Mains Practice Question

Q. Discuss the significance of methanol based economy for India, what are the challenges involved in tapping its potential? (150 words)

14 Feb, 2019 GS Paper 3 Economy

Approach

- Elaborate the meaning of methanol based economy in the introduction.
- Discuss the significance of methanol based economy for India.
- Mention the challenges involved in tapping its potential.
- Give a way forward to meet the challenges and tap its true potential.

Introduction

- Methanol is a clean burning fuel which can replace both petrol & diesel in transportation & LPG, Wood, Kerosene in cooking fuel. It can also replace diesel in Railways, Marine Sector, Gensets, and Power Generation.
- The methanol economyis a suggested future economy in which methanol and dimethyl ether (DME) replace fossil fuels as a means of energy storage, ground transportation fuel, and raw material for synthetic hydrocarbons and their products. It offers an alternative to the proposed hydrogen economy or ethanol economy.

Body

The significance of methanol based economy for India:

- **Methanol Benefits in Transportation sector:** Methanol can be blended with gasoline and diesel, or can completely substitute the latter fuels respectively giving us an opportunity to reduce our dependence on imported crude oil. It will be in line of in achieving an ambitious target of 10% reduction in import dependence of oil & gas by 2022 in comparison with 2014- 15 levels.
- **Access to clean cooking fuels:** India houses nearly 800 million people without access to clean cooking fuels which largely rely on biomass to meet their cooking requirements. Methanol blending with LPG or the complete substitution of latter through former can be done.
- **Displacing diesel in Telecom Towers:** Telecom towers in India consume around 2% of diesel (1.5 MT) consumption which is a significant amount indicating a vast potential for DME to replace diesel.
- **Near Zero pollution:** Methanol burns efficiently in all internal combustion engines, produces no particulate matter, no soot, almost nil SOX and NOX emissions. Methanol 15 (m15) in petrol will reduce pollution by 33% & diesel replacement by methanol will reduce pollution by more than 80%.
- **Dovetailing with Swachh Bharat Mission:** It can be an opportunity for India to use its landfills to convert it into methanol and avoid problems such as toxins leaching into the soil and release of GHG emissions etc.
- **Economic benefits:** At least 20% diesel consumption can be reduced in next 5-7 years and will result in a savings of 26000 Crores annually. Rs. 6000 Crores can be annually saved from reduced bill in LPG in the next 3 years itself. The Methanol blending program with Gasoline will further

reduce our fuel bill by at least 5000 Crores annually in next 3 years.
- Methanol can be used for producing various chemicals like formaldehyde, acetic acid and olefins which can be exported and can prove high foreign exchange earners.

Challenges involved in tapping its potential:

- Methanol can be produced from natural gas, coal, municipal waste and wood. However, highest efficiency is obtained in methanol plants which use natural gas. Those using municipal waste are somewhat less efficient. Since methane is not easily available in country, use of same for methanol production is not feasible.
- Methanol production from coal gasification suffers due to infrastructure constraints and transportation problem.
- Municipal waste segregation is a serious problem being faced in the country due to lack of right technology. This reduces the efficiency of plants using municipal waste for methanol production.
- Very low investment by government as well as domestic private sectors coupled with zero assistance from foreign countries in terms of technology.

Way forward

- The first and foremost step should be to create an innovation fund that will support the R&D activities for methanol/DME in India.
- India should also look at options to set up a manufacturing facility for methanol/DME in Iran or Qatar as both these countries having huge reserves of natural gas can provide the same at very low prices
- India must set up a mega coal based complex for production of power, methanol and fertilizer in an integrated manner which would significantly reduce the cost of various commodities produced.