

# ENERGY FOR THE POOR

THE MISSING LINK FOR ACHIEVING THE MDGS

BAHAREH SEYEDI ~ MINORU TAKADA



*Bahareh Seyedi is affiliated to the Environment and Energy Group of the United Nations Development Programme. Prior to her engagements at UNDP Headquarters in New York, she took part in multiple development initiatives as programme officer and project manager in West Africa, Central America, and South East Asia.*

*Minoru Takada is Head of the Sustainable Energy Programme at the Environment and Energy Group of the Bureau for Development Policy at United Nations Development Programme (UNDP) in New York. Before joining UNDP's Policy Bureau, he was posted at UNDP in Angola and also served in Ghana as a community development officer.*

## I - ENERGY IS THE MISSING MDG

**E**NERGY IS A PREREQUISITE FOR IMPROVING THE livelihoods of billions of people living in unimaginable conditions of poverty. It is the missing link that can no longer be ignored if the development community is serious about achieving the Millennium Development Goals (MDGs). Meeting the MDGs is an extraordinary endeavor that enables the poor to break out of poverty by unleashing socio-economic development and environmental sustainability. Adopted by 189 world leaders during the Millennium Summit in September 2000, the MDGs provide a number of benchmarks to overcome major hurdles towards sustainable human development. The eight goals range from eradicating extreme poverty and hunger, achieving universal primary education, and promoting gender equality, to reducing child mortality, improving maternal health, combating diseases, ensuring environmental sustainability, and a global partnership for development. Missing from the list of eight goals, however, is energy. None of the MDGs can be met without access to adequate,

affordable, and reliable energy services that provide essential input to tackle poverty in its multiple dimensions including deprivation from economic opportunities, poor health, gender inequality, and lack of education (BOX 1). Promisingly, the global community has come a long way since 2000 in recognizing the intrinsic linkages

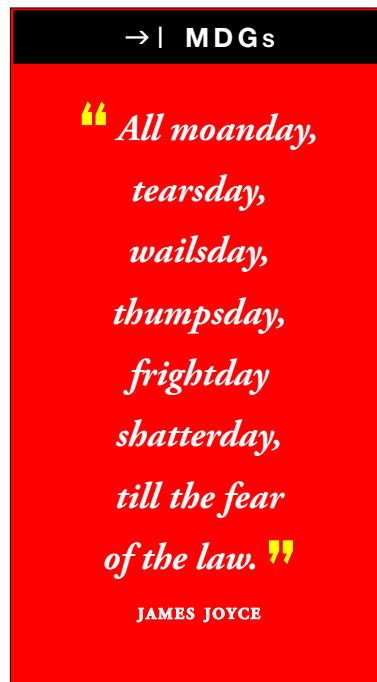
between energy and the MDGs as they are becoming ever more visible and can no longer go unrecognized. Indeed, this is evident from the United Nations Secretary-General Advisory Group on Energy and Climate Change (AGECC) who calls for expanding energy access to more than 2-3 billion people by 2030 to overcome energy poverty, climate challenges, and meet the Millennium Development Goals in its recent report "Energy for a Sustainable Future" launched in April 2010.

## II - THE ENERGY HAVES AND THE HAVE-NOTS

In light of growing consensus on energy's multiplier effect for poverty reduction and achieving the MDGs, efforts have been on the rise to meet the energy needs of the poor by expanding access to modern forms of energy services. Yet, in spite of the efforts made over the past two decades - whether its improving access to electricity, clean fuels for cooking and heating, or motive power - there remains an enormous energy gap between the haves and the have-nots.

In the developed world, energy is often taken for granted- light turns on at a flick of a switch, water flows with slight force on the tap, space is heated with pressing of a button and cooking is possible with turning of a knob. This picture of availability and accessibility of energy and the services that it provides is not homogeneous across the globe. Two glaring statistics attest to the scale of the current energy inequality: about 3 billion people - half of humanity- still rely on solid fuels for their most basic energy need, cooking, while 1.5 billion people lack access to electricity.

Energy poverty is particularly acute in the most vulnerable parts of the world including the Least



## ENERGY AND MDGS LINKAGES

### GOAL 1 ~ ERADICATE EXTREME POVERTY AND HUNGER

- ✓ Access to affordable energy services from gaseous and liquid fuels and electricity enables enterprise development, job creation, and increased agriculture production. In Bangladesh, villages with electricity generate 11 times more jobs than those without. The annual income in poor electrified households was 65% higher than that in non-electrified ones.
- ✓ The majority (95 percent) of staple foods need cooking before they can be eaten and need water for cooking.

### GOALS 2 AND 3 ~ ACHIEVE UNIVERSAL PRIMARY EDUCATION AND PROMOTE GENDER EQUALITY

- ✓ Lighting in schools and homes helps retain teachers and provides illumination required for after dusk study.
- ✓ Many children, specially girls, do not attend primary schools in order to carry wood and water to meet family needs.
- ✓ In Mali, access to mechanical power for water pumping has almost doubled the girl-to-boy ratio in primary school.

### GOALS 4, 5 AND 6 ~ REDUCE CHILD MORTALITY, IMPROVE MATERNAL HEALTH, COMBAT DISEASE

- ✓ Indoor air pollution and gathering and preparing traditional fuels exposes young children to health risks and reduces time spent on child care. Occurrence of child pneumonia (up to 5 years of age) in children exposed to use of solid fuels increases by 2.3 times. Use of modern fuels can therefore help reverse this trend and enhance child mortality. Kitchen smoke contributes to about 2 million premature deaths annually.
- ✓ Women are disproportionately affected by indoor air pollution, water, and food-borne diseases, all of which contribute to poor maternal health conditions, especially in rural areas.
- ✓ Health care facilities, their staff and equipment all require electricity (illumination, sterilization, refrigeration, etc.).

### GOALS 7 AND 8 ~ ENSURE ENVIRONMENTAL SUSTAINABILITY, DEVELOP GLOBAL PARTNERSHIP FOR DEVELOPMENT

- ✓ Energy production, distribution, and consumption has adverse affects on the local, regional, and global environment including local indoor air pollution, land degradation, acidification of land and water and climate change.
- ✓ The World Summit for Sustainable Development (WSSD) called for partnerships to support sustainable development, including the delivery of affordable, reliable, and environmentally sustainable energy services.

BOX 1

Developed Countries (LDCs) and Sub-Saharan Africa (SSA) where more than 80 percent of people primarily rely on solid fuels for cooking, compared to 56 percent of people in developing countries as a whole. In other words, the consequences of use of solid fuels in developing countries illustrates the reality of billions of poor, particularly women and children, who bear the burden of spending much of their time searching for and collecting wood, animal dung, and other polluted fuels that they use for cooking in smoke-filled kitchen environments or for heating their living spaces. Not only they face arduous workloads and limit their free time that could otherwise be invested in productive activities (ea.g. education, healthcare, etc.), they are also exposed to major, if not deadly, health hazards (BOX 2).

For the haves in the regions of the world where people have enjoyed the benefits of electricity most of their lives, even one day without it is hard to imagine. Yet, for over 80 percent of people living in South Asia or Sub-Saharan Africa, lack of access to electricity is a daily reality, where physicians cannot

provide quality health services because they do not operate within quality facilities, where children's time on educational activities is limited by darkness after dusk, and where entrepreneurs' economic output is restricted by insufficient power that is necessary to enhance the productivity of their businesses. This is a significant opportunity cost debilitating some of the poorest communities in the world in meeting their development objectives.

### III ~ SURMOUNTING THE ENERGY CHALLENGES OF THE POOR: A 5-POINT AGENDA

Ending energy poverty is no doubt a daunting challenge. But the stakes are high and the consequences of inaction are almost certain to be exacerbated. According to International Energy Agency (IEA) analysts, under the business-as-usual scenario, 1.3 billion people will still lack access to electricity and 2.4 billion will continue to use traditional biomass for cooking and heating in 2030. Nevertheless, in the face of these mounting challenges, cause for optimism remains and meeting the energy needs of

#### HEALTH RISKS ASSOCIATED WITH USE OF SOLID FUELS

- ✓ About two million premature deaths occur each year that are associated with the indoor burning of solid fuels in unventilated kitchens.
- ✓ Inhaling indoor smoke doubles the risk of pneumonia and other acute respiratory infections among children under five years of age.
- ✓ Women exposed to indoor smoke are two times more likely to suffer from lung cancer than women who cook with cleaner fuels.

BOX 2. ~ SOURCE: UNDP - WHO, 2009.

the poor is far from impossible. Indeed, experience in the last two decades has convincingly demonstrated a variety of successful technological, financing, and delivery mechanisms that have led to significant results in many developing countries. Based on such experiences, the United Nations Development Programme (UNDP) firmly believes that surmounting the energy challenges of the poor is attainable. UNDP proposes five priority actions to pave the way towards universal access to energy for 3 billion energy poor by 2030.

#### 1 ~ PRIORITIZING ENERGY NEEDS OF THE POOR: SETTING TIME-BOUND ENERGY ACCESS TARGETS

In developing countries, governments must make the energy needs of the poor a national development

poor who are mostly “beyond-the-grid” are too often ignored. A recent UNDP analysis found that about half of developing countries have established targets for electricity access, for example. In contrast, only few countries have set targets for access to modern fuels (17 countries), access to improved cooking stoves (11 countries), or access to mechanical power (5 countries). To successfully improve energy access and scale up energy services for achieving the MDGs, goals, policies, and budgets need to be aligned according to the needs of the poor. Setting time-bound targets is paramount to better articulation of such needs and to monitoring of progress towards achieving the end goal. Fortunately, there are some countries that have done so successfully (BOX 3).

#### ECOWAS WHITE PAPER ON ENERGY ACCESS

The title *White Paper for a Regional Policy Geared towards increasing access to energy services for rural and periurban populations in order to achieve the Millennium Development Goals* indicates the underlying concern of the 15 West African Heads of State who adopted this policy on 12 January 2006. The White Paper contains an analysis of the existing situation with respect to access to energy in the region, and fixes ambitious objectives:

- ✓ Access to improved cooking services for 100% of the population in 2015;
- ✓ Access to motive power for at least 60% of the rural population;
- ✓ Access to individual electricity service for all urban and 36% of rural dwellers.

The *White Paper* has already succeeded in mobilising political and financial efforts in favour of access to energy in the region.

BOX 3. ~ SOURCE: ECOWAS, 2005.

priority. The logic is not far fetching: national budgets are allocated based on the priorities set out in a country's development and poverty reduction strategy. Budgetary allocations are needed to roll out policies and programmes that address the energy needs of the poor. Accordingly, if a country is to tackle the energy challenges of the poor, it has to reflect energy access as a priority in its poverty reduction strategy. This, however, is not always the case in many developing countries, where national poverty reduction strategies are typically focused on the business-as-usual development planning processes aimed to extend infrastructure and power generation capacity while the needs of the

#### 2 ~ DELIVERING BASIC HOUSEHOLD AND PRODUCTIVE NEEDS: GOING BEYOND ELECTRICITY TO ADDRESS COOKING FUELS AND MECHANICAL POWER

Access to three energy services of electricity, clean fuels, and mechanical power is needed to address the basic needs of the poor at the household level. Despite the traditional energy sector view of energy as electricity generation, poles, and transmission lines, electricity alone is not the solution to all the needs of the energy poor. Access to cleaner fuels and improved devices for cooking and heating have proved to be crucial in reducing health risks associated with use of solid fuels and inefficient stoves in

unventilated environments. Mechanical power for agro-processing machinery or water pumping can drastically reduce the time spent on drudgery chores and increases opportunities for productive and income-generating activities. A variety of technological innovations based on locally driven business models are already in existence that have significantly improved the socio-economic conditions of the poor and have set foot in the road towards achieving the MDGs (BOX 4).

the capital investment required for achieving universal levels of access by 2030 is about \$30-40 billion per year. This is relatively insignificant (only about 5 percent) in comparison with the total global energy investment expected during this period. Aligning national poverty reduction strategies to energy access goals and targets will allow public sector funding to be channeled accordingly. In addition, innovative funding mechanisms such as public-private partnerships are needed to leverage public

#### IMPACT OF MECHANICAL POWER FOR AGRO-PROCESSING MACHINERY IN BURKINA FASO

The Multi-functional Platform (MFP) programme promotes economic development and poverty reduction, particularly for women who are amongst the most vulnerable groups. It does so by providing a low-cost, simple and robust energy service for agro-processing enterprise managed by women that can also be used to pump water and generate electricity. To date, 400 platforms have been installed in 8 regions of the country benefiting 600,000 people in total. The programme's contribution to accelerating the achievement of the MDGs, particularly reducing poverty and hunger, gender equality, and education are impressive:

- ✓ Time-use surveys show that the platforms reduce by 2 to 4 hours per day the time women devote to domestic chores. This time is invested in income generating activities.
- ✓ Among the 24,000 women who benefit directly from the platforms, each woman saves an average of \$55 per month compared to \$11 per year without use of the platform.
- ✓ An evaluation, conducted in 14 villages in the Eastern region of Burkina Faso, shows that the literacy rate has raised from an average of 29% to 39 % after the installation of a MFP.
- ✓ Women's position in rural communities is extremely weak due to social and cultural practices. Beneficiary women who have involved themselves in a MFP enterprise have become more active community citizens. The women are not only engaged in the improvement of their own enterprise but participate more actively in community meetings.

Between 2010 and 2015, 1,400 new platforms will be installed to benefit 2,5 million people (i.e. 23% of the population). In this phase, UNDP will focus especially on the reinforcement of economic activities around the Platforms and on the development of female, rural entrepreneurs. The programme has already spread to other countries in West Africa with support from UNDP.

BOX 4. - SOURCE: UNDP, 2010a.

#### 3 - MOBILIZING FINANCING AND SEEKING INNOVATIVE INVESTMENT OPPORTUNITIES

While technologically feasible, providing about 3 billion people with access to modern energy services may at first seem financially unbearable and out of reach. Recent studies, however, suggest otherwise. According to United Nations Secretary General Advisory Group of Energy and Climate Change,

sector financing. Furthermore, creating enabling environments to increase the poor's access to small scale financing – loans, credits, and other financing mechanisms targeting low-income households – is essential in enhancing the purchasing power of the poor to benefit from the energy services available to them (BOX 5).

#### SMALL SCALE FINANCE FOR MODERN COOKING FUELS IN KENYA

Substituting use of Liquid Petroleum Gas (LPG) for wood is one means for providing sustainable cooking fuel. Families that wish to switch from wood to LPG must buy an LPG stove and pay a deposit to obtain an LPG cylinder.

In Kenya, the number of household LPG cylinders grew from 50,000 in 1995 to over 700,000 in 2002. Some 4900 SACCOs (Savings & Credit Co-operatives), provided micro finance for LPG cylinders, at an interest rate of 12 to 15% per annum. The loans were packaged and refinanced by the Kenya Union of Savings & Credit Co-operatives.

While micro finance played an important role, the success of the programme is also due to accompanying measures: liberalisation of the fuels market; government mandated standardisation of cylinder valves; removal of VAT and import duties on LPG sales.

BOX 5. - SOURCE: UNDP, 2009.

Capacity development lies at the heart of successful delivery of energy access to the poor. It is central in every step of the delivery process, from creating enabling conditions and integrating energy needs of the poor in poverty reduction framework and strategies, to identifying investment opportunities and mobilizing financing, to building the institutional capacities of local authorities, community organizations and beneficiaries, and to successfully deliver, manage, and maintain the energy service systems. Capacity development also plays an essential role in bringing down the cost of interventions by enhancing local markets and attracting further investments for replication and scale-up. Evidence from decentralized energy programmes demonstrates that upfront investment in capacity development is initially 2 to 3 times higher than the level of investment required for hardware. In later stages of the programme, however, when capacity has developed and with economies of scale, the costs are reduced dramatically. Experience from Nepal's Rural Energy Development Programme provides a perfect example of the role of capacity development in successful delivery of energy access programmes (BOX 6).

responsibilities to be shared while it enables combining, complementing, and capitalizing on strengths and capacities to meet the needs of the poor most effectively in a way that it can induce fundamental impacts on their socio-economic development and achievement of the MDGs. To this end, the United Nations has formed UN-Energy, the UN-wide partnership to coordinate and strengthen joint efforts to advocate for and take action on energy issues. Given the important role it can play for the UN system, it is envisaged that UN-Energy's activities will be significantly scaled-up in the years to come.

IV - ENERGIZING THE MDGS:  
TOWARDS UNIVERSAL ENERGY ACCESS

Energy is inseparable from socio-economic development and environmental sustainability. Achieving universal access to adequate, reliable, and affordable energy services for the 3 billion energy poor must be put at the forefront of the development discourse if MDGs are to be met. It is ambitious and challenging, but the goal of universal access to energy is also an achievable one, as demonstrated through many successful examples of technically and financially viable and innovative

DEVELOPMENT OF INSTITUTIONAL CAPACITY OF LOCAL ACTORS  
IN SCALING-UP AND REPLICATION OF DECENTRALIZED ENERGY  
SYSTEMS IN NEPAL

Nepal has made a significant progress in developing local institutional capacity to expand access to modern energy services for rural populations. The Rural Energy Development Programme (REDP), implemented under the execution of the Alternative Energy Promotion Center (AEPCC), has directly impacted over 230,000 beneficiaries with a total of 267 micro-hydro schemes installed and owned by the local communities. Its aim is to enhance rural livelihoods through promoting rural energy technologies, primarily community-managed micro hydro systems. It does so in part by developing the capacity of rural people to effectively utilize locally available energy resources and manage rural energy systems, thus reducing energy production costs.

With support from UNDP, the programme was initiated in 1996 to cover 5 districts only. Recent field surveys indicate development impacts such as increase in income by almost 30% per year in households, improved rate of enrolment in secondary education by 50%, and twice as much time-saving for women for activities such as reading, participating in educational programmes, and healthcare in communities with electricity. The programme has now evolved to cover 40 districts in its current third phase in partnership with the World Bank.

By 2012, the programme is planning to be present in Nepal's 75 districts with anticipated capacity to grow by a further 6000 kW, supplying electricity and mechanical power to roughly 1.5 million rural households that will accrue cumulative quantifiable benefits of over US\$ 285 million per year. The programme is also working towards seizing the opportunity through Clean Development Mechanism (CDM) with an aim to install a total of 15 MW of new MHS capacity, of which REDP would contribute 6.5 MW.

BOX 6. - SOURCE: UNDP, 2010b.

5 - FORGING STRATEGIC PARTNERSHIPS

Surmounting the challenge cannot be addressed by one sector alone. Meeting the energy needs of the poor requires concerted efforts to leverage the necessary knowledge, skills, and resources from a broad coalition of public entities, development agencies, civil society, and the private sector. Forming synergies and partnerships allows risks and

experiences that have induced development impacts with significant scale to some of the most vulnerable communities. Strong political commitment is essential at all levels. Energy needs of the poor must become a priority in poverty reduction strategies where time-bound targets to deliver three essential services of electricity, clean fuels, and mechanical power must be reflected. The role

of capacity development cannot be ignored and it has to be an integral part of all the processes associated with delivering energy services to the poor. There is an urgent need for concerted action among the public, the private, and civil society organizations to build awareness, catalyze financing, and capitalize on knowledge, skills, and best practices that have demonstrated successful scale-up and replication of development impacts for the energy poor.

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The 2010 MDG Summit – to be held in September – presents an immense opportunity to make the case for the criticality of achieving universal access to energy by 2030, and to pave the way in this direction. It is time for world leaders to commit to liberating 3 billion energy poor from poverty by setting time-bound targets on providing access to energy services, by identifying innovative financing mechanisms to be challenged in this direction, and by building a strong coalition in all sectors to work together in making universal access to energy a reality.

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*Certum est quia impossibile est.*  
[It is certain because it is impossible]

TERTULLIAN, *De Carne Christi*.

