COMPTE RENDU

International Seminar on Energy Access

AUTOUR DU MONDE D'AGIR

L'action & l'observation au plus proche des besoins et réalités terrain

Présence :

- Cyril Monteiller
- Cécile Dahomé

Context: 2012 – International Year of Sustainable Energy for All

In 2010, the Government of India hosted Delhi International Renewable Energy Conference (DIREC). Over 13,700 participants from India and abroad attended the Conference. A key outcome of the DIREC 2010 was a call to the Union Nation (UN) to designate 2012 as the International Year of Energy Access.

Then in recognition of the importance of energy access for sustainable economic development and supporting achievement of the Millennium Development Goals, the United Nations General Assembly designated 2012 as the "International Year of Sustainable Energy for All".

About the Seminar

In support of the above declaration, the government of India hosted the International Seminar on Energy Access on 09-10 October 2012 at New Delhi. The Seminar was envisaged as an international platform for governments, private sector, and non-governmental leaders to jointly address the goal of achieving Energy Access. There was the participation of more than 40 Ministers and Senior Government functionaries representing different countries, organisations, international players and NGOs.

Objectives of the seminar

This seminar had two main objectives:

- The first was for each country to reaffirm its engagement towards global electrification
- The second was to share and exchange, during 8 technical sessions, experiences, best practices, and innovative solutions on energy access.

Course of the seminar

After the inaugural session with the Indian Prime minister and two ministerial sessions by high profile dignitaries, there were 8 technical sessions on different theme issues on energy and then, at the end of the second day, a final session took place in wich the final statement was read to every participant.

Outcome of the seminar

According to Dr. Manmohan Singh, the Prime Minister of India, who spoke at the inaugural of the seminar, India aims to provide affordable and uninterrupted electricity to all its households in the country in the next 5 years, and in order to fulfill that goal, the renewable energy technologies (RETs) are deemed as the most sustainable and economic options.

Quote of Dr. Singh: "*One million households in India are now using decentralized solar energy to meet their lighting energy needs. Government is striving to light up around 20 million rural households with solar home lighting by 2022.*"

Also speaking at the inaugural, Dr. Farooq Abdullah, the MNRE minister said that renewable energy is competent to meet the energy requirement in rural areas and supplementing the urban energy needs.

Quote of Dr. Farooq Abdullah: "*Energy access is an issue of over arching importance and is closely related to poverty, development, gender disparity, environment, health and also sustainability. Over three billion people in developing countries today rely on traditional biomass for cooking and heating; about one and a half billion people are without electricity*".

The experts at the seminar voiced the need for sustainable mechanism to promote renewable energy industry.

On our side, we participated at four technical sessions:

- Can energy access drive rural development?
- Access to modern energy: case studies
- Integrating off-grid approaches to on grid electrification
- Solar Energy Access

Below are the main outcomes.

1/ Can energy access drive rural development?

Rural areas in developing countries are mostly deprived of access to the modern energy supply both for domestic and productive[1] applications. This results in heavy dependence on non-commercial and inefficient means of energy sources to meet the energy demand for various household applications, such as fuel wood in traditional cook stoves for cooking and heating requirement, kerosene lamps for lighting. Easy access to clean drinking water, street lights, basic medical facilities are some of the other challenges, the rural people face. These challenges can be addressed to some extent, if rural areas have access to modern energy supply, as modern energy supply through proper technological intervention may improve the general living conditions of the people. However, providing energy supply only will not be sufficient until it is linked with other social and economic activities, particularly the activities related to income generation.

This challenge can be addressed if the programmes of energy access are aligned with other income generating activities in rural areas. For example, providing better lighting facility using solar photovoltaic lighting systems to rural household may increase their working hours and can be used for some economic activities, such as weaving, stitching etc. Similarly, providing clean cooking fuel from biogas may be clubbed with other economic activities like fisheries, floriculture etc.

During this session different entrepreneurs and experts exposed their projects and experiences and debated about suitable working models based on the global experience on linking various energy access programmes with social and economic activities for the rural people resulting to rural development.

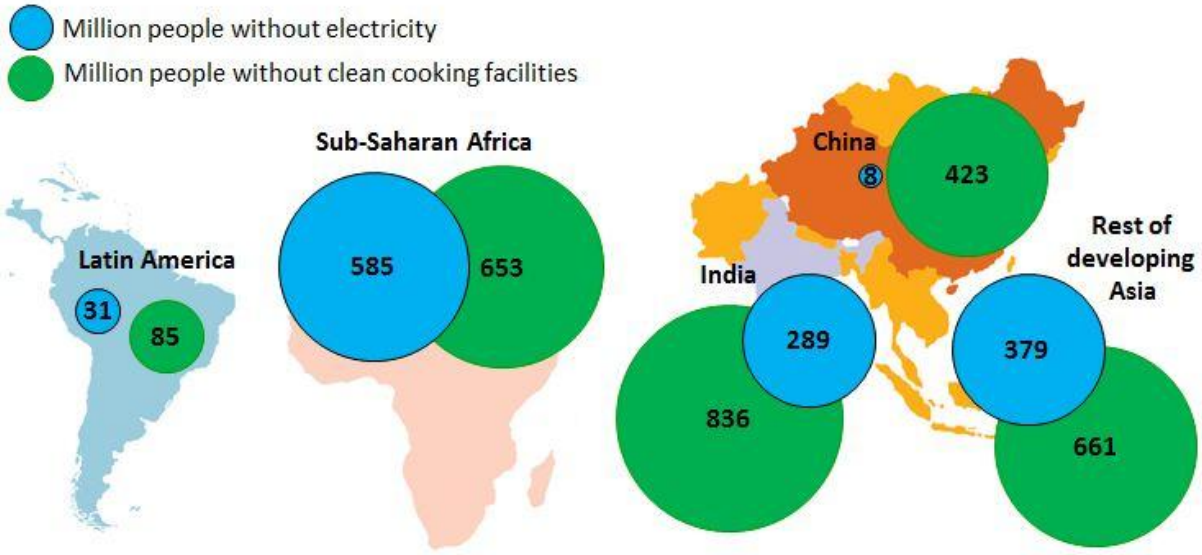
Key outcomes of this session were:

- **Energy access can drive rural development if the projects implemented are economically viable**
- **Energy access can drive rural development if energy access is affordable and if the projects are carried out in areas where economic development is suitable to other activities.**
- **Energy access can drive rural development provided that the government gets involved in various projects supporting the economic development of other activities that can be created thanks to the electricity, adapts the tax policy, the duty regime and the regulation on technologies and products so that they don't act as an impediment for dissemination of renewable energy technologies.**

[1] Productive uses of electricity are those that increase income or productivity (that is, they add value which is taxable in the form of VAT if part of the formal economy). In rural areas, there is significant overlap between productive and households uses of electricity, since many small commercial income-generating activities are run as home businesses and thus benefit from the typical domestic uses of electricity like lighting and small household ICT appliances.

2/Access to modern energy – Case studies

One third of the world's population, or 1.6 billion people, have no or little access to electricity or clean energy option. Most of these people live in the African or Asian-pacific regions.



1.3 billion people in the world live without electricity
& 2.7 billion live without clean cooking facilities

World energy outlook 2011 - IEA

Access to modern energy services is essential to economic and human development. Energy poverty and its impacts on incomes, health and education continue to be significant cause of chronic poverty. Expanding energy access to poor families is a complex development challenge. Most energy projects adopt a 'minimalist approach', focusing on basic energy needs of poor households such as lighting or cooking. While these needs cannot be overemphasized, there is need for additional inputs to raise incomes and improve livelihoods thorough energy access. These will not merely make energy services more affordable, but contribute significantly to improving worker productivity, and create new and enhanced livelihoods opportunities.

The task of expanding access to modern energy, both for domestic as well as productivity uses, to the 'energy poor' poses a formidable challenge to planners as well as the development practitioners. There are limitations to the expansion of the electricity grid as well as supply of the electricity through the grid. A part of the gap is known to be met by the use of liquid fossil fuels mainly diesel and kerosene. This gap is expending, constraining livelihoods or increasing the use of these fuels. However, limited availability and high cost of liquid fossil fuels make this option unattractive for the economically lower strata. Needless to add, the diesel & kerosene option is highly polluting, inefficient and perhaps expensive. Therefor there is considerable scope for the use or renewables in bridging this gap.

During this session, the following cases studies from around the world were presented in order to demonstrate the feasibility of provision of clean energy for livelihoods to the "energy poor":

- Energy access for livelihoods in villages through micro-hydro (IBEKA – People Centered Business and Economic Institute)
- Business models to propagate solar PV for lighting in niche region (SELCO India)
- Biomass technologies for captive power generation for enterprises

Key outcomes of this session were:

- **Analyse and answer to the needs of the poor and not their wants**
- **Get the right energy solution adapted to the local needs**
- **Involve communities and local government who will use energy in the design of the solutions**
- **Build commercially viable markets for energy products and service**
- **Often it's better for the energy poor people to pay for a service instead of buying devices**
- **Secure adequate financing (create innovative financial services that matches the financial availabities of the poor**
- **Have supportive energy policies**
- **The main challenges are access to market and tracking impacts and defaults**

3/Integrating off-grid approaches to grid electrification

As written above, almost 1.3 billion people across the globe still lack access to electricity and majority of these live in rural areas and geographically concentrated in Sub-Saharan Africa and Southern Asia. If "business as usual" continues, then the situation will not be very different from what it is today (International Energy Agency, 2010).

A large proportion of the population in most countries lives in remote or dispersed habitations that cannot be connected to the conventional grid in a economically and financially sustainable manner. Providing electricity access to all will need multiple and innovative solutions that include grid, mini grids, stand alone households systems, and modern lighting products. These systems are all closely inter-linked. A gradual, phased integration off off-grid systems with grid-connected systems is key to expanding access and increasing reliability, but this has proved to be challenging.

As experience has shown, cooperation between government, NGOs, and/or the private sector is crucial to the viability of integrating grid and off-grid technologies. Successful approaches to promoting both grid and off-grid electrification programs have involved coordinated goals and complementary projects, which also helps avoid duplication of efforts.

Key outcomes of this session were:

- **Planning: It is important to appropriately and strategically plan to encompass both grid and off-grid systems to ensure that different institutions and stakeholders dealing with each approach can cooperate in terms of service area and length of service delivery. The planning should also clarify the role of the two approaches either as off-grid to augment a grid based network system or to facilitate a phased introduction of off-grid tot transition to grid in the future.**
- **Regulation: A robust regulatory systems that reduces uncertainty and enables both grid and off-grid systems to co-exist, particularly to create a business environment for private investors to not only participate in off-grid systems but also scale-up over a period of time should be set-up. With scale up, coordination with the electric utility becomes critical due to regulation for electricity provision, negotiating rules and pricing for systems that have access to the electricity grid, and ensuring that programs are not in competition with one another in terms of service territories.**
- **Policy: Policy frameworks that support simultaneous implementation of grid and off-grid systems should be established. Generally, an approach that involves cooperation between the government with non-governmental organizations and/or the private sector is necessary for programs to be viable. Government involvement at times is imperative to increase affordability of off grid options by mostly poor households.**

4/ Solar Energy Access

4.1 Solar energy – Potential option for energy access

Solar energy is available in most parts and it is inexhaustible and clean. The costs of solar technologies to generate electricity as well as heat are gradually falling and thus becoming competitive with the costs of fossil fuels. This avenue needs to be continuously explored. The renewable energy, including solar, currently constitutes only 15% of the global energy mix.

Even though, grid extension is often the easiest way to connect new users located not to far to exiting networks and relatively easy to implement, **off grid electrification, mini-grids or individual systems**, is evidently more suitable in remote communities unlikely to be connected to the grid in the near future due to the topographic challenges which results in high installation cost. Among the off grid technology options, solar systems have the attraction of having lifecycle greenhouse gas emissions and of not needing long project development phase.

Solar energy can be deployed to generate small amount of electricity required by households or larger amounts for meeting electricity requirements of communities/villages. Solar technologies make more sense in terms of cost benefit as well as usefulness in remote and rural areas. Solar energy can also be used to generate heat to meet energy requirement of cooking having potential for energy deprived areas. Other solar applications include water heating, water purification, cooling of space and cooking in large kitchens (for hundreds of meals as practiced in India).

4.2 Delivery models involving productive applications and enterprise development

There is significant importance in the development and establishment of local-based enterprises, the impact of such enterprises influences the delivery model of energy access by mean of day-to-day maintenance of technologies etc., in turn benefiting the communities.

An example of individuals contributing to this agenda is an inspiring involvement by the founders "Husk Power Systems" (HPS) who grew up with limited access to energy in a village in Bihar, India. HPS generates power generation to villages by converting rice husk into combustible gas that drives a small turbine. Today, HPS has set up 60 mini power plants, each generating enough power for about four villages. Together, the mini plants are lighting up over 250 villages.

It is also important for international actors to collectively and continuously explore opportunities and solutions, and harness the resources available for energy access initiatives not only at a national level but globally as well.

For example, the Energy and Resources Institute (TERI) has undertaken the "Lighting a billion lives" initiative through solar technology in 2008 to address a global challenge of providing clean lighting to population without access to electricity. Initially designed to target remote communities in India, its achievements have reached villages in Africa and in South East Asia with the assistance of committed sectors from the private sector, governments, and multi-lateral organizations all working towards a common goal like providing safe, clean and affordable solar lighting to rural communities. In addition, an example of a successful government initiated

programme is the "Luz Para Todos" in Brazil which assist in the installation of solar and biogas power systems for homes in communities in the deeper amazon region.

NB : A promising high level international partnership initiated by Norway in 2011, namely "Energy+" aims to increase energy access at scale and reduce green house gas emissions in developing countries by applying a sector-level approach that leverage private capital and carbon market financing, for instance in the case for solar technology. This partnership is creating technical, policy and international frameworks that country needs to access private financing for sustainable development.

Key outcomes of this session were:

- **Households' willingness to pay for electricity is directly associated with the cost that they would avoid from more expensive energy sources (like kerosene) and their awareness of potential income gains.**
- **The long-term sustainability of off-grid electrification depends on more factors than technology alone. It requires effective prioritization and planning to enable economics choices of technology, appropriate infrastructure to ensure that services are maintained over the long run, and sustainable financing to make this capital intensive technologies affordable.**
- **R&D is needed to achieve long-term improvements in renewable technologies, and enable breakthroughs that could give such technologies a decisive advantage in energy markets. This could be through improvement in performance including conversion efficiency, reliability, durability and lifetime of technology. Furthermore, advanced manufacturing techniques need to be looked into so that quality of the products is assured and uniform even when the volumes are scaled up. Issues related to sustainability in the production processes that minimize lifecycle environment impacts through manufacturing, recycling and final disposal need to be addressed.**

Contact

SEVEA
Monteiller Cyril
cmonteiller@sevea-asso.org

+33 (0)6 64 48 96 54

A propos de SEVEA

SEVEA – Synergie pour l'Echange et la Valorisation des Entrepreneurs d'Avenir est une association loi 1901 à but non lucratif qui œuvre pour une amélioration de la qualité des réponses apportées (point de vue environnemental, social, sociétal) aux problématiques énergétiques et hydriques des pays émergents et ce via un soutien apporté aux entreprises sociales de ces secteurs -