

- 2) Helping industries develop equipment to pilot plant scale.
- 3) Acting as a bridge between R&D organizations and production units.
- 4) Developing new materials needed for solar energy utilization.
- 5) Training manpower in different technologies.
- 6) Collaborating with international organizations in testing and standardization of solar devices.
- 7) Procuring technology from other countries.

Several Canadian firms employing various technologies have been active in pursuing opportunities in the Indian solar energy market. At least one collaboration has already been established and considerable potential exists for future cooperation given the priority being placed by India on the solar field. There is excellent potential for utilizing this form of energy in a variety of facilities in India including pulp and paper mills, hotels, hospitals, apartment buildings etc.

f) Solar Photovoltaics

The direct conversion of solar energy into electricity using photovoltaic systems is considered to have significant potential in India. This form of solar energy utilization is attractive in view of the favourable solar radiation conditions and large requirements for electrical energy for decentralized applications.

Canada's strength in photovoltaics lies in systems engineering and applications. The various components of a P.V. System including the modules, energy storage, power conditioning unit, auxiliary power source and load may be configured in a wide variety of ways. Knowing how to bring these components together in any given system application is critical. Canadian expertise in this area is most relevant as system engineering and application is a key requirement in India.

g) Biogas & Biomass

Under its Waste Recycling and Resource Recovery Systems (WRRRS), the Department of Non-Conventional Energy Sources has successfully set up biogas plants and power generation Plants utilising animal, human, municipal, agricultural and industrial wastes. During 1988-89 a sum of Rs. 57 crores was allocated for this purpose, representing 57% of total allocations for non-conventional energy development. In addition, a sum of Rs. 6 crores was allocated for R&D and Demonstration projects for conversion of biomass into energy through direct combustion, carbonization/pyrolysis, liquefaction and gasification.

Canadian expertise in bioenergy conversion technologies could be valuable for India for a variety of applications including steam and electricity generation, space and water heating, process heat, mobile and stationary engines, gas turbines and cooking.

h) Wind Energy

The wind energy programme of the GOI aims at harnessing wind energy potential for water pumping, battery charging and electricity generation. The potential is estimated as in excess of 20,000 MW for power generation alone. A multi-pronged strategy involving strengthening and expansion of wind data base, research, development, demonstration and indigenous production of wind electric generators has been formulated to provide thrust in this area. Some well-known Indian companies have already embarked upon the manufacture of wind electric generators. DANIDA is extending grants for pilot projects for development of wind electric generators, while the World Bank is assisting in Windfarm Development Studies.

Canadian expertise in wind turbine designs and its experience in Canada and elsewhere could be a source for collaboration and marketing in India.