

Policy Paper : Energy for Achieving Millennium Development Goals

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This is an analysis of the keynote paper presented by Dr. Abul Barkat, Professor of Economics, Dhaka University in the policy dialogue workshop of UNDP-Ministry of Power, Energy & Mineral Resources titled 'Energy for Millennium Development Goals'.

The keynote paper described the poverty trends globally and across the region, highlighting the geographic distribution of the poor in Sub-Saharan Africa and Asia, particularly South Asia. About 2.4 billion people, or 40% of the world's population, living on less than US \$ 2 a day represent this poor. The disproportionate number of poor people in the world led to the governments of 187 countries declaring the Millennium Development Goals in 2000, of which the over-arching goal is halving poverty in the world by 2015. The paper explained the linkages between provision of modern energy services and how it impacted on income poverty reduction, eradication of hunger, improvement of health, education, gender equality, empowerment of women, and environmental sustainability. For example, eradication of hunger is the second target of MDG (under Goal 1). Energy as form of heat is required to cook 95% of the basic staple foods that form the basis of human nutrition and thus has a direct bearing on the eradication of hunger from the world. The paper noted that the MDGs totally ignored the linkage or energy with achievement of MDGs. Although the MDGs did not explicitly mention energy as a mean for achieving the goals, however the MDG+5 meeting did recognize that energy is "essential" for achieving all the goals under the MDGs.

The paper describes that across the world, a significantly large portion of the population is unable to access modern energy services at all, and those who do have access often pay high prices for energy services of much lower quality. A substantial part of the poor population rely on bio-mass or dung for cooking fuel and heat; on kerosene lamps, batteries, or candles for lighting; and on human or animal energy-based mechanical power for tilling and weeding land, grinding and crushing, agro-processing, or for transportation. Insufficient and unreliable power limits the ability for growth of micro-enterprises at the village level, thereby limiting job diversification and creation of employment. The largest concentrations of these 'energy poor', or those people who are both poor and also lack access to modern forms of energy, are situated in sub-Saharan Africa and South Asia. Energy poverty in this context implies inability to cook with modern cooking fuels, lack of a bare minimum of electric lighting in the households to read or do other things and lack of access to energy for other household activities after sunset or for productive activities of the poor in general.

The paper argues that although the developing countries continue to build their energy infrastructures, their investments in energy services have far outpaced the population growth. Lack of power also has been directly linked to increased fertility rate. Therefore, regions with high population concentrations like Sub-Saharan Africa and South Asia are particularly vulnerable to energy insecurity as they would face unsustainable populations in future while having less economic and social growth, which are directly dependent on energy. Brazil's transition from traditional to modern cooking fuel – 16% in 1960 to 94% in 2005, Tunisia's expansion of electricity programme from 6% of population in 1976 to 95% in 2005, and China's electrification rate reaching 98% in 2005 are reflective of the sound policy making,

funding that combined domestic resources with borrowings, and an effective cost-recovery tariff mechanism that made it possible for the poor users to pay back. These global best practices for making energy accessible to the poor show that it is not unattainable if there is sustained political commitment combined with the right decisions and steps.

In the backdrop of this global scenario, the research study done by Prof. Barkat on rural electricity in some villages in Bangladesh in the recent past years show an inextricable linkages between electricity and improvement in education and poverty reduction. The overall literacy rate in 71% of the electrified rural households were found to be 26 % higher than that in the non-electrified households. What is significant within this data is that the female rate of literacy was found to be 31% higher in electrified households than in non-electrified ones. Thus it is indicative that provision of electricity in rural areas would definitely help to bridge the gender gap in education. Also the average annual household expenditure on education was found to be 87% higher in the electrified households than non-electrified ones. This shows that the households are encouraged to invest more in their children's education if there is electricity in the house. One of the key findings of this study is the fact that not only does the amount of time for study in the evening increases by 30-45 minutes, but the quality of education shows a distinct improvement in the evening with this extra time. The inference is that children in most rural households also take part in household or economic chores to support their families and spend a good amount of time collecting fire wood or other traditional fuel and water. Therefore, evening is the most suitable time for them to devote to their studies and the comfort of good lighting and fan helps in making the performance better. There is more time for the households for socio-cultural activities in the evenings and access to information through radio and TV thus bringing a change in the overall quality of life.

The Bangladesh study also found that both absolute and hardcore poverty are significantly less pronounced in the electrified households than in the non-electrified ones. The average annual income of the electrified households is 65% higher than non-electrified households. Increase in assets over a five year period was found to be 19.4% in electrified households compared to only 2.4% of households in non-electrified villages. Currently about 20% rural households are electrified. Prof. Barkat believes, with other things being the same, 100 percent electrification of rural households might increase the annual rural income equivalent to 26% of the current GDP. One of the salient inferences to be drawn from the Bangladesh study is that rural energy in the form of electricity does contribute to generation of resources in the rural areas through promotion of inter sub-sectoral linkages.

The empirical evidences (including those from Bangladesh) towards understanding complex linkages between energy services and the MDGs show that it would not be possible to attain all the MGD goals without easy access to energy services. Some of the internationally recognized findings with relationship to energy-poverty are that increased economic growth is associated with productive uses of energy : modern energy services enable farmers to diversify their income sources and thus mitigate the inherent risks associated with agro-based economies; modern energy services contribute to economic growth by the reducing unit costs (due to the inefficiency of commonly used items such as batteries, candles, kerosene, and charcoal the poor often pay higher unit costs for energy than the rich); and the use of more efficient fuels can reduce the large share of household income spent on cooking, lighting and keeping warm, thus saving money which can be used by the poor for better food, education, health and other basic needs. It is also observed that low commercial energy use is correlated with high infant mortality, illiteracy, high fertility and low life expectancy. On the other hand

energy consumption is highly correlated with higher GDP per capita(UNDP 2000). The keynote paper argues that “it is not unrealistic to associate per capita commercial energy consumption levels of about 500 kgoe with a substantial reduction in the number of poor for the poorest countries”. In that respect the per capita commercial energy consumption in Bangladesh is only 82 kgoe while that in India is 291 kgoe, and in Srilanka 156 kgoe (Barkat 2005a). Bangladesh would need to substantially increase its per capita commercial energy consumption in order to come out of poverty. That would obviously require more industrialization and enterprise development.

However, the development of industrial sector is lagging behind in Bangladesh due to lack of sustained energy. The barriers to developing modern energy services in Bangladesh are identified as lack of political will, planning and investment; weak institutional, financial, and legal structures to encourage private investment; lack of tariff planning and policies; and vision for scaling up energy services with the inclusion of renewable energies, energy efficiency and conservation.

Referring to International Energy Association's assessment, the keynote paper mentions that the world energy sector would need an investment of US \$16 trillion from 2003-2030, of which \$9.6 trillion, or 60% would be for electricity and the rest for other sources of energy. It is also estimated that in order to ensure access to safe, clean and reliable electricity to 3.5 billion people an amount of around US \$600 billion per year will be required. Proportionately Bangladesh would need \$16 billion investment to ensure electricity for all by 2020, which is the Government's current vision statement.

To attain the MDG goals, an additional cumulative investment of about \$16 billion per year until 2015 will be required or US \$ 202 billion in total. The actual provision of ODA for achieving the MDGs at \$ 53 billion annually (2%) is far short of the 0.7% of their GNP (\$175 billion per year) promised by the rich countries of the world. While the rich countries need to be pursued for materializing the expansion of the “Millennium Challenge Account” from the current nearly \$50 billion to \$175 billion annually, at the same time the commitment of the national governments of the developing countries towards expansion of energy services should be evident as well. The keynote paper emphasizes that given the present economic growth rate, Bangladesh has the ability to invest internally from private and public sectors the amount needed for development of its energy sector. It recommended broadening the base of energy services by adopting relevant policy frameworks; ensuring expanded energy access for poor households; economic and human development; and incorporating the cost of energy service delivery needed to support the attainment of MDGs into national development strategies.

Bangladesh's growth is tied to the growth of 70-80% of its population who live in rural areas and the engine for that growth is without a doubt modern energy services including power, gas, coal and renewable energies from biomass, solar, wind, hydro and other sources. It not only improves the quality of life, but also brings better options to increase productivity. Therefore, energy security is tantamount to the country's ability to expand, diversify, and optimize its energy resource portfolio and a level of services that will sustain economic growth and reduce poverty. It is in this light that energy security should become a key focus of the country's energy policy.