

**Case-Study****CIRCULAR ECONOMY- THE GREEN ACTION PLAN**

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**Abstract**

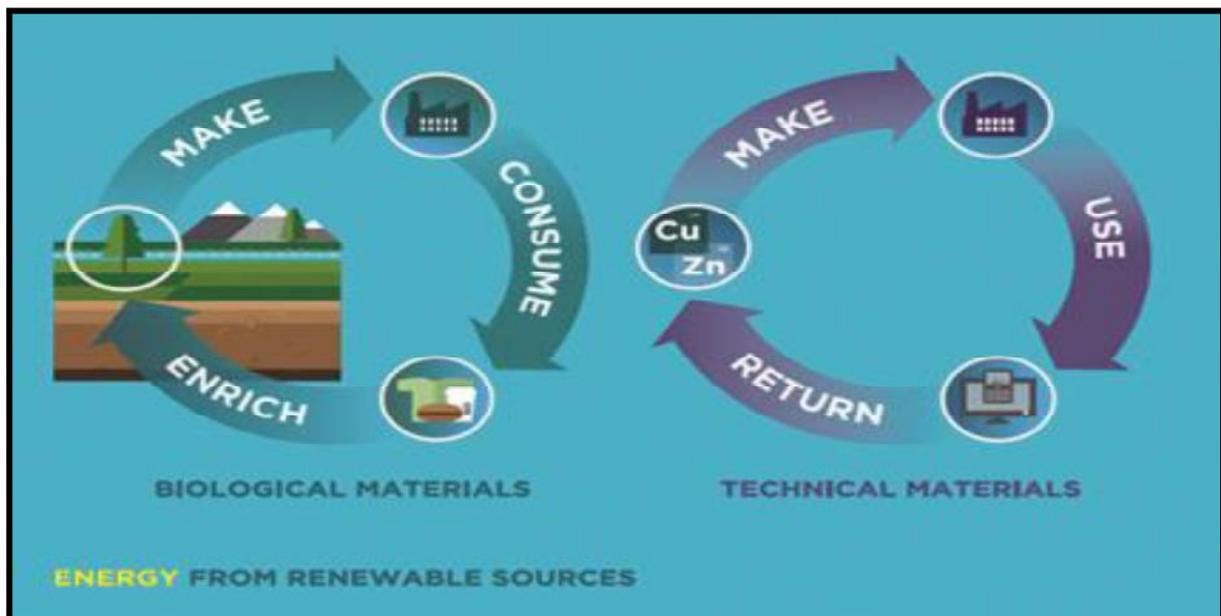
*We are heading towards an economic state that will soon be deficient in natural resources. The environmental conditions across the world are also miserable. It is believed that soon the oceans will have more plastic and other waste materials than the fish in them. The level of toxic gases present in the air have reached tipping points, which can in turn have serious repercussions. Water reservoirs have dried. We are witnessing natural catastrophes worldwide. In the light of such an alarming state, Circular Economy serves as one of the best measures to achieve Sustainable Development. It is a conscious effort to transform the economy into resource friendly one rather than being a highly resource consumptive one. The concept is not new. In fact, it has been in existence since 1960's, when the environment protection had become a serious concern. Ever since then, many steps and actions have been taken in this regard.*

*In today's scenario, many top companies are incorporating the idea of Circular Economy into their business models. This requires a serious blend of innovation with the corporate strategies. Some of the most prominent business entities working on this path are Accenture, Phillips, Starbucks, BMW, Vodafone, Tata Motors and many more.....*

**Keywords:** Deficient Natural Resources, Natural Catastrophes and Sustainable Development

**INTRODUCTION**

Circular Economy is not a new concept. Its origin dates back to 1960's when the concern for environment protection started getting recognition. It refers to an industrial economy aiming at resource waste reduction and having minimal impacts on the biosphere. In this type of design, the material flows are distinguished between Biological Nutrients and Technical Nutrients. The scope is wide. It includes concern for not only production and consumption patterns, but also the use of renewable resources and revamping of economic performance measurement tools that are capable of reducing the impact on the natural systems and the biosphere as a whole.



**Figure 1: MATERIAL FLOWS IN CIRCULAR ECONOMY**

The concept of Circular Economy was conceptualized by Kenneth Boulding, who was an American Economist. According to him, it is a way of transforming the traditional economic model (primarily linear in nature) into the one which aims at eco-resource recycling. He also proposed the theory of “Spaceship Earth Theory” which can be regarded as the earliest representative of Circular Economy Concept. The way a spaceship consumes the available resources in order to survive for the longest duration, the earth needs to follow the same procedure and thereby act in a manner that resources are developed and not depleted. The theory requires an altogether different perspective for Development. There are certain pre-conditions for the model to come into action. These are as follows:

1. Transformation of Growing Economy into Stock Economy.
2. Replacement of Consumption Economy by Maintenance Economy.
3. Focus on developing a Welfare amount that reduces the burden on Production Lines.
4. Ensure that economy replenishes resources and eliminates waste generation.

The ideology of Circular Economy started getting a worldwide recognition after 1990's, when it was introduced to countries like China (1990), Germany (1998) and ever since then, the concept has been developed at Municipal, Regional, National and International Levels.

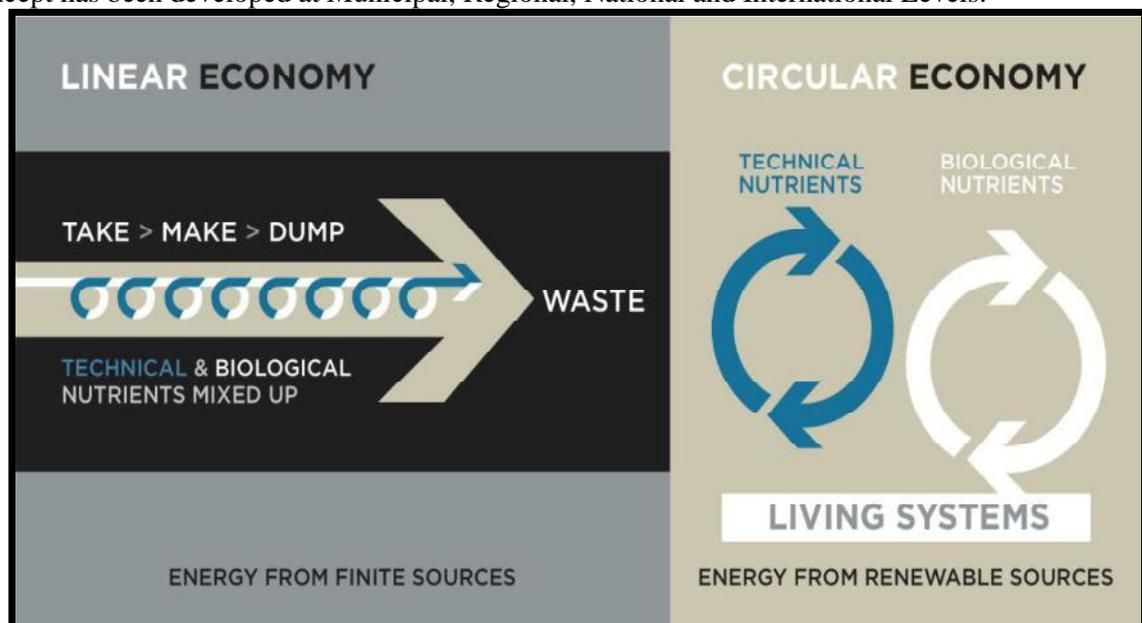


Figure 2: MOVING TOWARDS CIRCULAR ECONOMY

### CIRCULAR ECONOMY FRAMEWORK:

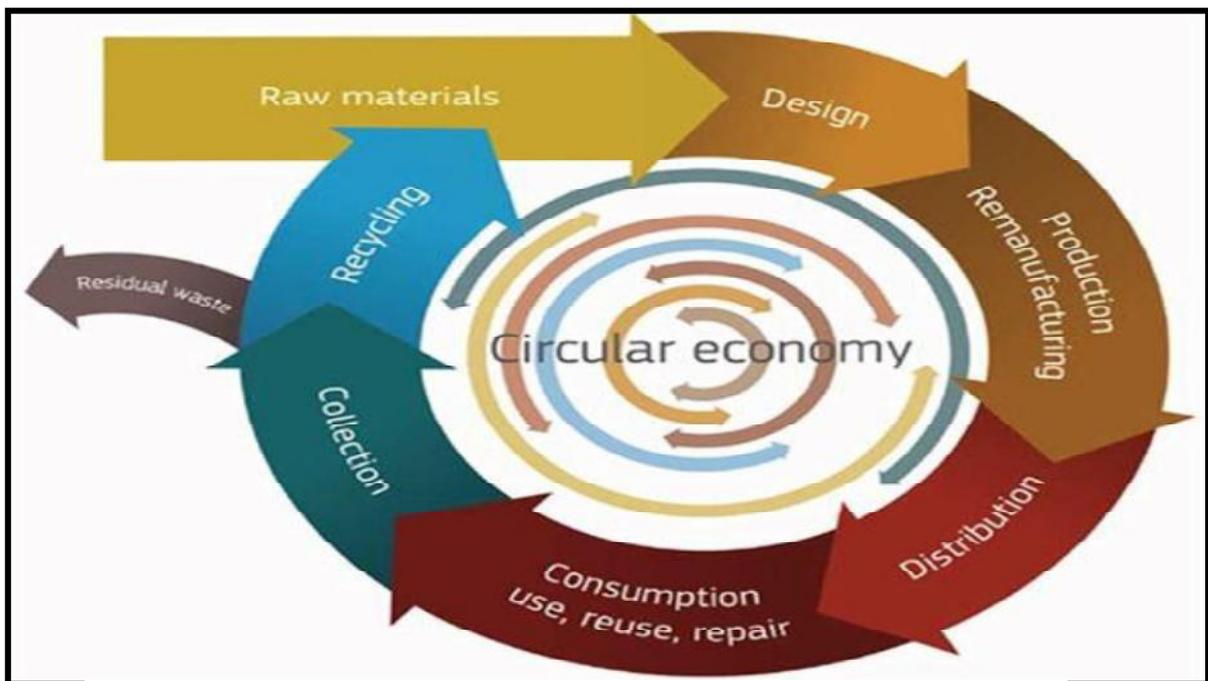
The principles behind the functioning of Circular Economy are drawn from following fields:

1. **Biomimicry:** The ideology was propounded by Jenine Benyus, who believed in Innovation Inspired by Nature. The three guiding principles in this regard are:
  - a. **Nature as Model:** Study natural models to solve human problems.
  - b. **Nature as Measure:** Sustainability of Innovation is judged against ecological standards.
  - c. **Nature as Mentor:** Viewing nature as a prime source for learning and not extracting resources.
2. **Industrial Ecology:** It refers to the detailed study of how materials and energy flow through the Industrial Systems. The basic notion is to eliminate the waste, which is often regarded as a by-product of industrial operations. It aims as aligning production

procedures along the ecological constraints. The focus also lies on Societal Wellbeing. The principle is often known as “Science to Sustainability”.

3. **Cradle to Cradle:** Coined by Walter. R. Stahel, the principle is an endorser of “Service Life Extension of Goods”. According to this belief, the industrialised economies must try to Reuse, Upgrade Technology, Repair and Remanufacture, so as to ensure Resource Efficiency and Waste Generation Prevention.
4. **Blue Economy:** The basic idea is to move the economy from the state of scarcity to the state of Abundance. This requires adoption of procedures capable of catering to industrial needs and minimising the environmental problems. It requires sincere efforts to be made for devising ways in which an industrial unit is run and more cost benefits are generated. Thus, use of cleaner and more efficient Technology is advocated so as to tackle environment related aspects in best way, without damaging the natural environment and simultaneously generating financial returns.

The figure below (Figure 3) gives a glimpse of how a Circular Economy operates and the general model adopted.



**Figure 3: CIRCULAR ECONOMY FUCTIONING**

#### **SOME FACTS ABOUT CIRCULAR ECONOMY:**

1. **NEED:** It is a practical approach to the problem of resource depletion. Some of the essential resources are diminishing and subsequently, prices for rare ones is on rise. There is an increased risk for supply of commodities. The Circular Economy approach when applied can curb such problems.
2. **MUCH MORE THAN RECYCLING:** The concept has much wider scope than just recycling. It aims at building restorative industrial scenario. It aims to minimize energy consumption and waste generation.

3. **CELEBRITIES ARE IN SUPPORT FOR IT:** Many Celebrities have joined hands with Ellen MacArthur Foundation to become vocal about the concept of Circular Economy. One such name is Brad Pitt, a member of Cradle- To-Cradle Product Innovation founding Circle.
4. **STACKED UP ECONOMICS:** Many analysts are of the view that Circular Economy is capable of transforming the entire economic scenario. It is expected that by 2025, new jobs nearly 1, 00,000 in number could be added if shifted to circularity concept. There could be another addition of \$1 trillion to global economy. The Trade balance could also be improved for European Union by 90 billion Euros. The benefits are manifold.
5. **BUSINESS LEADERSHIP:** The concept is very popular and extensively adopted by some of the largest business groups, operating at global levels. However, though the involvement of SME's is essential, the scope is limited and not many of the local players are acquainted with the concept.
6. **GOVERNMENT INTERVENTION:** Successful Implementation of the Circular Economy requires massive support from Government Bodies. For smooth functioning of this strategy Government Intervention and development of Legislative framework is must.
7. **CHANGED CONSUMPTION PATTERN:** Circular Economy will surely transform the way one consumes. The "Pay per Use" principle can be extended to other sectors and standard goods. In fact many top companies, like Philips, Kingfisher and Mud Jeans have introduced the Product as Service Model. This model is capable of retaining the ownership of the product in the hands of the companies themselves.
8. **NEW SKILLS AS REQUISITE:** The complexity of Circular Economy will require new skills to be developed for its smooth functioning. Further, a change in behaviour can be expected. It needs to be extended beyond scientific purview, to other creative and challenging disciplines.
9. **MORE DISRUPTIVE INNOVATIONS:** Disruptive Innovation can be viewed as the prime enabler in this regard.
10. **19% of UK ECONOMY IS CIRCULAR:** One fifth economy of UK is already functioning on Circular Economy Principle.

### **BUSINESS MODELS BASED UPON CIRCULAR ECONOMY:**

**New business models are already driving the circular economy**



Companies	Business models
<u>Vodafone's Red-Hot plan</u>	Product as services – leasing access to and not selling ownership of a service
<u>Tata Motor Assured</u>	Next Life Sales – efficiently recovering and re-conditioning products after use and then putting the same products into the market
<u>BMW</u>	Product transformation – not all products can be reconditioned in their entirety but most products have components that can be reused
<u>Starbucks</u>	Recycling 2.0
<u>ThreadUP</u>	Collaborative Consumption

#### Figure 4: BUSINESS MODELS BASED UPON CIRCULAR ECONOMY

There are essentially six business models currently working upon the concept of Circular Economy. These are briefly described as below:

1. **Products as Services:** The model works principally by treating the products as services. Here the vendors of products act as service providers. Thus, ownership is not actually transferred but leased out. The most suitable example is Vodafone Red Hot Plan. The latest phone can here be rented out for a year and can be subsequently be exchanged for the newer version. Thus, there is an expanded horizon for building Customer Relationships.
2. **Next Life Sales:** Under this system, the goods are recovered and reconditioned in order to sell once again in the marketplace and earn from the same. An excellent example is Tata Motors Assured. The cars bought are reconditioned and certified. Finally sold to the customer, even at easy financing options.
3. **Product Transformation:** Certain component parts of products have extended capability of putting to a new source of product range. A classic example is BMW. For BMW, such a model is a source of 50% cost savings. Same quality specifications with certain warranty limit and customers buying transformed products instead of new ones can lead to overall cost reductions.
4. **Recycling 2.0:** This is the new enabling technological innovation for sustainable performance. Starbucks is incorporating this technological platform to convert its waste coffee products into a special acid-Succinic Acid that can be used in production of a variety of products, ranging from Detergents, Medicines and other bio-plastics.
5. **Collaborative Consumption:** A concept of sharing the resources available amongst people having compatible needs. Under this approach company like ThredUP enables the user to find clothes online from families where the clothes of children have outgrown or have stopped to fit in. It provides significant cost reductions to the user.
6. **Waste to Wealth:** The research conducted by Accenture depicts the need to address the strained capacity of scarce renewable resources. Continued use of scanty resources can have a considerable impact on the tangible and intangible assets and risk the company position in the marketplace. The five business models identified by Accenture in this regard are as follows:
  - a. **Circular supplies:** Provide a circular consumption and production system capable of reusing, recycling and refurbishing resources.
  - b. **Resources recovery:** Render the company with the ability to maximize returns from use of product.
  - c. **Product life extension:** Improving the shelf life of product or its component parts, through repair, recycling, refurbishing etc.
  - d. **Sharing platforms:** Collaboration amongst product users.
  - e. **Product as a service:** Rendering products in a similar way as services.

Accenture has also devised a new strategy called- Waste to Wealth. As per the strategy the main notion is to reduce waste generation and consider that everything has certain value attached to it. It opens up an opportunity of gaining from circular advantage. The example of the same is given above.

Figure-5 ACCENTURE STRATEGY- WASTE TO WEALTH

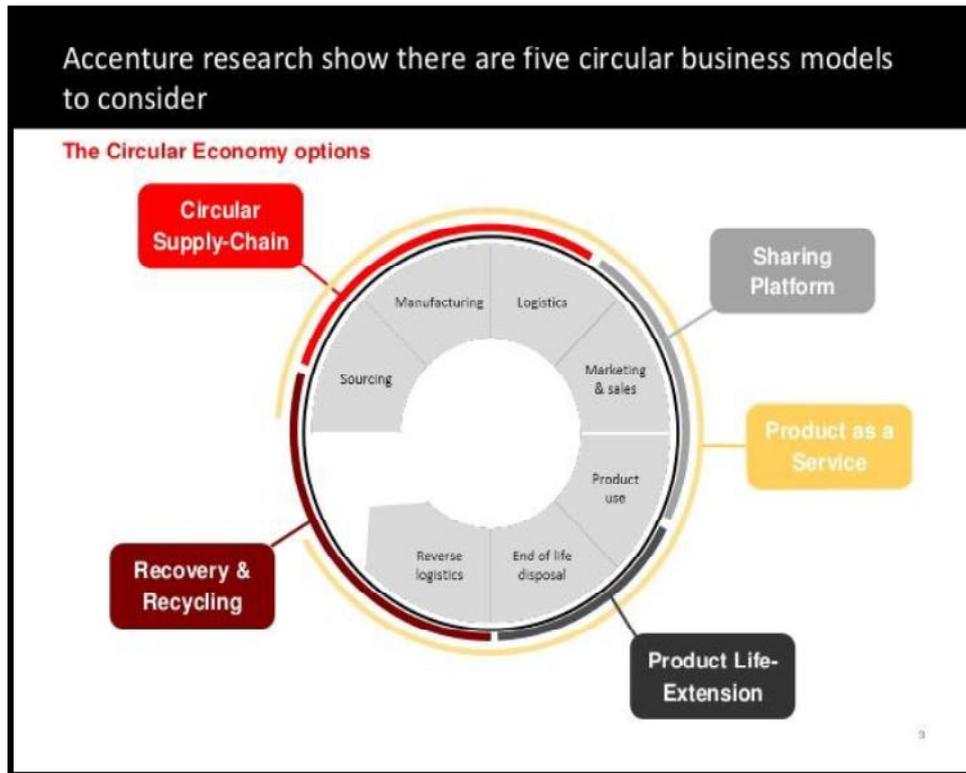


Figure-6 WASTE TO WEALTH

**NEW AND ADVANCED MATERIALS FOSTERING CIRCULAR ADVANTAGE BY SABIC:**



Recently, SABIC has introduced elegant structures that are made from energy conserving materials can be put to reuse. The structure is named IEChouse and is designed by famous architect William MacDonough. It is showcased during WEF (World Economic Forum) 2016 and will continue till January 23. Attended by famous and most influential business leaders, politicians and scientists, nearly 2,500 in number, it will impart knowledge about how innovative materials can be used to address some of the most crucial problems faced by the



**Figure 7: SABIC's IEChouse**

world at large. The structure is made primarily from aluminium and SABIC's LEXAN. The structure will lead to sustainable designs movement over the years.

### **STEEL IN CIRCULAR ECONOMY:**

Dr. Edwin Basson, director General at World Steel association has announced that steel forms the most central part in the Circular Economy Models. The premiere advantages offered by steel such as zero waste, capability of Reuse, Reduce and remanufacture are similar to the main intents of circular economy.

Steel has the capability to be recycled not just once, but several times. Even after recycling, it still maintains the original inherent properties. Circular economy model revolves around the idea of use of lesser materials. Steel manufacturing requires fewer raw materials and energy intake in its production is also less. Being a durable product, it offers the ability to being reused in many ways. Thus, steel industry can be one of the key industries promoting Circular Economy Model.



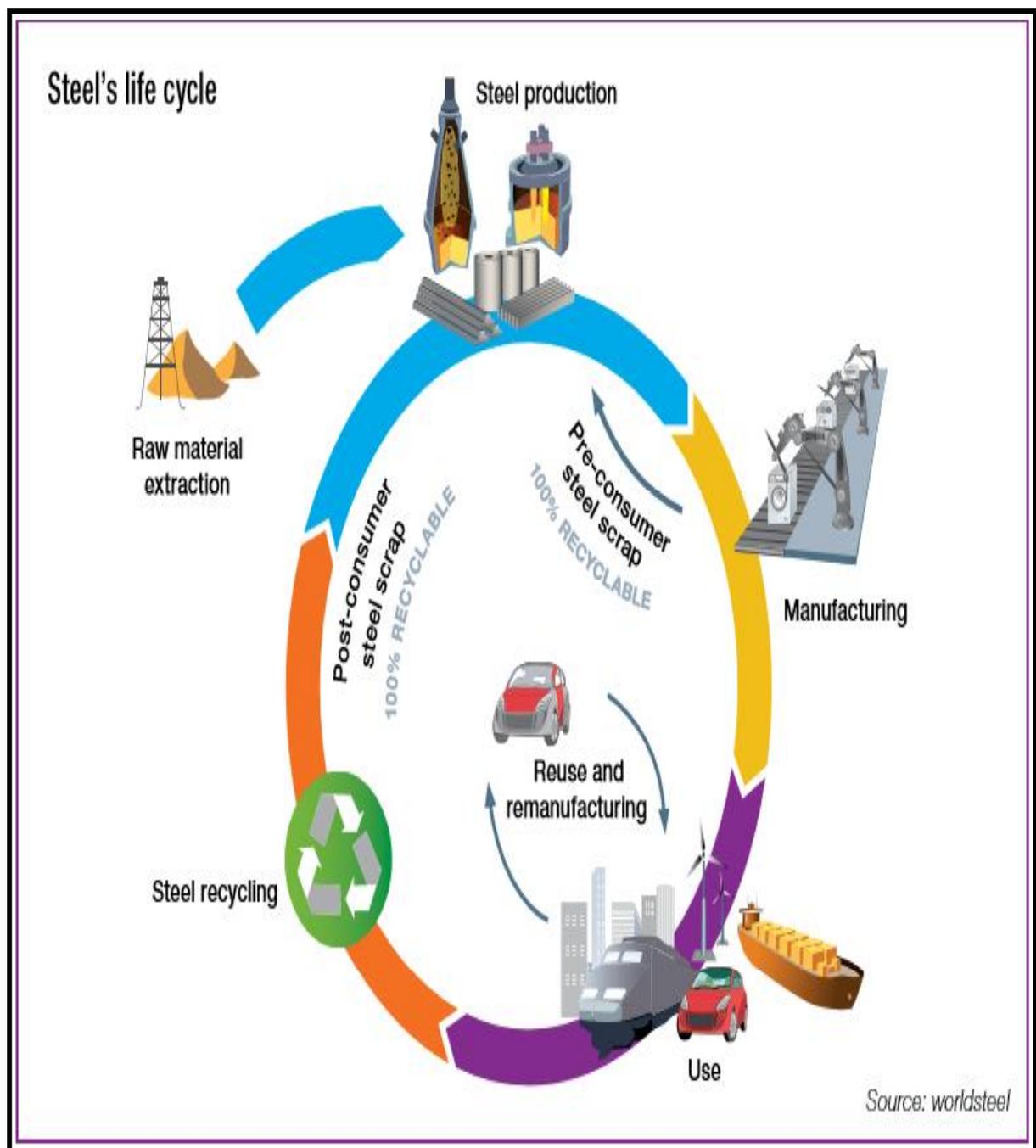


Figure 8: STEEL'S LIFE CYCLE

## CONCLUSION

Circular Economy concept has an inherent capability to develop the world in a sustainable way. If adopted on a large scale it will have multiple benefits. There will be reduced material consumption, making it possible to reserve scarce resources for future generation. Further, re-using will increase the life of used products. There will be less energy utilization. Recycling will reduce the amount of waste generated and sent to the landfills. This in turn, will reduce the pollution created when trash is disposed traditionally by way of burning. Circular Economy is surely a way to make sustainable development a reality.

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## ASSIGNMENT QUESTIONS:

1. What according to you are the opportunities and challenges in front of Circular Economy?
2. Explain the relevance of Circular Economy model with reference to Small and Medium Sized Enterprises (SME).

## TEACHING NOTES:

1. Divide the class into groups consisting of 4-5 members each.
2. Give the case for individual reading for 10 minutes.
3. Allow a time limit of 15 minutes for the discussion of the case within groups. Then make students present their analysis and solutions to the questions asked.