any productive purpose . So taking into account all these factors , many countries

are today adopting circular economy , which is also the future of the world , the concept of reuse and recycle .In order to reduce waste production circular economy is the new hope in particular in the electronic industry . Circular economy has a significance role to play to reduce the production of e- waste in the world .

#### IV. FINDINGS

The concept of circular economy has been introduced since late 1970.By describing how natural resources influence the economy by providing inputs for production and consumption as well as serving as a sink for output in the form of waste. Circular economy is basically focused on industrial economy , conceptualised a loop economy to discuss industrial strategies for waste prevention, regional job creation, resource efficiency and dematerialisation of the industrial economy. It gives a sustainable business model loop economy allowing industries to profit without extraction cost and risk associated with waste . It focus on Preserve and enhance natural capital by controlling finite stocks and balancing renewable resources flows

resolve levers: regenerate virtualise, exchange. Improve resources by circulating products , elements and substances in use at the highest advantage at all times in both technical and biological cycles settle levers: renew, share , optimise , loopFoster system effectiveness by revealing and designing out negative externalities All Resolve levers. Different countries in particular European Union have adopted Circular economy since 2011 to reduce waste and adopting nature based solution to cut down waste products .For instance Australiahas taken a scheme of taking authority for its own waste. Starting in January 2021, it is phasing in bans on the expert of different forms of waste . By mid 2024 , Australia’s home-grown cycling industry will have to deal with an extra 650,000 tonnes of waste plastic, paper, glass and tyres.As we cease shipping our waste overseas , the waste and recycling transformation will reshape our domestic waste industry , driving job creation and putting valuable materials back into the economy , federal environment minister Sussan Ley said in a statement to Reuters.



Our economy is growing unsustainably at the expense of nature , we have created a linear

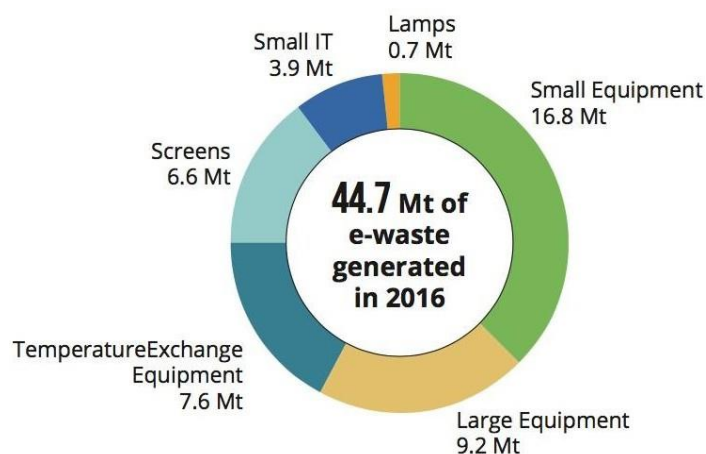
economic model which means make use and dispose , we have been extracting millions of tons of natural

resources every year and turn them into materials that we use and consume and then throw them away and what if the product that we designed can be reuse , refurbish and repair and extract new resources only when needed , we would use less new materials and energy and protect our natural wealth , inspired by nature a circular economy would boost the European Economy which would also contribute to innovation and job growth as well as reducing the pollution and helping the environment to heal , Car pooling , recycling materials , repairing and reusing green energy , circular economy brings in a lot of new opportunities and is also good for our health .Europe 2030 goal is to recycle 65 % of their waste , as every year more than 2000 million tonnes of waste is produced per year , producing methane , making the groundwater polluted , increasing greenhouse gases , Today this waste is being used to produce electricity in Turkey , biomass in India , Iran has been using pistachio waste that is the shell to produce activated carbon which in return will purify water , it is being used to clean water pollution .Well pistachio waste can play a significance role in managing environment pollution and waste management , we can say that food waste can help to reduce water pollution like in Iran Pistachio shell are used to reduce water pollution . Industries produce massive amount of air pollution and also produce water pollution , where activated carbon is the process through which waste water is treated and also air pollution , it is used for gas purification , petrochemical industries , oil refineries , the activated carbon is an important substance for purification or we can refer to it as a filtering media.In Australia nut shells have been turned into biomass and in Mexico , the decaying garbage has been used to produce electricity . The wood-plastic nanocomposite will be employed in the building

trade, and it's immune to wetness, loss of color and varied sorts of fungi and insects and within the best property tradition, it's the additional virtue of being derived from a regionally generated supply of filler material .

Plastic is being used to produce petrol , the domestic waste consisting of fruits and vegetable waste is being used for producing cleaning liquids at home and in this way we can also reduce our plastic wastage , Textile industries are using agriculture waste to produce natural fabric like banana stem for clothing , orange peel for production fabric , lotus plant is also being used for this purpose , there is also a growing demand among the scientist for natural dye , the use of chemical and synthetic dye has to be reduced as it cost harm to the environment . We are trying to use the waste producer of one material which can provide a finish producer for the other industries . In this process we also reduce the use of water for textile fibre . In order to minimize agriculture , new techniques are being used and adopted , demand for organic farming and moving toward indoor farming in order to minimize agricultural and food waste . Hydroponic and aquaponic are feeding the world and will be the future where we reuse and recycle water for cultivation .

In the electronic industry , repaired parts are been manufactured in huge quantity to reduce the production of new models and people also reduce the purchase of new products with the availability of repaired products , they are also trying to bring new software and latest updated version in the same model , by just up gradating the features so that the production of electronic is reduced . For electric vehicles also the battery leads to huge waste , where new system have come with better quality products to automobile waste .





Circular economy in India is a taking its roots, Indian economy is built on repair, reduce and reuse of system, Industries in India should maximize the efficiency of current materials system to obliterate waste. Today only 10% of the world has entered into adopting circular economy, in which India has also taken an early step where citizen involvement is important and people need to learn to reduce, reuse and recycle, Public policy makers, Academia all have to be part of it, the stakeholder needs to take the initiative and the government has to bring new policies towards circular economy and move towards Sustainable development goals. The Hitachi company in India is providing full aid to the Government in converting waste into energy technology plants and thus limiting the use of fossil fuel for the production of electricity and reducing carbon footprints, The Swachha Bharat is also a component of circular economy in the waste management sector, with the segregation of the waste, the green waste is being used as compost for soils and dry waste for recycling or for creating a new product. In India 1.40 lakh tons of solid waste is generated which can provide 46 millions units power generation standing equal to 200 MW capacity. Circular economy is also a part of Aatma Nirbhar Bharat. This waste management system and bringing new productive and using these waste or different resources have also brought in employment opportunities for people.

The concept of circular economy and waste management together can resolve much of the problems of the world like food poverty, water scarcity and save the environment which ultimately reduces climate change in the world. Shifting from linear to circular economy is not an easy task in India where the population is huge. However many includes start up have started where there are producing clothes made from plastic waste, or shoes made from plastic bottles and these entrepreneurs are gaining success. Zero waste production has become a slogan in many regions of India. The Neeman's in India are made up of 100% recycled PET Bottles. Alic Sports another brand which is made 50% of its clothes using recycled plastic PET bottles, making the cloth anti-sweat, breathable and does produce any kind of odour and is light weighted, the second is Artisaans net that make products using pre consumer textile waste and make woollen cushions and bean bags. Doodlage another brand which uses post consumer textile waste to make accessory clothing for people. Keh, they make clothes from textile scrap. Eco wings which was founded in 2001 uses rubber tubes of truck to produce handmade, accessories and professional bags for people. Paadukas, a footwear

company that makes shoes for both men and women using old tires, belts, rubber mats. New a shoes brand that make supportive sneakers using plastic PET Bottles. All these even promote recycling and upcycling waste and use natural dyes as well.

So individuals and group have been working together to produce new products from waste, like manure is being produced from waste in many parts of the country and vegetable and fruits peels are being used for make up purpose and many more. Circular economy can actually end majority of the problems related to nature and health. We need to bring in more ideas and involve grassroot people in this process.

### Way Forward

We need to introduce circular economy and waste management as part of the university education to educate people on its importance, we need to involve grassroot people in this process, using agricultural waste and plastic waste we can make pucca homes in all the villages and install them with solar panels which will provide housing and electricity for all, reducing agricultural waste and moving towards sustainable rural development, by using food waste as manure for soil we can limit the use of fertilizers which are expensive for farmers to purchase. Using agricultural waste for textile fabric can actually save plenty of water and so as for the construction of buildings thus reducing the problem of water crisis in a country. Adopting alternative energy through waste and use of waste for cleaning water pollution and air pollution are easy and pocket friendly ways. Smart farming and smart housing through circular economy, can eliminate poverty from a country like India, waste management solution, start ups and enterprise have opened doors for employment, purchase of repaired products will also limit the waste produced. We need to introduce artificial intelligences in the waste management system, along with that use during waste from the production of oil, petrol and energy which will also help to move towards sustainable development and tackle climate change crisis in the country. Different countries have to adopt different means to adopt circular economy and manage their waste management as a lot is dependent on the region urban / rural, industrial / agricultural sector, a developed / underdeveloped / developing country, depending upon the pollution and the literacy rate of a region. Proper strategy and policies have to made, it is a global issues and a global participation is required at every phase to adopt circular economy. Like instead of plastic bags, jute bags / cloth bags can be used which can be used over and over again without much damage and so promoting sustainable

outlook in the society . . Through the use of waste like plastic bottles and glass bottles we repair the roads of the rural region in India and poor rural urban connectivity . With waste management used in a positive way in India , it can provide job to the rural people and also reduce rural -urban migration , along with empowering rural women by bringing them into this sector .

#### V. CONCLUSION

Thus , we can say that we are going back to old techniques and using nature as the best means for producing new produces and recycling the old one . Reducing our dependency on non renewable resources and adopting green economy , green energy which will promote better quality of life and keeps us healthy . The proper waste management system for all types of waste can help to reduce the level of air pollution especially in the capital . Environment health is necessary and keeping them clean . Proper waste management can save the life of many urban slums children who are living in the worst stage compared to the rural people . Urban slums have been a dumping ground for all kind of waste which has a drastic effect on the health of people . Circular economy is the key to waste management for the world and a way to connect back with our nature .

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