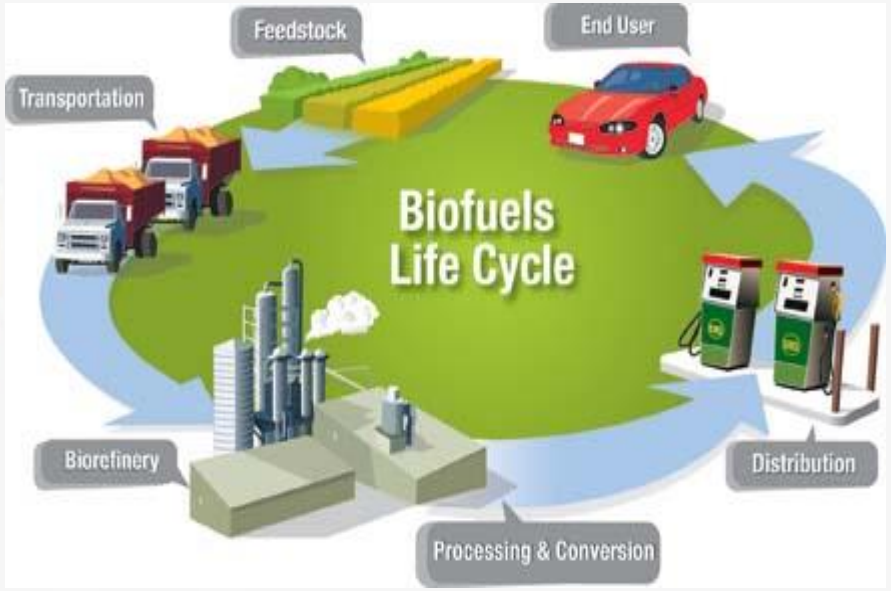
Production of Biofuels



WHAT IS BIO FUEL?

- Bio fuel is a type of fuel whose energy is derived from biological carbon fixation.
- Bio fuel is the fuel which is produced from organic products and wastes.
- Bio fuels include fuels derived from biomass conversion as well as solid biomass, liquid fuel and solid biomass.

WHY BIOFULES?

- Biofuels production and consumption ensures that the natural Carbon cycle to be 100% achieved which completely eliminates the continuous increase in Carbon Dioxide rates in the atmosphere.

- In turns it will have the greatest effect on the environment and a way to end global warming.

WHY BIOFULES?

- For example, A crop of plants used to produce a barrel of biofuel will absorb exactly the same amount of Carbon Dioxide as emitted from burning the barrel produced.

RAW MATERIALS FOR BIOFULES

Jatropha

- Jatropha curcas is multi purpose non edible oil yielding perennial shrub.
- This is a hardy and drought tolerant crop can be raised in marginal lands with lesser input.
- The crop can be maintained for 30 years economically.

RAW MATERIALS FOR BIOFULES

Sugarbeet

- Sugarbeet (Beta vulgaris Var. Saccharifera L.) is a biennial sugar producing tuber crop, grown in temperate countries.

- Now tropical sugarbeet varieties are gaining momentum in tropical and sub tropical countries, as a promising alternative energy crop for the production of ethanol.

RAW MATERIALS FOR BIOFULES

Sorghum

- Sorghum (S. bicolor) is the most important millet crop occupying largest area among the cereals next to rice. It is mainly grown for its grain and fodder.
- Alternative uses of sorghum include commercial utilization of grain in food industry and utilization of stalk for the production of value-added products like ethanol, syrup and jaggery and bioenriched bagasse as a fodder and as a base material for cogeneration.

Classification of Biofuels

1st Generation Biofuels

- Also called conventional biofuels. It includes sugar, starch, or vegetable oil.

Classification of Biofuels

2nd Generation Biofuels

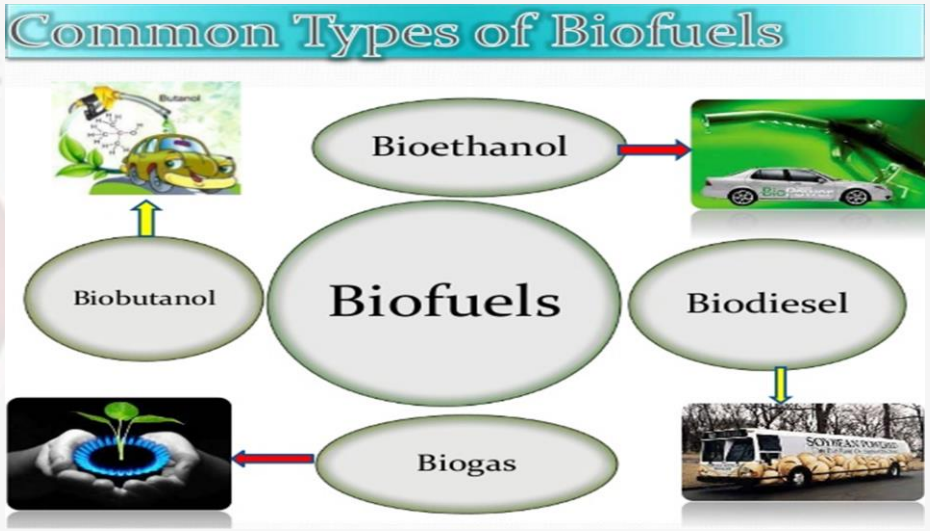
- known as advanced biofuels and can be manufactured from different types of biomass. The biomass contains lignocellulosic material like wood, straw and waste plastic.

3rd Generation Biofuels

- Extract from algae mostly marine algae

FIRST GENERATION BIOFUELS ARE:

- BIO-DIESEL.
- GREEN-DIESEL.
- BIO-ETHERS.
- BIO-GAS.
- SYN-GAS



SECOND GENERATION BIO-FUEL

Many second generation biofuels are under development such as

- Cellulose ethanol,
- algae fuel,
- bio hydrogen
- bioethanol,
- bioethanol,
- Fisher tropes diesel,
- bio hydrogen diesel,
- mixed alcohols and wood diesel.

Biodiesel

- an alternative diesel fuel, is made from re-new able biological sources such as vegetable oils and animal fats.

- Similar to petroleum diesel fuel in structure (straight chain) and number of carbon atoms (10 to 21).
- The Biodiesel can be prepared by Transesterification.

BIO-FUEL PRODUCTION IN INDIA

- Biofuel development in India centre's mainly around the cultivation and processing of Jatropha plant seeds which are very rich in oil (40%).
- The drivers for this are historic, functional, economic, environmental, moral and political.
- On 12 September 2008, the Indian Government announced its 'National Biofuel Policy'.
- It aims to meet 20% of India's diesel demand with fuel derived from plants.

Advantages of Biofuels

- Renewable
- Reduce Greenhouse Gases
- Economic Security
- Easy to Source
- Lower level of Pollution

Disadvantages of Biofuel

- High Cost of Production
- Industrial Pollution
- Future Rise in Price
- Shortage of Food
- Use of Fertilizer

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Thank you