

earth's surface. It occurs in all spheres of the environment – in the oceans as a vast reservoir of saltwater, on land as surface water in lakes and rivers, underground as groundwater in the atmosphere as water vapor, and in the polar icecaps as solid ice.

India's Water Resources Potential: India receives an annual precipitation of about 4000 cu.km. About 1869 cu.km occurs as natural run off in rivers. India has 12 major rivers with a total catchments area of 252.8 million hectare. Of these, the Ganga-Brahmaputra-Meghana system is the biggest with a catchment area of about 110 m.ha. It also provides about 60% of the total amount of freshwater amongst other rivers. Others with catchment areas of more than 10 m.ha are Indus (32.1 m.ha), Godavari (31.3 m.ha.), Krishna (25.9 m.ha.) and Mahanadi (14.2 m.ha.) The national annual per capita availability of water in the country is about 2208 cu.m.

Energy sources: Fossil fuels such as coal, gas or oil represent the principal source of energy and supply about eighty five per cent of the commercial energy requirement. Fossil fuels are types of sedimentary organic materials, often loosely called bitumens, with asphalt, a solid, and petroleum, the liquid form. More correctly bitumens are sedimentary organic materials that are soluble in carbon disulfide.

Conventional exhaustible energy sources:

- a. **Fire wood:** Man has been logging down the trees for various purposes including to get firewood as an important one. This lead to thinning of woodland that had serious consideration from both ecological and economic viewpoints. The only way out to the problem is making available to the village the cheaper non-conventional energy sources, such as biogas and solar energy in usable form.
- b. **Fossil fuel:** Are the most extensively used sources of energy today. Increase in population and percapital energy demand coupled with the industrialization at a faster rate are factors responsible for depletion of fossil fuel. Petroleum and natural gas to-day fulfill 60% of the world's total energy requirements. If the exploitation and consumption of these resources continues at the present incredible rate, there supply may lost only for a few more decades.

Non-conventional and in-exhaustible energy sources: The rapid depletion of conventional energy sources has promoted governments and people to concentrate on finding and tapping some non-conventional energy sources that may last for long. The in-exhaustible energy sources like solar, hydal, tidal, wind and atomic power, can only bring hope for the sustained socio-economic development of humanity.

- a. **Solar energy:** Research and application in the field of solar energy have opened new vistas in the direction of fulfilling world's future energy requirements. It is especially drawn attention for its practically free steady supply and pollution free use. This resource can especially be tapped more effectively in the regions where there are long run shine hours. Department of non-conventional energy sources of Government of India has prepared a prespective plan that envisages generation of energy through non-conventional sources. Chiefly solar, to the extent of 250 million tons of coal replacement per annum.
- b. **Wind Power:** The power of wind is being used in running mills, irrigation of fields and carrying out other farm activities. According to DNES, Government of India, 20,000 MW electricity can be generated from the wind alone.

Hydro power: It is considered to be the cheapest source of electricity. The Brahmaputra basin has the highest hydropower potential and nearly 30% of the country's production. Next to it rank the Indus, Godavari and Ganga basins respectively. Apart from economic consideration development of such projects is beneficial for irrigation and other purposes.



Atomic power: Atomic power appears to be the only hope for large-scale energy requirements when fossil fuels are exhausted. Atomic energy has its application not only in generation of electricity but has successfully been used in chemical and food processing industry. The important constraints in atomic energy generation are cost of construction and maintenance of plants and also disposal of radioactive wastes.

- c. **Bio-energy:** Organic wastes provide an important renewable source of energy. It is considered to be advantageous in view of its relatively cheaper supply, and are of organic wastes in its generation reduces the impending threat of pollution due to their release in environment. As such, it serves two purposes; fuel production and waste disposal. It has more practical applicability in villages where organic waste, in the form of cattle dung, is available in plenty. Biogas so generated is thus economic and convenient to use as compared to conventional practice of burning of dry dung cakes. Since the total natural resources available are limited, the way-out to the problem seems only through control of population and also the per capita consumption of resources. Because it is difficult to bring down per capita consumption, the recycling and stringent conservation can bring hope for sustained development without reducing per capita use of resources.
- d. **Food Resources:** We have thousands of edible plants and animals over the world, out of which only about three dozen types constitute the major food of humans. The main food resource include wheat, rice, maize, potato, barely, oats, cassava, sugarcane, pulses, sorghum, millet, about 20 or 50 common fruits and vegetables, milk, meat, fish and sea food. 76% of world food is produced from croplands and most it produced grains. About 17% of world food is obtained from Rangeland (Meat etc). Seven % of world food supplied by oceanic fisheries. About 30,000 plant species are eatable. 2/3 of the people used traditional grains (rice, wheat etc.). People consume more beef, pork, chicken; egg etc., Fish and sea food are the important sources of food. Milk products are also widely used.