

*A Review:*

## **Biomass gasification: Scope, limitations and its applications**

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### **ABSTRACT**

Agriculture is highly dependent on energy, particularly on fossil fuels. This is especially true for developed countries like the U.S., Canada and Australia, which provide most of the agricultural production of the world. With recent price rises and the scarcity of these fuels there has been a trend towards the use of alternative energy sources like solar, wind, Bio-energy, geothermal etc. However, these energy resources have not been also to provide an economically viable solution for agricultural applications. In India it is not surprising that the per capita energy consumption figures are very low in spite of high rate of development. The per capita consumption in India in the region of 400 KWH per annum. The ultimate scope of implementation of the concept of utilization of biomass as an alternative energy source is limited by the availability of biomass. Since most of the agricultural residues are already being used as domestic fuels, wood is getting scarce day by day. The impact and success of this concept can be realized only if it is coupled with development of biomass. Most extensively used and researched systems have been based on down draft gasification. However, it appears that for fuels with a high ash content , fluidised bed combustion may after a solution . At present no reliable and economically feasible system exists. Future applications like methanol production, using producer gas in fuel cell, and small-scale irrigation systems for developing countries offer the great potentialities

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**A**griculture is highly dependent on energy, particularly on fossil fuels. This is especially true for developed countries like the U.S., Canada and Australia, which provide most of the agricultural production of the world. Even in developing countries, where human and animal power are the main sources of energy on the farm, increase in the use of fossil fuels are taking place because of farm mechanization, which is essential to increase the food production. With recent price rises and the scarcity of these fuels there has been a trend towards the use of alternative energy sources like solar, wind, Bio-energy, geothermal etc. However, these energy resources have not been able to provide an economically viable solution for agricultural applications.

### **Energy scenario in India:**

In India it is not surprising that the per capita energy consumption figures are very low inspite of high rate of development. Now taking place. The per capita consumption in India in the region of 400 KWH per annum.

Per capita consumption of energy use worldwide is shown in following Table (Nag KN)

USA	330 GJ
Canada	180 GJ

Sweden	150 GJ
West Europe	120 GJ
Japan	110 GJ
China	20 GJ
India	5 GJ

The total energy consumption in India has been an increasing side at the rate of 5 to 7% during the last 25 years. The three main important sources of energy have been coal, oil and electricity. The consumption of commercial energy is given in the following Table

Sector	Household	Agriculture	Industries	Transport	Other
Coal	5.8	--	73.4	18.0	2.7
Oil	20.30	13.7	6.4	55.4	4.2
Electricity	9.1	14.2	63.8	3.1	9.8

(Figures are in percentage)

The potential and achievement of different renewable energy technologies are summarized in the Table 1:

**Biomass energy** based system, which has been proven reliable and had been extensively used for transportation and on farm system during World War II is wood or biomass gasification.