Renewable Energy Perspectives in South and Central Asia

Prof. H.P. Garg
IREDA Chair Emeritus Professor
Centre of Energy Studies
Indian Institute of Technology
Hauz Khas, New Delhi - 110016, India
e-mails: garghp@ces.iitd.ernet.in;
hpgarg01@rediffmail.com

Renewable energy has enjoyed a genuine global revival in the 20th century, in particular since the oil crisis of the 1970's. In the present world, sun, wind, water and biomass have began to make significant contribution in meeting heat and power needs. After the Rio Summit in 1992, a lot of concern has been expressed about environmental degradation, global warning, emission of green house gases, ozone layer depletion and other global issues related to the environment. Consequently, a lot of interest has grown for developing, promoting and adopting clean and environment friendly technologies. The renewable energy technologies are generally environment friendly and are likely to play an increasing role in the near future because of their capabilities to aid economic growth in underdeveloped regions beyond the reach of centralised power generation and distribution system, and their ability to help combat both global warming and other environmental problems.

Most of the developing countries particularly the countries in the south and central Asia are heavily dependent on imported energy particularly oil and petroleum products. The use of commercial energy in south Asia increased at an annual rate of 6.8% between 1971 and 2003. The study undertaken by International Energy Agency projects continued growth during next several decades. The heavy dependence in south and central Asia on coal and oil for energy is unfortunate, since these are generally considered to be the most polluting of the energy sources. In most of these countries there is a considerable scope of energy conservation, energy efficient technologies and use of renewable energy. This paper discusses the present energy scenario in south and central Asian (SCA) countries and the status of renewable energy technologies.

Availability of energy at low cost in a country is considered to be an index of prosperity. The human development index (HDI) which measures the average achievements in a country in three basic dimensions of human development -longevity, knowledge and a decent standard of living, is very much dependent on the energy consumption per capita in that country. The consumption of energy per capita in most of the developing countries including countries of south and central Asia is low and therefore, the human development index (HDI) for these countries is also very low. For eleven countries of south and central Asia under UNESCO Regional Office, New Delhi namely, India, Pakistan, Bangladesh, Nepal, Sri Lanka, Maldives, Myammar, Mongolia, Iran, Afghanistan and Bhutan have been correlated with the energy consumption per capita in figure 1. The data for few of the industrialised countries have also been given in

the figure for comparison purpose only. It is quite evident that for most of these countries the HDI is quite low and therefore there is a need to increase their energy consumption faster than industrialised countries.

Also the actual and projected GDP growth for the south and central Asian (SCA) countries is shown. The present outlook in terms of GDP growth does not vary widely among the SCA countries. All of them are expected to show a reasonable rate of growth, which in turn, will increase the energy demand significantly.

India is the only country among developing country to have its own Integrated Energy Policy, Renewable Energy Policy and separate Ministry of Non-Conventional Energy Sources (MNES). More than 5 % of its energy need in the power sector is met by Renewable Energy in India. In this paper, the status of enewable Energy in India alongwith the progress in other South and Central Asian Countries will be presented.

CV

Prof. (Dr.) H. P. Garg

Designation & Address : IREDA Chair Emeritus Professor
Centre of Energy Studies
Indian Institute of Technology
Hauz Khas, New Delhi - 110016, India

Education : Ph.D. (Solar Energy) : First Ph.D. in India on Solar Energy M.Sc. (Physics)

Positions Held :
- Professor, Coordinator & Head, Centre of Energy Studies, Indian Institute of Technology, New Delhi - 16 (Jan 1979 - March 2005)
- Principal Secretary, Director General and Advisor, Department of Science and Technology, Govt. of Madhya Pradesh (Dec. 2002 - May 2004, On lien from IIT Delhi)
- Director, Institute of Technology & Management (ITM) Gurgaon, Haryana, (For Six months in 2005, on lien from IIT Delhi)
- Head, Division of Wind Power & Solar Energy, Central Arid Zone Research Institute (CAZRI) Jodhpur, Rajasthan (Sep. 1972 - Dec. 1978)

	:	Incharge of Solar Energy Section Central Building Research Institute (CBRI),Roorkee (May 1965 - September 1972)
Field of Specialization	:	Science, Engineering & Technology Higher Education & Technical Education Energy, Ecology and Environment Solar Energy & Energy Efficiency & Conservation
Expert Memberships	:	All India Council of Technical Education, Department of Science & Technology, GOI, Ministry of Non-Conventional Energy Sources, GOI, University Grants Commission, GOI, Council of Scientific & Industrial Research, GOI, Indian Council of Agricultural Research, GOI, UNESCO, UNIDO, GEF, ICTP, UNDP, UNU, WREN
Awards	:	Nominated for Nobel prize in 2002 More than 15 National and International Awards
Academic Attainments	:	More than 500 research papers, 14 books, 26 Ph.D. guided, and large number of R&D and consulting projects.