

Measurement and Analysis of Energy Poverty in Indian Households

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8) External researcher(s): no entry

9) Funding source(s):

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10) Partner organizations: no entry

11) Short Summary: The project aims at analysing energy poverty in Indian households. Existing macro and micro level data and will be used to identify regions characterised by high concentrations of households that have poor access to affordable and clean energy sources and/or very

low levels of energy consumption.

12) Keywords: Development Economics, Economic Geography, Economics of Developing Countries, Energy Economics, Environmental Economics, Sustainability Economics

13) Project description:

In India, though there is ample macro and micro level data and studies relating to energy and poverty separately, not much work has been done to comprehensively analyse their linkage. As a result, planners and policy makers often have no information on which household groups, belonging to a particular geographic region, are faced with energy poverty, or the socio-economic profile of these groups. Recognising that there is a lacuna in this area, the main objectives of this project are to combine the elements of access to and physical use of energy to construct a novel two-dimensional measure of energy poverty. We will then assess the evolution and nature of energy poverty in India by applying this measure to Indian household survey data over the period from 1983 to 2000. By carrying out such an analysis for different regions of the country we hope to arrive at a geographical distribution of the extent and nature of energy poverty across different regions of India.

Traditionally, poverty has been measured solely in economic terms by looking at the level of income (or consumption) of an individual. However, over the years, greater consensus has been achieved in recognizing the multidimensionality of poverty and it is now associated with the deprivation of a multi-faceted set of material goods, assets, capabilities, and opportunities. Energy being central for the provision of basic human needs of nutrition, health and education, there exists an important energy dimension to poverty. Energy poverty has been defined as the absence of sufficient choice in accessing adequate, affordable, reliable, high quality, safe and environmentally benign energy services to support economic and human development. An idea of the enormity of the energy poverty problem in India can be ascertained by looking at some basic energy use statistics. In 2000-01, energy consumption was on an average 0.65 kilowatts per capita. This is a third of the global average of 2 kilowatt and less than the amount postulated by Goldemberg et al as necessary to satisfy basic human needs.

In order to estimate the basic energy needs of an average Indian, we use engineering type calculations to estimate what energy services a certain amount of useful energy may, in the average, provide. Information of this type, coupled with that on the access of households to different energy sources is combined to develop a matrix we call the energy access-use matrix. This matrix divides the total population of the country according to their access to different energy sources and the amounts of per capita useful energy they consume. We aim to apply this measure of energy poverty to existing household survey for India over the period from 1983 to 2000 in order to assess the evolution and nature of energy poverty in India. By applying our own measure of energy poverty we will examine the characteristics of the energy poor in India in terms of their access to other assets and services, such as education, and study the dynamics of changes in the nature and extent of energy poverty in India over the period from 1983 to 2000 using individual household level data from the household consumer expenditure surveys conducted by the National Sample Survey Organisation of the Government of India.

14) Popular description: no entry

15) Graphics: no entry

16) Publications:

- Pachauri, S., Spreng, D. 2003-12-31. Energy Use and Energy Access in Relation to Poverty. Economic and Political Weekly.

- Pachauri S., Mueller A., Kemmler A., Spreng D. 2004. On Measuring Energy Poverty in Indian Households. World Development, (12/ 32), 2083-2104.

- Pachauri, Shonali and Spreng, Daniel. 2003-05-31. Energy use and energy access in relation to poverty, CEPE Working Paper No. 25, Zurich, June 2003. Accepted for publication in Economic and Political Weekly. CEPE Working Paper No. 25.

17) Links to important web pages:

- <http://www.cepe.ethz.ch>