Plastic is a necessity in the Morden world and its uses increase daily. Once used it becomes a hazardous material. The degradation of the plastic waste is a very slow as they are non-biodegradable. Researchers have found that the plastic materials has a life of 450 years without degradation.

Human population increase and consistent demand for plastics and plastic products are responsible for continuous increase in the production of plastics, generation of plastic waste and its accompanied environmental pollution.

Urban India alone generates nearly 0.15 million tonnes per day (TPD) of MSW, with per capita generation ranging between 0.30–0.45 kg per day.

The volume of waste is projected to reach 165 million tonnes by 2031 and 436 million tonnes by 2050, if existing policies, programmes and management strategies are not adequately addressed.

At present, only 19 per cent of the total waste generated in the country is treated and more than 80 per cent is disposed of in an unscientific manner at dumpsites.

In the last six decades, plastics became an indispensable and versatile product with a wide range of properties, chemical composition and applications. Although, plastic was initially assumed to be harmless and inert, however, many years of plastic disposal into the environment has led to diverse associated problems.

Environmental pollution by plastic wastes is now recognized widely to be a major environmental burden .

In many instances, sheeting and packaging plastics are disposed of after usage, however, because of their durability, such plastics are located everywhere and persistent in the environment.

Snap Shot on India Plastic Waste Generation

In India as per details provided by 35 States/UTs estimated plastic waste generation during the year 2019-20 is approximately 34,69,780 TPA. Percentage distribution of plastic waste generation in different States and Union territories in India is illustrated in Fig.1.



Fig.1: States and Union territories in India wise Plastic waste generation Maharashtra -<u>**13% Tamil</u> Nadu-**12% Gujarat- 12% West Bengal -9% Karnataka-9% Telangana-7% Delhi- 7% Uttar Pradesh-5% Haryana-4% Kerala-4% Madhya Pradesh -3% Punjab-3% Others-11% S</u>

It is observed that maximum quantity of plastic waste is generated in Maharashtra followed by <u>Tamil Nadu</u> & Punjab .

A insight into plastic ;

Plastics are made up of synthetic organic polymers which are widely used in different applications ranging from water bottles, clothing, food packaging, medical supplies, electronic goods, construction materials, etc.

Plastic are polymers of high molecular weight and are composed of various elements such as carbon dioxide, hydrogen, oxygen, nitrogen, chlorine and sulphur.

Plastic are used food packaging, milk bottle, a carbonated drink bottle, a supermarket carrier bag etc.

It is to be noted how plastic bottles have replaced, glass for soft drinks, milk, ketchup, etc.

The single use plastic bottles are essential for the sales of bottled water, while they have replaced metal cans for many products Containers that contain liquid that are made of paper (such as Tetra-pack) rely on an inner polythene layer to protect the paper.

The impact of plastic wastes is worrisome. In human occupational and residential environment, plastics made of petrol-based polymer are present in high quantity. At the end-of-life of these plastics, they are usually land-filled together with municipal solid waste.

Impact of Plastic ;

Plastics have several toxic constituents among which are phthalates, polyfluorinated chemicals, bisphenol A (BPA), brominated flame retardants and antimony trioxide which can leach out to have adverse effects on environmental and public health.

Dumping of plastics on land or landfilling plastics leads to abiotic and biotic degradation of the plastics, where plastic additives (e.g. stabilizers, harmful colorant moieties, plasticizers and heavy metals) can leach and eventually percolate into various aspects of the environment, thereby causing soil and water contamination.



Around the world the demand for plastic masks, gloves and protective medical gear has soared. It would seem, then, that plastic is an inescapable problem that shows no sign of disappearing any time soon.

Faced with this realisation, people around the world are developing innovative solutions to extract plastic waste from their environment and put it to good use

The exponential rise in the production of plastic and the consequential surge in plastic waste have led the scientists and researchers look out for innovative and sustainable means to reuse/recycle the plastic waste to reduce its negative impact on environment.

According to a report by the United Nations Environment Programme, around 300 million tonnes of plastic waste is generated every year globally, whereas plastic waste ever recycled merely counts to 9%. A statement by UNEP executive director Inger Andersen:

'By 2050, we will have about a billion metric tons of plastic in our landfills. We need to make a shift'.

The Solution to mitigate the environmental impact of plastic.

Research has concluded that the use of plastic wastes for construction applications will improve the sustainability of the environment significantly.

Modification of construction material with plastic waste serves a dual purpose.

The construction industry serves as a backbone of every nation and a major contributor to its economy. Therefore, the possible use of waste materials will improve the sustainability of <u>construction processes</u> and practices. The sustainable use of plastic wastes for construction purposes also provides economic benefits. The innovative sustainable use of plastic wastes in construction applications will significantly reduce the amount of plastic wastes disposed into landfills and the marine environment and will proffer alternative materials to meet the demand of the construction industry.

Some recycling naysayers claim that recycling plastic is more trouble than it's worth from the perspective of sheer resource efficiency. Yet study after study reveals that hands down, recycling wins over virgin production on all environmental measurements, especially when it comes to carbon emissions. Estimates vary with the type of recycling process used, but researchers agree that recycling and re-manufacturing plastic saves at least 30 percent of the

carbon emissions that original processing and manufacturing produces. That could mean an annual savings of 30 to 150 million tons of CO2, given our previous calculations of carbon emissions from plastics production.

Carbon Calculations

According to the Environmental Protection Agency- USA approximately one ounce of carbon dioxide is emitted for each ounce of polyethylene (PET) produced. PET is the type of plastic most commonly used for beverage bottles. Other sources pin the production ratio of carbon emissions to plastic production closer to 5:1. -0.141Kgs to 0.028 kgs

Our Proposal

Our aim is Primary recycling to develop a circular economy to replace the current, linear, economy of the disposal of plastic waste. In a circular economy, products and materials are being re-used, refurbished or recycled according to the waste hierarchy, instead of being incinerated or disposed of in land fills.

Primary recycling process or closed-loop recycling. The material can be recycled to form products with the same properties as the previous product, hence the plastic polymer remains in the same 'loop'. Primary recycling takes place for pre- and post- consumer (mono-stream) plastics.

Our **Primary recycling process** aim is to set up a plastic waste conversion facility wherein the plastic waste is converted in a polymer and mixed with various by-product such as Slag Sand and Fly Ash t from the Steel and Power industry to produce sustainable building material.

This proposal is to convert plastic waste is converted in a polymer as binder to substitute of cement and reclaimed sand/ash from the Steel and Power industry in the manufacturing of ;

1: Paver Block

2: Roof Tiles

Our plan is to locate the project in Tamil Nadu India .as this is the second largest plastic waste generator.

CO2 Emission Negation Target.

We plan to process 2 tons of Plastic a Day, as a result we will be negating 10 Tons of CO2 emissions a day. For the month we will negate 260 Tons of CO2 emissions, and the year 3,120 tons.



EU ETS – is the European carbon credit contract which is exchange traded. It is a Futures contract for the purposes of trading and delivering EUAs (European Union Allowance – the official name for the region's emission allowances). One EUA allows the holder to emit one ton of CO2 or C02 equivalent greenhouse gas.

Based on the above the chart dated 16th March 2022 1 ton of CO2 emissions is 78 Euro that is equivalent to 85.83 USD. This will give a revenue generation of 267,789 USD. The proposal is to offer this on the Cardano platform and trade it in ADA.

The proposal is divided into 3 stages

Stage 1: To prepare the frame work to negate 3000 Tons of CO2 a year by manufacturing Paver block made with Plastic waste.

30,000 USD

Stage 2: Setup and start Manufacturing Plastic Paving Block to negate 3120 Tons of CO2 a year.

480,000 USD

Stage 3 : Setup and Manufacture Roofing tiles to negate 3120 Tons of CO2 a year.

480,000 USD