

ABSTRACT:

Diversification of fuel sources is imperative to address the energy security, climate change, and sustainable development issues; therefore, it is essential to address the energy crisis through the extensive utilization of abundant renewable energy resources, such as biomass energy, solar energy, wind energy and geothermal energy. Improving energy services for poor households in developing countries remains one of the most pressing challenges facing the development community. Earlier studies suggest in South Asia the households are likely to follow the energy ladder comprising fuels like dung, crop residue, firewood, kerosene, gobar gas, LPG, and electricity for cooking purposes. Evidence suggests that while it is possible to observe such transition in urban and semi-urban areas, the change is very slow in rural areas. In rural Pakistan, the access to commercial energy resources is limited, the majority of the households still heavily rely on traditional methods of using wood, animal waste and crop waste for domestic fuel needs. Efficiencies of use are very low and most of the potential is wasted because of non-scientific conventional technologies. Consequently there is an obligatory need to develop modern bio-energy technologies since renewable resources may serve to supplement the long-term energy needs of Pakistan to a significant level. Though the bio-resource base of Pakistan is substantial, its contribution to useful energy is low. In this paper we called attention to issues and challenges in biomass utilization for energy in Pakistan in context of sustainable development. This paper has identified areas in Pakistan where there is considerable scope to modernize biomass energy production delivery systems to provide varied energy carriers such as electricity, industrial and domestic fuel and gases. Barriers are examined over the whole biomass energy spectrum and policy issue and institutional roles and responsibilities are discussed.