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Sustainable Energy for All in India: reaching the poorest of the energy poor?

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Sustainable Energy for All in India: reaching the poorest of the energy poor?

The United Nations has proclaimed 2012 as the International Year of Sustainable Energy for All. Added to this, Rio+20 took place in June to mark the 20th anniversary of the Rio Earth Summit, with the focus on a green economy and the institutional framework for sustainable development. For the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE) this is reason enough to devote "The Current Column" to energy and climate issues at regular intervals this year.

Bonn, 30 July 2012. For many of us, it is practically impossible to imagine life without electricity. But that is the reality for 1.3 billion people, nearly 20% of the world's population. Roughly twice that number of people rely on traditional fuels – such as, wood, charcoal, animal dung and crop residues – for cooking. The well-documented development benefits of increasing access to electricity and to clean cooking facilities is the motivation behind the three pillars of the UN's Sustainable Energy for All (SE4All) initiative: achieving universal energy access, doubling rates of energy efficiency and doubling the global share of renewable energy sources (RES). The SE4All initiative aims to foster partnerships between national governments with the private sector, development partners and civil society in order to design energy policies that catalyse investment and capacity building. But how will these partnerships be any different from existing partnerships that maintain the status quo?

For India, the targets of the SE4All initiative are particularly important. With a rapidly growing population and economy, its energy demand is expected to more than double by 2030. Presently, India relies heavily on coal-fired power stations and continues to invest in power stations that are not state-of-the-art. To avoid the estimated tripling of CO_2 emissions that this will lead to, India will have to harness its renewable energy potential and improve energy efficiency. At the same time, it houses the largest number of people living without access to energy: approximately 300 million Indians lack access to modern energy, and over 65% of the population cook using traditional fuels.

However, measuring and tackling 'access' is a complicated issue. Most people who live in energy poverty are income poor and reside in rural areas. Geographically and economically marginalised, these people have little influence over decision making processes in India's traditionally hierarchical power structures. Rural electrification in India is determined at the village level if a functioning distribution network is present, electricity is available in public places and at least 10% of households are connected. But calculating access in this way does not capture everyone – the quality or number of hours of electricity available, or the number of people who can afford to have their homes connected are not taken into account. As such, whilst Government electrification data indicates that over 83% of India's villages have access to electricity, 45% of rural households do not have access to electricity and over 1 million households have no access to *any* form of modern energy or lighting.

Solutions for tackling access are framed by the way access is measured. Energy access in India is largely being addressed through extension of the national grid. For instance the National Solar Mission aims to achieve 20,000 MW of grid-connected solar power and only 2000 MW of off-grid solar power installation capacity. A stable national grid serving the entire population is an attractive long-term vision. Grid expansion utilises and reinforces existing infrastructure and technical expertise in the energy sector. Politically, focusing on grid-based solutions allows India to align their energy access strategy with other policy goals, such as energy security and industrial development. By and large, this sustains many of the existing partnerships between government, state-owned energy companies, influential industry players and climate-focused development partners.

However, grid-based energy access programmes have had limited success in reaching small, dispersed rural communities. Grid expansion is not always the most cost-effective means of expanding access: low population density and lower consumption levels provide very low returns on investment. In addition, technical losses – already high at 33% in India – tend to increase as distribution and transmission networks grow.

If India really wants to address the poorest of its energy poor, it must give more attention to off-grid renewable energy solutions. Such solutions have lower running costs than grid-based power and off-grid diesel generators. Off-grid technologies based on RES operate at scales appropriate to local needs and are accessible in remote locations as they are situated close to users. They can also be adapted to the local context and designed to meet energy needs of rural communities in such a way that will catalyse development. Decades of experience have shown that successful off-grid solutions also address social implications of adapting to new technologies, such as how they might affect existing practices and cultural norms, how they might reduce inequity within the community, and the kind of income-generation opportunities they create for local residents through operational and maintenance requirements. Despite many laudable efforts, off-grid solutions in India tend to be rather uncoordinated and piecemeal, thereby limiting their transformational potential. Addressing the hundreds of millions of energy poor requires a concerted effort to scale up successful local energy access initiatives.

Addressing the poorest of the energy poor will also require a more holistic approach to energy access. For energy access solutions to have a transformative effect and succeed in the long-term, they need to be based upon a strong foundation of policy, financial and capacity-building support. The market potential for decentralised renewable energy systems is estimated to be worth over USD 94 billion per year. To optimise this opportunity, India's policy environment in this sphere must embody long term stability – it must encourage state governments, other municipal agencies, private sector and civil society organisations to develop financing mechanisms that are appropriate for community and small-scale entrepreneurs. These financing mechanisms could take the form of direct government support schemes, micro-finance initiatives akin to the Grameen Banks (with the government acting as the guarantee for such public development), and public-private cost sharing models, amongst others. Moreover, development programmes and international aid could be channelled in a way that it links income generation programmes to energy access.

Forty years ago at the United Nations Conference on the Human Environment in Stockholm, then-Prime Minister of India, Indira Gandhi, declared that 'poverty is the worst form of pollution.' This seems as true today as it did then. The SE4All targets present India with a framework to prioritise, coordinate, and move closer to meeting its own national development targets of energy access, increasing renewable energy deployment, and reducing the glaring inequity in its society.

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