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Identifying, developing and moving sustainable communities through application of bioenergy for energy or materials: Future perspective through energy efficiency

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The demand for energy continued to outstrip supply and necessitated the development of biomass option. Residues were the most popular forms of renewable energy and currently biofuel production became much promising. Agricultural wastes contained high moisture content and could be decomposed easily by microbes. Agricultural wastes were abundantly available globally and could be converted to energy and useful chemicals by a number of microorganisms. Compost or bio-fertilizer could be produced with the inoculation of appropriated thermophilic microbes which increased the decomposition rate, shortened the maturity period and improved the compost (or bio-fertilizer) quality. The objective of the present research was to promote the biomass technology and involved adaptive research, demonstration and dissemination of results. With a view to fulfill the objective, a massive field survey was conducted to assess the availability of raw materials as well as the present situation of biomass technologies. In the present communication, an attempt had also been made to present an overview of present and future use of biomass as an industrial feedstock for production of fuels, chemicals and other materials. We may conclude from the review paper that biomass technology must be encouraged, promoted, invested, implemented, and demonstrated, not only in urban areas but also in remote rural areas. Energy is an essential factor in development since it stimulates and supports economic growth and development. Fossil fuels, especially oil and natural gas, are finite in extent and should be regards as depleting assets, and efforts are oriented to search for new sources of energy. The clamour all over the world for the need to conserve energy and the environment has intensified as traditional energy resources continue to dwindle whilst the environment becomes increasingly degraded. The basic form of biomass comes mainly from firewood, charcoal and crop residues. Out of the total fuel wood and charcoal supplies 92% was consumed in the household sector with most of firewood consumption in rural areas. Biogas technology cannot only provide fuel, but is also important for comprehensive utilization of biomass forestry, animal husbandry, fishery, evaluating the agricultural economy, protecting the environment, realizing agricultural recycling, as well as improving the sanitary conditions, in rural areas. The biomass energy, one of the important options, which might gradually replace the oil in facing the increased demand for oil and may be an advanced period in this century. Any county can depend on the biomass energy to satisfy part of local consumption. Development of biogas technology is a vital component of alternative rural energy program, whose potential is yet to be exploited. A concerted effect is required by all if this is to be realized. The technology will find ready use in domestic, farming and small-scale industrial applications. Support biomass research and exchange experiences with countries that are advanced in this field. In the meantime, the biomass energy can help to save exhausting the oil wealth. The diminishing agricultural land may hamper biogas energy development but appropriate technological and resource management techniques will offset the effects.

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