

Energy for sustainable development in India: Linkages and strategic direction

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Abstract

In recent times the two major international endorsements of the elements of sustainable development the Millennium Development Goals (MDGs) and the World Summit on Sustainable Development (WSSD), have recognized universal access to energy as an important goal. In India, with a population of over a 1000 million people, it is estimated that a mere 43.5% of the households have access to electricity. The choices that the country makes towards energizing the remaining population will have a significant impact on other Sustainable Development parameters such as agriculture, water, health, and even biodiversity. India has set itself a target, going beyond the MDGs, of energizing all households by the year 2012. In view of the differentiated responsibilities of the various ministries to the Government of India, the strategy for reaching this target may not address itself to the larger development goals.

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1. Introduction

The recognition of energy as a key input for economic development is evident from the fact that the two major international endorsements of the elements of sustainable development in recent times, the Millennium Development Goals (MDGs) and the World Summit on Sustainable Development (WSSD), have recognized universal access to energy as an important goal. The rationale for this is that there is a huge discrepancy in the energy consumption levels between the developed and the developing countries as more than two billion people in the world (largely in Latin America, Asia, and Africa) have no access to modern energy supplies (Fig. 1).

Owing to the critical link between energy and economic activity this has a negative bearing not only on the livelihoods of people, but also on several other drivers of sustainable development including water, agriculture, and health. The relationship between energy and development

is best illustrated by the fact that the population living below the poverty line in developing countries reduces as we move from a low level of electrification to higher levels (Fig. 2).

With a rural population of over 741 million people and the UNDP HDR reporting human poverty value of 31.4% for 2004, India ranks 48th among 95 developing countries on poverty levels. In this context, inequitable access to clean energy sources in the country is a major impediment to sustainable development. This is amply borne out by the fact that misery of close to 30% of the rural masses who do not have access to potable drinking water and over 40% who lack access to proper health facilities can be addressed to a large extent through the provision of clean and efficient energy (Census 2001, [Government of India, 2001a](#)). Moreover, the agriculture and the micro-enterprises sectors that together employ more than 30% of the population can become more productive and efficient through the provision of clean and sustainable energy options. Hence, in order to address the needs of sustainable development, it is necessary to examine the constraints related to rural energy and to find appropriate solutions that have a bearing across all sectors of rural development.

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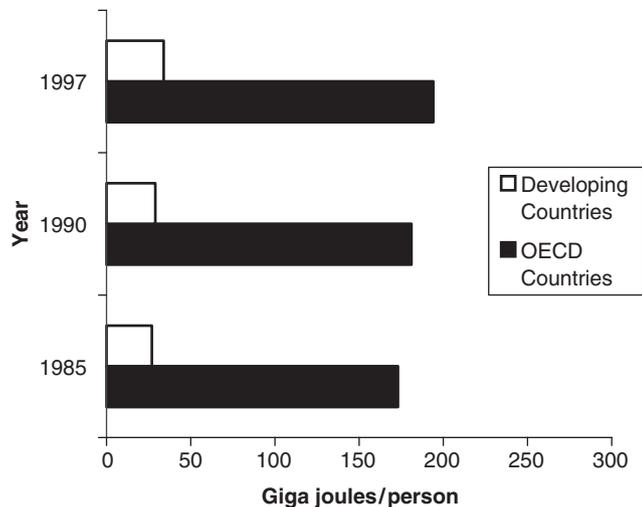


Fig. 1. Energy use in developed and developing countries. (Source: OECD/IEA, 2000).

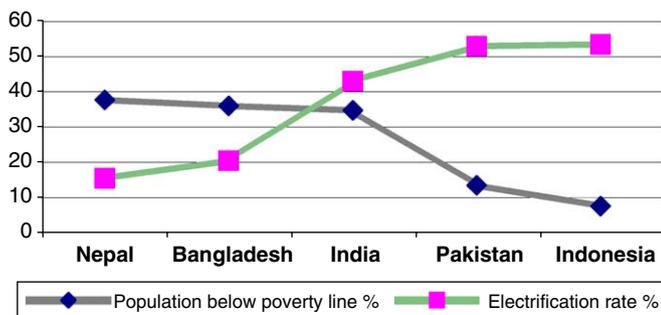


Fig. 2. Electrification vis-a-vis population below poverty line.

2. Issues related to clean energy access in rural India

The issues and problems plaguing the rural energy sector in the country include the lack of a policy framework, division of the sector across multiple agencies, over-emphasis on the grid, misdirected subsidy regimes, and lack of research and development (R&D) initiatives. The following sections briefly analyse each of the above-mentioned problems.

2.1. Lack of a policy framework

Probably the overarching factor contributing to the poor development of the rural areas is the lack of a rural energy policy. Rural energy is considered to be a relatively small part of the energy sector and hence the planning process does not allocate enough space to it (Rehman and Bhandari, 2002). Consequently, rural energy provision has been basically driven by target-oriented and subsidy-driven national programmes that have either been technology centric (national programme on biogas development, national programme on improved cook stoves) or end-use

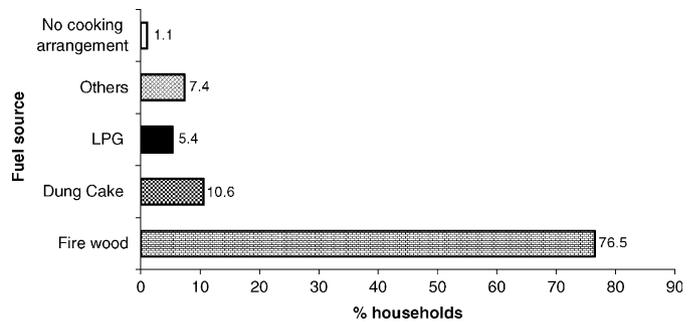


Fig. 3. Energy use in rural households. (Source: NSSO, 2001).

based (Kutir Jyoti—the programme for the provision of a single light point in each home) without having any interlinkages (Malhotra et al., 2000). Moreover, the programme-based approach has resulted in an undue emphasis only on meeting the physical targets with little or no attention being given to either the effectiveness of these programmes or the issues that require a coordinated approach to development. Hence, in spite of nearly two decades of the existence of these programmes their impact on the rural energy scenario, and on the development scenario in general, has been limited as is evident from the low penetration level of modern fuels in rural areas (Malhotra et al., 2000) (Fig. 3).

2.2. Multiple agency management

A UNDP report on energy for sustainable development (UNDP, 2000) indicates that in developing countries there is often a lack of clarity on the specific roles and responsibilities of various departments/institutions/ministries/agencies involved in disseminating energy services in the rural areas leading to functional overlaps and an increase in pressure on the already scarce resources. In this context the energy sector in India is administered at the apex level by five ministries (including the Department of Atomic Energy). Therefore, though the planning for the energy sector is done by a single agency, the Planning Commission of India, the implementation of the plan is split across different ministries thereby limiting the scope of adopting an integrated approach (Box 1).

Moreover, even the plan approach resembles more an aggregation of the plans of individual sub-sectors, rather than an integrated view of the sector as a whole (Box 2).

2.3. Lack of access to clean technologies and fuels

At the rural level there is a continued problem of the lack of choices of cleaner fuels and technologies. This is borne out by the fact that the penetration levels of commercial fuels like liquefied petroleum gas (LPG) in the rural areas is just over 5% (Fig. 3), while in the urban areas over 40% households use LPG for cooking purposes. Similarly, the access to electricity in urban households is about 90% while in the rural areas it is well below 50% (NSSO, 2001).

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