

Low Carbon Development
Summary Sheets

Poverty reduction in a low carbon economy

Key message: Low carbon development can potentially contribute to poverty reduction by improving access to affordable clean energy by the poor and to sustainable agriculture¹. A triple win in the area of low carbon development, poverty reduction and climate resilience is emerging in the small-scale renewable energy sector in developing countries. However, the green economy, with its focus on green investments, may not automatically address poverty issues². For example, investment in renewable energy or sustainable agriculture will have to pay special attention to the issue of poor households' share in the outcome.



Introduction

Poverty increases the vulnerability of communities to extremes of weather as well as shifts in duration and nature of weather events due to climate change.

1. Access to clean energy can have a positive impact on poverty reduction in developing countries³. By 2015, the 'energy poor' will primarily be found in sub-Saharan Africa, India and Indonesia⁴. To meet the Millennium Development Goal (MDG) 1 target for poverty reduction, energy services will have to be provided for another 700 million people⁵.

2. Investment in low-carbon energy systems and small-scale, off-grid renewable solutions can lead to substantial job creation and economic growth. Research by the United Nations Environment Programme's (UNEP) Green Economy Initiative shows that, globally, projected investments of USD630 billion in the renewable energy sector by 2030 would translate into at least 20 million additional jobs – 2.1 million in wind energy, 6.3 million in solar photovoltaic (PV), and 12 million in biofuels-related agriculture and industry. Examples for the developing world include:

- In Nigeria, a biofuels industry based on cassava and sugar cane crops could provide jobs for 200,000 people.
- India is projected to generate 900,000 jobs by 2025 in biomass gasification. Such technologies have the added benefits of improving the health of the rural poor, especially women⁶. However, any policy promoting biomass needs to take into account regional and national food scenarios, and broader agricultural policy.

3. Fossil-fuel subsidies are often a barrier to making renewable energy and low carbon technologies cost-effective for poor consumers. Fossil-fuel subsidies tend to benefit high-income households more than poor households, due to the former's higher consumption levels. The bottom 40% of the population in terms of income distribution received only between 15% and 20% of the fuel subsidies in developing countries according to the Independent Evaluation Group (IEG) of the World Bank⁷. Nonetheless, some subsidies relating to fossil

fuels can improve the environment or the welfare of the poor if they reduce the reliance on biomass in areas at risk of deforestation⁸.

Case studies India

*Poverty reduction through access to clean energy: a glimpse of off-grid projects in India (2010)*³ is a compendium of 26 cases studies that are based on various renewable energy technologies. The projects have been largely commercially sustainable with an add-on package of improving the livelihoods and the living conditions of the users. They offered employment opportunities, improved medical and educational facilities, and an opportunity for the villagers to be on a par with others in the country and to take advantage of technological developments, for example, stay connected using mobile phones.

Bangladesh

Through an innovative microcredit scheme, Grameen Shakti (1996) in Bangladesh has embarked on an ambitious programme to provide a range of affordable renewable energy technologies to rural households. At least 20,000 jobs⁶ have already been created with the current uptake of solar PV systems, biogas plants and cooking stoves across Bangladesh covering over 205,000 homes. The goal is to create at least 100,000 direct jobs by 2015, mainly for women.

- 4. Low carbon job opportunities in the manufacturing sector have high potential for growth, which leads to poverty reduction. However, jobs could also be lost as demand for products from the conventional energy sector is likely to decline⁹.** ‘Green’ manufacturing jobs will grow in renewable energy resource-rich areas (installation and maintenance jobs) and resource-poor areas (manufacturing and development jobs). While the net impact on employment will be positive, jobs will be lost too, which will contribute to poverty as already seen in China (870,000 jobs cut between 1990 and 2000 in the coal industry¹⁰) and Brazil (55,000 jobs cut between 1974 and 2000 in the steel industry⁹). Transition measures will be required to assist the unemployed.
- 5. A low carbon economy can contribute to poverty reduction through sustainable agriculture and fisheries (see case study in the next column).** A groundbreaking UNEP report and modelling show that green agriculture can contribute to increased food security, income generation for poor farmers and be transformed from a major emitter of greenhouse gasses (GHGs) to one of net neutrality and, possibly, a GHG sink, while reducing deforestation and freshwater use by 55% and 35% respectively¹. However, current agricultural practices in developing countries have a negative impact on climate. One example is the use of fertilisers to increase food security. Fertiliser use is often inefficient due to poor timing and methods of application. Runoff of unused fertiliser contributes to pollution of waterways as well as adding to GHG emissions. GHG emission from China’s agricultural sector made up 15.4% of total emissions in 2005. In the agriculture sector, 54.5% of GHG emissions were from nitrous oxide emissions through the use of nitrogen fertilisers¹¹. Therefore, it is important for the agriculture and fishery sector to adapt to climate change in a sustainable way with a pro-poor orientation.
- 6. Some measures to achieve a low carbon economy, if not climate smart, could exacerbate poverty issues through water scarcity challenges¹².** 1.4 million children under the age of five die every year as a result of a lack of access to clean water and adequate sanitation services¹. When people do not have access to water, either large amounts of their disposable income have to be spent

Case study

A review of 286 best-practice projects across 12.6 million farms in 57 developing countries found that adopting resource-conserving practices (such as integrated pest management, integrated nutrient management, low-tillage farming, agro-forestry, aquaculture, water harvesting and livestock integration) resulted in average yield increases of 79%, while improving the supply of critical environmental services¹.

on purchasing water from vendors or large amounts of time spent on fetching it. When sanitation services and quality of water are poor, the costs of water-borne disease are high. Some measures to achieve a greener economy, such as through growing energy crops, encourages fertiliser use, which can have an impact on water quality. Low carbon technologies including hydropower and nuclear are no more water efficient than traditional energy sources. Therefore, worldwide, water management must be prioritised throughout the life of the fuel cycle and managed through integrated water resource management (IWRM) approaches that fit within wider strategies to achieve low carbon, climate-resilient development that contributes to poverty reduction.

- 7. A triple win in the area of low carbon development, poverty reduction and climate resilience is currently emerging in the small-scale renewable energy sector.** The Gold Standard is one of the leading organisations that certifies low carbon development projects that contribute to poverty reduction and sustainable development. It has certified a number of Clean Development Mechanism as well as voluntary emissions reduction projects that directly reduce poverty. For example, D.light (solar NiMH batteries) project in India, Solaraid lamps in Malawi, biogas plants in Nepal and small hydropower projects in Gansu province of China¹³. These projects have reduced the cost of kerosene purchased in off-grid regions, increased education and work hours, and reduced health risks for the poor.

The extent to which low carbon development and poverty reduction goals can be aligned needs to be explored through research based on comprehensive cross-sectional and time-series data. There is also a need for further in-depth research on strategies such

as sustainable consumption and production, green growth and sustainable development to understand the aspect of poverty reduction in a low carbon economy, especially for vulnerable communities.

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Definitions

Low carbon climate resilient development combines key elements of mitigation, adaptation and development strategies. A 'triple win' is where low carbon development brings benefits in mitigation, adaptation and poverty reduction/economic development. A 'double win' is where benefits are seen in only two of these areas.

Climate resilience is used in this document to mean: The capacity of households and communities to manage change and maintain or transform their living standards in the face of climate induced stresses and shocks without compromising long term prospects.

USD is the US dollar

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