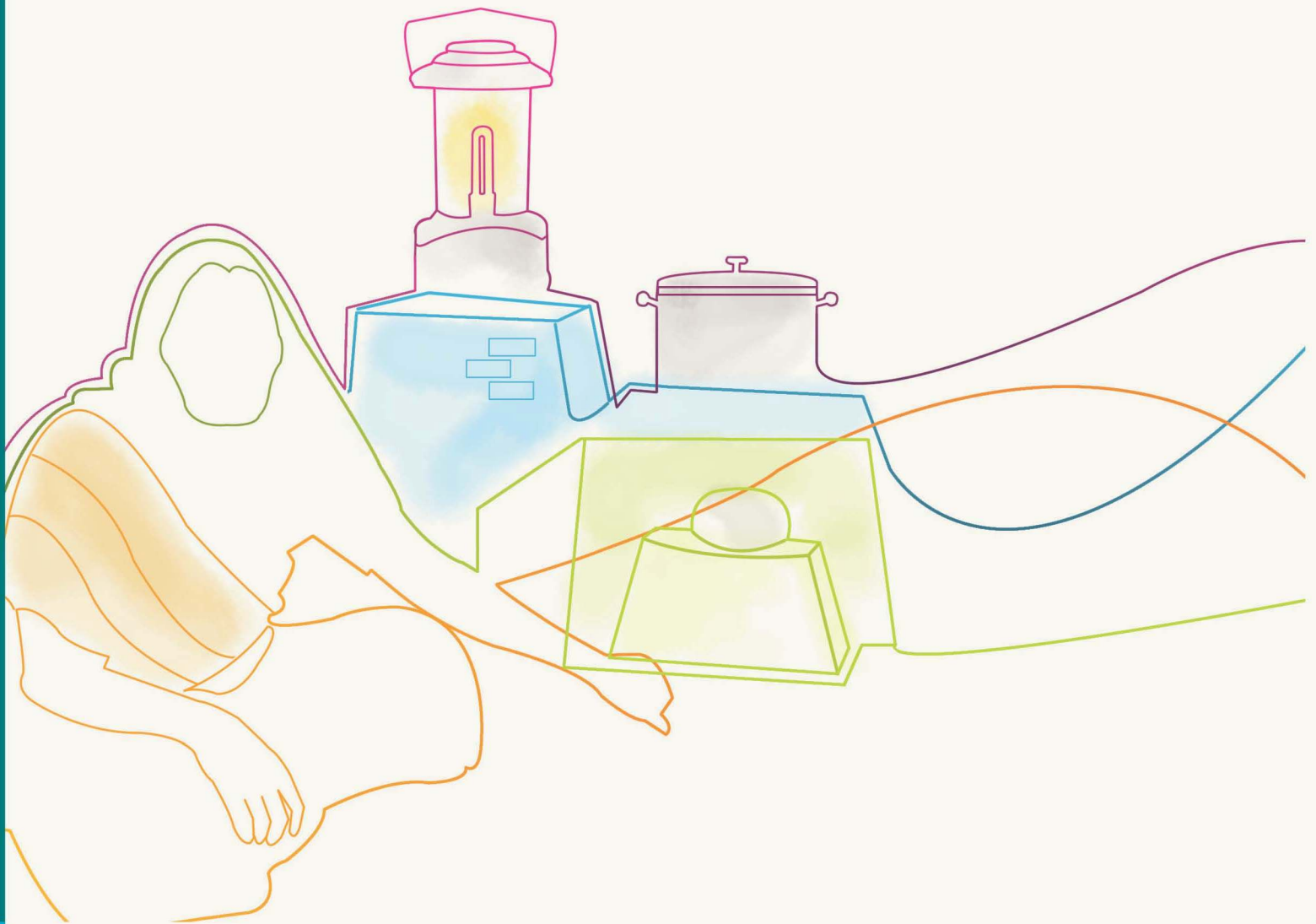




Environmental Finance For Pro-Poor Development

Analysing the role of Carbon Finance



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The idea of exploring the role of carbon finance as a means of funding small-scale projects for pro-poor development germinated when a state government official expressed frustration over the inability of leading clean development mechanisms consultants to provide a solution for the carbon financing of small-scale clean energy projects for the development of tribal areas in Gujarat. The highlight here is that if carbon markets enhance clean technology diffusion, then financial mechanisms have to be provided to overcome the barriers of bundling projects and the associated high transaction costs that enable faster diffusion of clean energy technologies for pro-poor development. A subsequent discussion with UNDP India, which was working on operationalizing MDG Carbon Facility in India, led to this study.

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Acronyms

CDCF	Community Development Carbon Fund
CDM	Clean Development Mechanism
CER	Certifiable Emissions Reductions
EU ETS	European Union Emissions Trading Scheme
FDI	Foreign Direct Investment
GEF	Global Environment Facility
GHG	Greenhouse Gas
JI	Joint Implementation
KP	Kyoto Protocol
LDC	Least Developed Countries
LPG	Liquified Petroleum Gas
MDG	Millenium Development Goals
Mt	Million tonnes
NABARD	National Bank for Agriculture and Rural Development
ODA	Overseas Development Assistance
PES	Payment for Environmental Services
PV	Photovoltaic
SGP	Small Grant Programme (under GEF)
UNDP	United Nations Development Programme
UNFCCC	United National Framework Convention on Climate Change
WWF	World Wide Fund for Nature

Executive Summary

In the backdrop of an intensified debate on climate change and a wider consensus on finding action oriented solutions, the emphasis on carbon markets in any post-2012 climate policy agreement has become vital. Though the current economic downturn and absence of clear policy signals have raised concerns over the stability of carbon markets, an argument on the 'failure' of these markets to deliver sustainable development, has continued to linger. This report attempts to highlight the need for linking pro-poor energy interventions with carbon markets by involving environmental, financial and institutional mechanisms.

It is widely accepted that energy and development are intertwined. Estimates indicate nearly 1.5 billion people in the developing countries do not have access to electricity and nearly 3 billion people use traditional energy carriers for meeting their cooking energy needs. In this scenario, setting up carbon markets under the Kyoto Protocol was expected to provide access to low cost financing which could also be used for improving access to clean energy options. Similarly, projects addressing the Millennium Development Goals (MDGs) were expected to reduce poverty in developing countries. However, the existing carbon market mechanisms and MDG funds have come under severe criticisms for their inability to address the core issue of technology transfer and small-scale projects, especially those which cater to local environment and development benefits. The growing scientific evidence of diverse impacts of climate change demands that alternative environmental, financial and institutional mechanisms be created or modified to address both small scale mitigation and adaptation projects which enable enhancing access to modern energy for the rural poor.

Although the access to energy is not an MDG in itself, the adequate provision of energy is crucial for improving livelihoods. While the current contribution of carbon markets to improving the poor's energy access appears to be limited, new projects with a potentially larger contribution to sustainable development, such as energy efficiency improvements in rural households or rural renewable electricity generation, are gaining ground. Carbon finance can work for pro-poor development provided appropriate mechanisms are created for cross-linkages with poverty reduction funds. This would require some fundamental focus as discussed below.

Infusing Investments

One of the most critical constraints in enabling energy access to meet both developmental and environmental agendas is the lack of adequate financial resources. Investments in energy for development projects, mainly coming from multilateral sources, have recently declined. Even private sector investments are channelled through the infrastructure sector supporting supply side generation, but the demand side projects are not a favoured choice. Although globally investments in clean energy are on the rise, they still require innovative financing options:

- Making better use of private investment, aid and grants, micro financing schemes, and Foreign Direct Investments. Critical aspect is role of government in enabling public and private energy infrastructure development.
- New sources of capital through carbon funds to make energy technologies available to meet energy demands.

Incentivising Technology Functionality

While carbon markets do create an incentive for keeping a system functioning, the upfront costs of the system remain a key barrier. The big question here is can

the carbon markets address the upfront costs, as the inherent problem of existing mechanisms are such that they further enhance the upfront cost of technology/project. In order to overcome these, following options can be explored:

- Poverty reduction funds under the MDGs to fund a switch to energy efficient technologies and renewable energy interventions. This would assist in bridging the gap in technology cost.
- Carbon financing as a mechanism in the form of payment for delivering environmental services, incentivising technology functionality.
- Pre-payments for upfront costs, especially for the small-scale clean energy projects.
- Income-generation activities can be boosted through auxiliary activities linked to carbon credit projects such as marketing and repair and maintenance services. In the case of community based projects this could involve afforestation and reforestation activities.
- Involvement of social entrepreneurs for scaling-up clean energy projects have gained traction and needs infusing investments in promoting these local entrepreneurs through different financing options including pre-payments from carbon finance.

Reforming Carbon Markets

While the current contribution of carbon markets to improving the poor's access to energy appears to be limited, new projects with a potentially larger contribution to sustainable development, such as energy efficiency improvements in rural households or rural renewable electricity generation, are gaining importance. Nevertheless, within the overall project portfolio, the contribution of carbon markets to meeting sustainable development objectives will probably remain low unless there are cross-linkages with poverty reduction funds. Given that there is a growing awareness of certain flaws in the current CDM, there are increasing pressures for a revamp in the post-2012 architecture. This will require exploring ways of putting:

- A greater emphasis on the sustainable development benefits of individual projects, such as by placing a financial value on sustainable development (including making poverty reduction an integral part of the objective) and reflecting development in the price of carbon.
- Focus on programme based activities rather than project based activities to enhance the scope of carbon markets.
- A future aspect of post-2012 carbon market possibly could limit itself to carbon dioxide and methane mitigation projects, thereby emphasising on renewable energy and energy efficiency projects, including small-scale projects. This would assist in addressing development and poverty reduction challenges faced by developing countries.

An interim phase

Leading up to 2012 where institutions such as UNDP can play a pivotal role by leveraging and establishing a funding mechanism, which demonstrates efficacy of such approach by:

- Raising awareness through a multi-stakeholder engagement process on the role of carbon financing for small-scale projects.
- Establishing a small-scale carbon facility fund by bringing in investment from diversified sources.
- Creating appropriate institutional mechanism for hosting of such funds and technical review.
- Creating a basket of financing options to meet problems of upfront costs by leveraging with carbon credits.

1.0 SETTING THE CONTEXT

Development is at the core of the current debate on climate change and the principle of equity is essential to provide equitable space for economic growth.

Developing countries across the world face a significant development challenge. Firstly, they need to continue on an economic growth path which allows them to move people out of poverty. Besides this, they also face an environmental challenge which is further fuelled by the climate change debate and the growing pressure on them from industrialised countries not to emulate a similar

resource intensive growth path. Development is at the core of the current debate on climate change and developing countries emphasis on principle of equity is essential to provide equitable space for economic growth. Equity in the context of climate policy implies that without developed countries sharply reducing their emissions reduction immediately, the other countries cannot get their fair share of carbon space for economic growth. Since developing countries are most vulnerable to climate change impacts, they do want to take domestic actions, however, they want that in the post-2012 climate agreement, there is a need for fair share of carbon space, enabled and supported by development and transfer of innovative technology and financial resources.

In such a scenario, a wider consensus on finding action oriented solutions; the emphasis on carbon markets in any post-2012 climate policy agreement has become vital for any further action. Even though the current economic downturn and absence of clear policy signals raises concern over the stability of carbon markets, there has always been an argument on the 'failure' of these markets to deliver sustainable development.

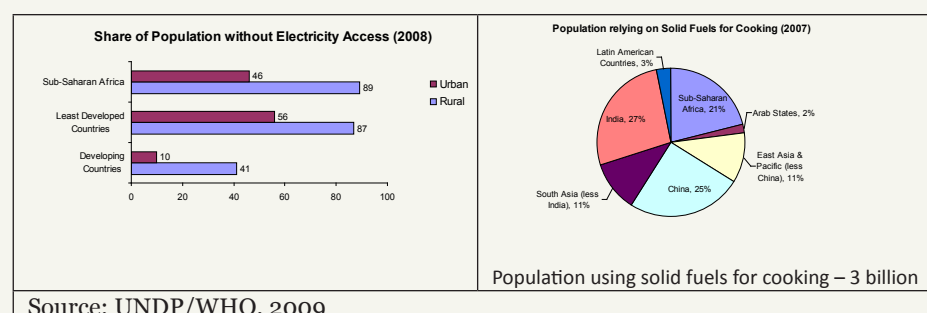
Since energy poverty is one of the critical sustainable development challenges faced by most developing countries, there is an urgent need to compensate for the lack of incentives for the poor in the carbon markets. This will facilitate the larger goal of small-scale mitigation and adaptation. This report attempts to highlight the need for linking pro-poor energy interventions with carbon markets by involving environmental, financial and institutional mechanisms. It also analyses the barriers and opportunities to making carbon markets and other poverty reduction funds work for the poor while exploring the possibility of merging them.

Energy Poverty: an impediment for low carbon development

It is widely accepted that energy and development are intertwined. Access to adequate and affordable energy services especially those provided by modern energy carriers are positively correlated to social and economic development and also poverty reduction in both urban and rural sectors. Access to modern energy technology contributes to human development directly (cooking, safe water, lighting, transportation, etc.) and indirectly via employment and income generation (Reddy 1999; Price 2000; Johansson and Goldemberg 2002). However, the modern energy carriers come at a price, which the poor find difficult to afford.

It is estimated that nearly 1.5 billion people in the developing countries do not have access to electricity and nearly 3 billion people use traditional energy carriers for meeting their cooking energy needs (IEA 2009; UNDP/WHO 2009), see Figure 1. This situation worsens in Least Developed Countries (LDCs), where 87% of rural population lack access to electricity and in Sub-Saharan Africa where 89% of rural population has no access to electricity (UNDP/WHO 2009). Significantly, in the absence of adequate funding mechanisms and access to finance, the poor find it hard to afford modern energy services.

Figure 1.
Energy Poverty – Regional
Distribution



Improving access to modern energy carriers remains a huge challenge and faces several bottlenecks from availability to affordability. Since a majority of those without access to modern energy carriers are either poor or are near-poor, their ability to adopt modern energy carriers is linked to their ability to pay for both the upfront and recurring costs. Energy access becomes even more critical in the absence of adequate funding mechanisms or access to finance by the poor. Even if the poor have access to low cost finance, such financing would probably be able to pay for the upfront cost of accessing energy carriers/ technologies, but not sufficiently guarantee the ability of poor consumers to pay the recurring cost of such energy carriers/technologies, except for renewable energy sources.

Carbon markets and their contribution to sustainable development: A reality check

Since delivering sustainable development benefits was one of the key elements of the carbon markets proposed under the Kyoto Protocol, it was expected that carbon markets would trigger access to low-cost financing for accessing clean energy options. Similarly, projects addressing the Millennium Development Goals (MDGs) were expected to reduce poverty in the developing countries. However, the existing carbon market mechanisms and MDG funds have come under severe criticism for their inability to meet these expectations.

A number of recent studies indicate that despite the CDM (Clean Development Mechanism)¹ requiring projects to support sustainable development in the host country, few comply with criteria that would contribute to meeting the MDGs. Instead, carbon markets have focused mainly on the easy options involving industrial gases, renewable energy and energy efficiency projects, which offer large gains and quick returns, while largely overlooking their contributions to sustainable development (Schneider 2007). However, the growing scientific evidence for the various impacts of climate change calls for environmental, financial and institutional mechanisms to be developed that better address small-scale mitigation and adaptation projects that would enable access to modern energy by the poor including women (Sinha 2009).

¹ The CDM is a market-based mechanism under the Kyoto Protocol that allows industrialised (Annex I) countries with a greenhouse gas reduction commitment to invest in projects that reduce emissions in developing (Non-Annex I) countries as an alternative to more expensive emission reduction actions in their own countries.

Financing energy access for the poor in the current context provides unattractive returns as a result of lack of scale, but there is an opportunity through carbon funds to sustain energy interventions and improve access, while the associated benefits of using clean technologies, such as improved health, education and quality of life, are the mandates and objectives of poverty reduction funds.

Hoping against Hope

Recognising that the existing market mechanisms could not enforce strict conditionalities on meeting environmental integrity and development priorities, a number of new initiatives have recently emerged that aim to facilitate poverty alleviation through carbon finance. These include the Community Development Carbon Fund (CDCF), the MDG Carbon Facility and the Bio Carbon Fund (Capoor and Ambros 2008) and initiatives such as Gold Standard which have aimed to address environmental integrity as well as sustainable development objectives. However, the increasing plethora of international funds (approximately 60 different climate change funds) repeats and exacerbate the restrictions on the poor and women in accessing such financial mechanisms.

The existence of these funds is known to select few with the technical and specialised knowledge on international funding organisations, thus creating a problem. Further, submitting a funding proposal to many of these financial institutions requires specialised financial and regulatory knowledge in order to comply with the different requests and submission forms.

In many cases, not only can the procedures take longer than a year, the project proponent has to cover all the upfront costs of a baseline assessment, registration, monitoring and also certification. The returns on the investment may only start to flow after three years of project implementation (Lumpano 2008).

Looking Ahead

As mentioned earlier, the existing carbon market mechanisms and MDG funds have come under severe criticisms for their inability to address the core issue of technology transfer and small scale projects, especially those which cater to local environment and development benefits. This is there even though in the architecture of these funding mechanisms national development agendas are intrinsically embedded. However, in reality they have been largely ineffective in addressing the core issue of enhancing access to the poor. Especially in the case of carbon markets, they have focused on projects which provide quick returns and have followed 'band-aid' solutions especially focusing on renewable energy technologies and energy efficiency, since they are the easiest options to quantify benefits and solutions. However, the growing scientific evidence of diverse impacts of climate change demands that alternative environmental, financial and institutional mechanisms are created or better modified to address both small scale mitigation and adaptation projects which enable enhancing access to modern energy for rural and urban poor.

This report analyses the barriers and opportunities to make carbon markets and other poverty reduction funds, including the possibility of them intertwining for improving energy access, work for the poor.

2.0 The Vicious Cycle of Energy Poverty

Energy poverty can be commonly 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” (Reddy 2000).

This definition of energy poverty provides a broader perspective of the issue of availability, affordability, and emphasizes that the people should have a choice on which form of energy they want to use. In defining energy poverty there is a conceptualisation of an ideal

situation, assuming that people are rational and use energy according to the paying capacity.

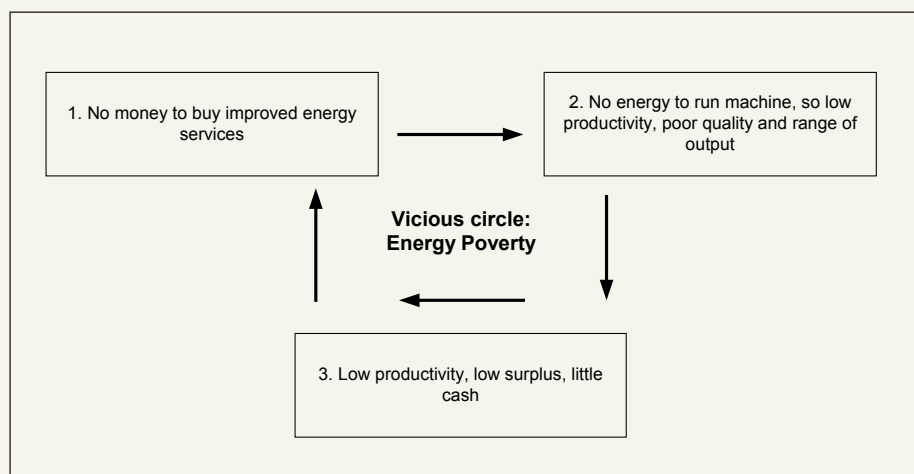
Broadly, three causes for energy poverty can be identified in the literature: (a) rural subsistence economy and cost of modern energy carriers; (b) energy – gender linkage; and (c) weak delivery infrastructure and institutional mechanism (Cecelski 1995; Reddy 1999; Barnett 2000; Price 2000; Jaccard and Mao 2002; Clancy, Skutsch et al. 2003).

It has been argued that people are energy poor because they do not have the means to buy improved energy carriers, even if they are available (Barnett 2000). Energy access or lack of energy access depends on factors like the paying capacity of the consumer. The availability of energy carriers does not suffice their adoption. Poor households would be able to use and benefit from modern energy carriers if they had the capacity and capability to afford it. The poor derive insufficient surpluses from their efforts that restrict them to break out of the subsistence economy. Low disposable income restricts their choice to buy improved energy carriers. This negative reinforcement of lack of income and lack of modern energy carriers has been referred to as a ‘vicious circle’ (Figure 2).

Modern energy carriers are expensive as compared to the traditional energy carriers in the form of biomass, which are locally available and often gathered at zero monetary cost². In addition to the cost of connection to the energy service provider, there is a unit cost and the investment required in new equipments when shifting to modern energy carriers (Price 2000). In case of renewable energy technologies, the challenge is more of high upfront cost than recurring cost. This is applicable especially with technologies such as solar PV, where recurring costs are negligible when compared to alternative energy carriers such as kerosene oil for lighting. The way in which the energy sector is regulated and prices are set has important implication for access: direct (affecting the affordability of access) and indirect (affecting the possibility of access).

² The monetary cost refers to the cost of the energy carrier and does not imply the cost of time spent on gathering of energy carrier or the loss of economic opportunity as a result of that. As the resource availability becomes sparse, the time costs increases. It also does not incorporate the loss of time and the drudgery of gathering energy carrier especially by women and girl child.

Figure 2:
Energy poverty - the vicious circle



Source: Adapted from (Barnett 2000)

Poor households lack access to credit they need to raise the connection cost. In addition to the connection cost, is the pricing of the energy carriers and share of the household income it absorbs. Any change in energy prices (by removal or restructuring of subsidies) would have adverse effect on modern energy access by the low capacity end users and may even result in a back switch to traditional energy carriers (Sathaye and Meyers 1990). Energy poverty is in most respects no different from poverty related to food and other basic needs, and these can be subsidised for the poorer sections of the society. Though it has been possible to target non-energy forms of poverty through transfers, subsidies and cash payment (Srinivasan 1994); attempts to address energy poverty seem to have resulted in substantial benefit to the non-poor, with the associated negative benefits for the state exchequer. Studies documenting rural electrification in India have shown that electricity subsidies have benefited the non-poor in the rural areas (Katiyar 2005; Jain 2006). Similarly, studies have also shown similar benefit to non-poor in case of energy fuels such as kerosene oil in rural India (Sinha 2007).

One of the key factors hindering access by rural poor is linked to the subsistence nature of the rural economy. The subsistence economy does not generate surpluses, which limits their purchasing power and interactions with the market and therefore restricts the opportunity for the rural people to shift from the traditional forms of energy use (Barnett 2000). The continued dependency on the subsistence economy in the rural areas of developing countries has a direct bearing on the energy access by the low capacity end users and this is the root cause of energy poverty. It has been argued that people are energy poor because they do not have the means to buy improved energy carriers, even if they are available. Energy access or lack of energy access depends on the paying capacity of the consumer, availability of energy carriers does not suffice their adoption.

Low capacity end users would be able to use and benefit from modern energy carriers if they have the capacity and capability to afford it – upfront cost in some cases, recurring cost in other situations. These reflect the capacities of the rural people, the culture that exists in the larger rural society which acts as limitation for improving access to energy carriers and the presence of weak institutional mechanisms which inhibit the people from having access to modern energy carriers.

3.0 BARRIERS IN FINANCING ENERGY ACCESS

An environment conducive to investment and sustained profitable operations can be built through a combination of policy advice, technical assistance, and lending to support accelerated reforms of national power sectors—notably policies governing pricing, subsidies and energy efficiency.

Not all problems associated with financing energy access and energy services fall in the customer's domain nor are they the result of a lack of enthusiasm amongst individual financial institutions for lending to the market. While financial institutions have a positive lending policy towards large energy infrastructure especially focusing on generation, their lending towards small scale energy provision is often neglected. This may be partly due to the fact that small grants required by the poorest people are too small to generate significant income for lenders and are expensive to deliver, especially in the case of hard-to-reach rural populations. As a result, financial institutions end up providing very few loans for customers interested in buying small scale energy technologies or solutions of provision of energy services.

These barriers hinder the development of the small energy technologies market since they cause inadequate loan capital being made available to businesses and their potential customers. Yet, one can formulate solutions which are simple for overcoming and minimising these problems. When implemented by a financial institution, these solutions will open the door to turning the energy market into a real business proposition for those involved.

From a financial organization's perspective, the inability of the rural and urban poor to demonstrate their credit worthiness is a critical problem. This becomes more acute in the case of women, who due to social and economic structures are unable to demonstrate steady income (as their labour may take place in the informal market or are not financially recognized given that they are household chores or sustenance agriculture), land rights or ownership of goods which could be used as collateral when requesting a loan or any other financial support³. These barriers are replicated, to say the least, when taken to international scales, as the complexity of the instruments and specialized knowledge required to access these are far beyond the reach of the poor or even the organizations which work in poverty alleviation initiatives.

Employing Carbon Finance and Development Finance

The question of what the governments or the markets should do and particularly when and how they need to intervene is one of the conflicts of economic and social development. Traditionally, the government has been the main agency for ensuring access to energy to the poor, primarily for two reasons – firstly, energy is a public good which provides multiple benefits, including certain characteristics can be of

³ Additionally, well known barriers for the poor to access credit or other financial mechanisms include: the capacity to read and write to the extent of filling in loan applications; understanding the financial implications of these contractual agreements; ownership of saving accounts at the bank approving the loan, or even access to information about the availability of loans to finance purchase of different energy technologies.

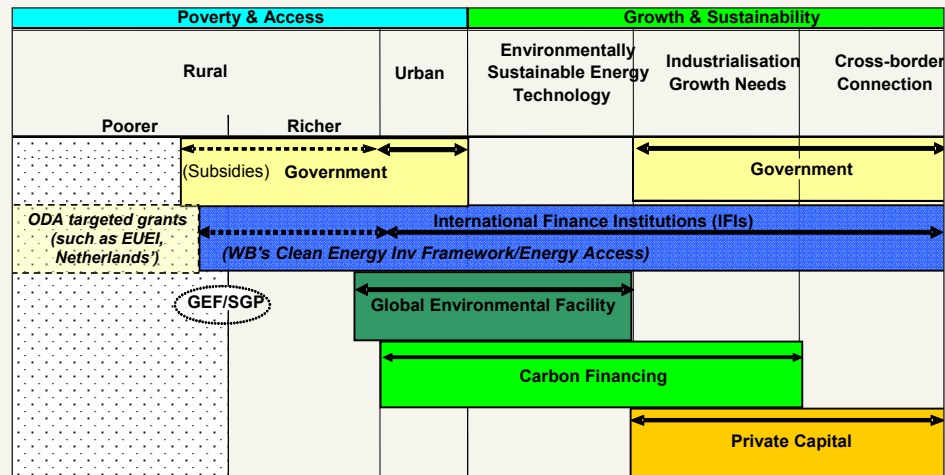
Solar lanterns
being distributed
in a village in
Sunderbans
West Bengal



public benefit. Secondly, there are access barriers and transaction costs involved in improving access to modern energy carriers – and if left to the market, then the poor and the vulnerable will be left without access (Sinha 2003). In order to remove the access barriers and transaction costs, the government uses policy instruments in the form of entitlements and subsidies, which form a part of government spending. While the government interventions in the energy sector result in the outflow of financial resources, it is often regarded as inefficient or inequitable or both due to misguided government interventions. The government's scarce resources are often not sufficient to ensure that energy access occurs uniformly and it results in inequity.

Historically, financial resources are not directed towards the poor; more with respect to rural poor, but even towards rising energy poor (Figure 3) (Rijal 2007). Rijal (2007) shows the direction of financial resources spent on two dimensions: (i) resources directed towards alleviation of poverty and enhancing energy access; and (ii) resources for overall growth and sustainability of the economy. As Figure 3 shows, with exception of subsidies from the national government, few other investments directly benefit the rural poor. Most of the other financing mechanisms focus more on growth and sustainability and to some extent on poverty and access. Carbon financing in particular has been instrumental in ensuring resources for environmentally sound technologies (such as renewable energy), industrial energy and poverty and access issues in the context of urban poor, but not specifically for the rural poor. In India, for example, subsidies on fuels such as LPG have been designed in such a way that they are directed towards urban users and a very small rural population draws benefits of these subsidies.

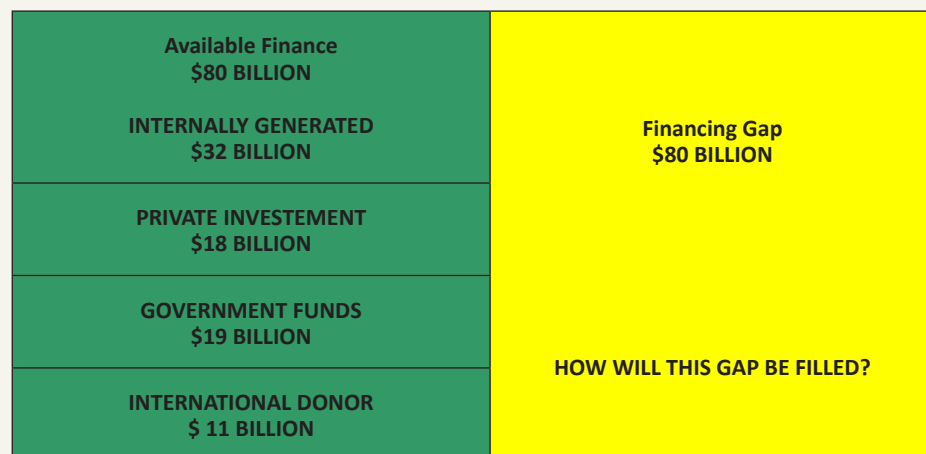
Figure 3.
Direction of Financial Resources



Source: Rijal, 2007

Estimates from the International Energy Agency (2007) shows that the developing countries would need an annual investment for electricity supply of \$160 billion through 2010 and this will keep increasing at about 3 percent per year through 2030. This estimate is just for electricity and does not take into account the thermal energy needs in the households. Unfortunately, only half of the necessary financing is readily identifiable, leaving a financing gap in the energy sector of about \$80 billion per year (Figure 4) (World Bank 2007). The international financial institutions, aid donors, and the private sectors can close the gap by \$11 billion per year through additional investments using existing financial instruments; however, to what extent it will be possible in light of the current financial crisis is not known. But closing the remaining gap can occur only in an environment conducive to investment and sustained profitable operations. Building that environment will depend on a combination of policy advice, technical assistance, and lending support to accelerated reforms of national power sectors—notably policies governing pricing, subsidies and energy efficiency.

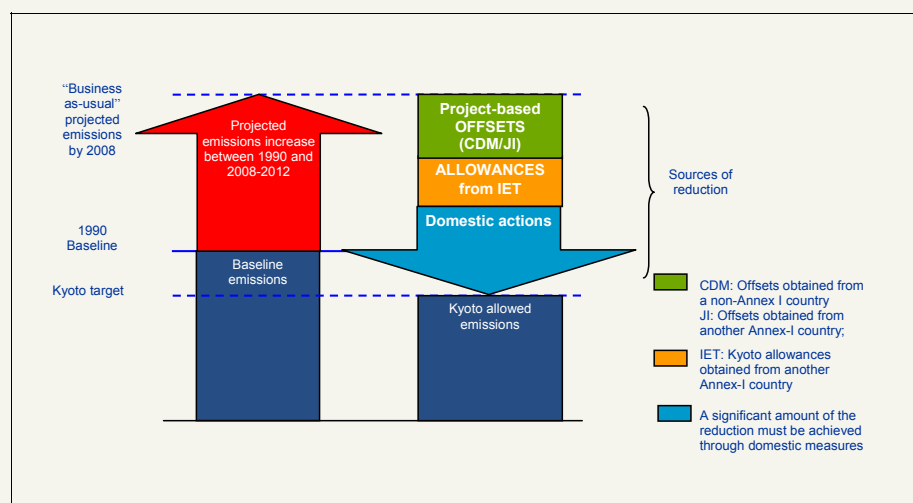
Figure 4:
Gaps in Financing Electricity Needs



Source: World Bank, 2007

4.0 CAN CARBON MARKETS FILL THIS GAP?

Carbon markets have been very successful in creating a global market for GHG emissions but have not been very successful so far in achieving a high level of environmental integrity and assisting host countries in achieving sustainable development by bringing investments for projects which help alleviate access to poor.



According to the World Bank (2010), the carbon market was valued at US\$ 143 billion in 2009 (see Table 1), with majority being the allowances market. Despite some limitations of the current mechanisms (discussed in the next section), the existing carbon markets have stimulated carbon mitigation globally. CDM accounted for the vast majority of project-based transactions valued at US\$7.4 billion. The voluntary markets also saw a doubling of transactions (see box). In spite of the growth of project based mechanisms through CDM and voluntary markets, the major transactions are still through the EU ETS (European Union Emissions Trading Scheme). Additionally, voluntary carbon offsets market has emerged and is likely to continue developing, both within and outside the framework of the Kyoto Protocol. The market for voluntary carbon trades is growing rapidly. While it increased between 2006 and 2008 to reach a value of US\$419 million, it declined to US\$ 338 million in 2009 (World Bank 2010).

Table 1:
Carbon Markets (values and transaction)

	2006		2007		2008		2009	
	Volume (Mt CO ₂ eq)	Value (MUS \$)	Volume (Mt CO ₂ eq)	Value (MUS \$)	Volume (Mt CO ₂ eq)	Value (MUS \$)	Volume (Mt CO ₂ eq)	Value (MUS \$)
Allowances Markets	1,134	24,699	2,109	50,394	3,278	1,01,492	7,362	122,822
EU ETS	1,104	24,436	2,061	50,097	3,093	1,00,526	6,326	118,47
Project Based Transactions	611	6,536	874	134,641	486	7,297	283	3,370
Primary CDM	537	5804	551	7,426	404	6,511	211	2,678
Jl	16	141	41	499	25	367	26	354
Voluntary Markets	33	146	42	265	57	419	46	338
Total	1,745	31,235	2,983	64,035	4,836	1,35,066	8,700	143,735

Source: World Bank, 2010

The global economic crisis, which started in 2008 and intensified further in 2009, negatively impacted both the demand and supply sides of the carbon market. As industrial production declined in developed countries, the demand for carbon credits fell. As a result, capital inflow to developing countries fell drastically (World Bank 2010).

The evidence on costs and benefits is not clear. All countries stand to potentially gain from such trade. However, there is a geographical imbalance in how the benefits are shared. Large developing countries or emerging economies have benefited the most from carbon trade, whereas least developed countries are yet to gain significant benefit from the carbon markets. However, the impact on the poor in developing countries will depend on inclusion of a range of small scale mitigation and adaptation activities in both compliance and voluntary markets ranging from renewable energy/energy efficiency and afforestation activities by engaging local communities. Payments for Environmental Services (PES), which involve compensation by the beneficiaries to those who are protecting environmental resources can help reduce poverty as well as conserve nature (WWF 2006). PES provides an opportunity for linking communities with carbon financing, not only in the voluntary market but also in the compliance market.

There are also serious reasons to question the extent to which institutional arrangements will be developed for the transfer of benefits from credits to communities and especially the poor. Although there is little evidence that the mechanisms for this exist and little reason to be confident that they will be developed, the voluntary carbon market has allowed some room for projects targeting the poor, as shown by the box below.

Box 1. Engaging Women SHG through Voluntary Carbon Market

Powerguda, a remote tribal hamlet in the Adilabad district, Andhra Pradesh, India, became a sort of environmental pioneer when the biofuel plantations managed by the Powerguda Women SHG earned carbon credits under the voluntary emission reduction. The women SHG sold an equivalent of 147 tons of carbon dioxide in verified emission reductions as carbon replacement to off-set the travel emissions (local and air travel) incurred by the World Bank in October 2003 for its conference. The World Bank paid US\$ 645 to Powerguda women SHG's to off-set the emissions.

Source: The Hindu, 24.06.2004/ IUCN

However, unless one could demonstrate to the financial institutions or project implementers that higher benefits such as higher efficiency or increased emission reductions would be obtained by strengthening the social component of their projects and targeting the poor and women, systematic inclusion of social or gender specific methodologies will not take place in the projects sold in the voluntary market.

The carbon market provides an opportunity to fund energy interventions (which are at the core of climate funds agenda) which also result in GHG reductions and at the same time enhance energy access. Moreover, there is a tendency by donor countries and organizations to shift their budgets from energy access initiatives to emission reduction targeted activities. This tendency provides both an opportunity and a threat. The opportunity lies in the possibility of implementing projects which will deliver modern energy carriers to the poor and women. The threat is that if the challenges of the carbon market are not properly addressed, the funds available to increase technology transfer and produce income generation activities will diminish substantially.

When thinking about the opportunities these markets may bring, one should couple them with the desire to increase the design of gender sensitive energy projects, where poor men and women are viewed as energy managers and agents of change, instead of the vulnerable who have no contribution towards society at large. This distinction is fundamental, considering that recognition as energy managers is a mark of empowerment for both men and women from the poorer section of the society.

Considering the fact that the investments in renewable energy have gone up to US \$125 billion dollars and growing at more than 15% to 20% every year, one could say substantial part of this investment from both governments and the private sector is in response to climate change or high crude prices, variables which may continue to push for an increase in investment in this sector. The effect would then be a considerable increase in the high tech manufacturing industries such as solar cells, wind generators and applications, which generate new labour opportunities for skilled workers, men and women. Moreover, the impact on income generation for men and women could be further expanded if skilled workers are further trained to provide repair and maintenance services.

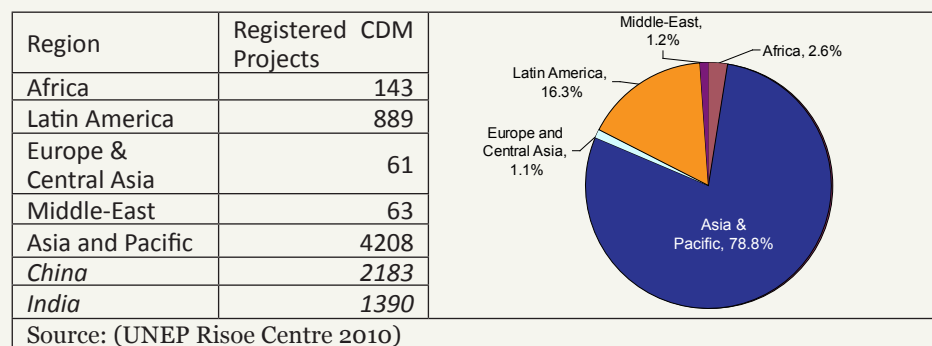
Adjustments to the development of capabilities, such as having women trainers who could train other women, are some considerations which would facilitate knowledge dissemination and ensure that income generation activities will not be only tied to the production processes.

Challenges to make carbon finance accessible to the poor

Although carbon markets, specially CDM, are expected to produce double benefit of reducing emissions and enhancing sustainable development, in reality this link is not working. This is because the focus has been on much larger gains, which were simple to do with quick returns. Financing energy access for rural/urban poor in the current context provides small returns, but here is an opportunity through carbon funds to sustain the energy interventions and improve access. The associated benefits in terms of a switch to clean technologies such as health and education or quality of life, are the mandates and objectives of poverty reduction funds.

In spite of the CDM requisite for projects to support sustainable development in the host country, few comply with criteria that are related to the achievement of the Millennium Development Goals (Schneider 2007), even though this could be achieved through gender sensitive design of energy access interventions, as mentioned in the previous section. For example, many CDM projects, directly or indirectly, reduce air pollution or contribute to the diffusion of environmentally sound technologies, whereas only very few projects directly contribute to poverty alleviation. Sirohi (2007) highlights that “poverty alleviation lies at the core of the country’s development priorities”. However, her study of the Indian CDM projects reveals that the “CDM is not contributing to rural poverty alleviation to any notable extent” (Sirohi 2007), as most of the projects were either industrial gases projects or were renewable energy project feeding energy into electricity grid. As a result, the CDM project portfolio is mainly determined by the economic attractiveness, potential and risk of the mitigation options. Figure 5, shows the skewed distribution of CDM projects, with China and India accounting for 65% of the total registered projects among the developing countries. Limited carbon financing is being received by the rest of the least developing countries in Asia, Latin America and Africa, although there has been modest increase in project activities in Africa since 2008.

Figure 5:
Skewed Regional Distribution
of Carbon Markets
(September 2010)



A study looking at the contribution of the CDM by reviewing close to 200 studies comes to the conclusion that “left to market forces, the CDM does not significantly contribute to sustainable development” (Olsen 2007). Similarly, another study concluded that “projects addressing the poor directly are very rare and that even small renewable energy projects in rural areas tend to benefit rich farmers and the urban population” (Michaelowa and Michaelowa 2007). However, a number of projects have indirect benefits for the overall economy, as many projects create employment, indirectly improve the infrastructure or at least provide carbon market revenues to the economy.

Recognising that the existing market mechanisms could not enforce strict conditionalities of meeting environmental integrity and development priorities, a number of initiatives have emerged in the recent past. These include initiatives such

as Community Development Carbon Fund, MDG Carbon Facility and Bio Carbon Fund in the compliance market. The objectives of these funds are to facilitate poverty alleviation through carbon finance.

Name of Fund	Fund Description
Community Development Carbon Fund (CDCF)	The CDCF provides carbon finance to projects in the poorer areas of the developing world. The Fund, a public/private initiative designed in cooperation with the International Emissions Trading Association and the United Nations Framework Convention on Climate Change, became operational in March 2003. The first tranche of the CDCF is capitalized at \$128.6 million with nine governments and 16 corporations or organizations participating in it and is closed to further subscriptions. The CDCF supports projects that combine community development attributes with emission reductions to create "development plus carbon" credit and will significantly improve the lives of the poor and their local environment. CDCF projects includes two brick projects in India – one, a Fal-G and Block (Fly ash, lime and gypsum bricks blocks) and a Vertical Shift Brick Kiln (VSBK); and a micro-hydro and biogas project in Nepal.
Millennium Development Goal (MDG) Carbon Facility	The UNDP established the MDG Carbon Facility with the objective of mobilising the potentially significant benefits of carbon finance for the developing world. MDG Carbon Facility provides an innovative mechanism for the development and commercialization of emission reduction projects. The core objectives of the Facility are: (i) Broadening access to carbon finance by enabling a wider range of developing countries to participate, particularly those countries which are presently under-represented (ii) Promoting emission reduction projects which contribute to the Millennium Development Goals ("MDGs"), yielding additional sustainable development and poverty reduction benefits.
Bio Carbon Fund	The World Bank has mobilized a fund to demonstrate projects that sequester or conserve carbon in forest and agro-ecosystems. The Fund, a public/private initiative administered by the World Bank, aims to deliver cost-effective emission reductions, while promoting biodiversity conservation and poverty alleviation. The Fund is composed of two tranches: Tranche One started operations in May 2004, has a total capital of US \$53.8 million; Tranche Two was operationalized in March 2007 and has a total capital of US\$38.1 million. The current set of projects includes a project in India on "Improving Rural Livelihoods" through 3500 ha of tree plantations in the states of Orissa and Andhra Pradesh. The plantations will focus on a mix of medium sized, and small and marginal farmers on their private lands; and a project in China on "Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin", which proposes to alleviate local poverty and reduce threats to local forests. 4,000 ha will be afforested in the Guangxi Zhuang Autonomous Region, which includes half of the Pearl River basin.

However, the increasing plethora of international funds (about 60 different climate change funds worldwide) replicates and exacerbates the restrictions on the poor to access these financial mechanisms. For one, the existence of these funds, though increasing, is only known to a selected few who have the technical and specialized knowledge on international funding organizations or who work at international stock exchanges. Additionally, in order to fully submit a funding proposal to one of these financial institutions, specialized financial and regulatory knowledge is required, in order to fill in the different requests or submission forms. Not only could the procedure take longer than a year, but also the project proponent has to cover all upfront costs of baseline, assessment, registration, monitoring and certification, although returns on investment may only take place after 3 years of project implementation (Lumampao 2008).

Moreover, monitoring for bundling projects can be tricky. Normally each CDM project is validated and scrutinized in detail by the site visit by professional valuers. However, as a special case bundled projects relevant for sustainable development can be scrutinized on a sampling basis. The box below showcases how if this was not allowed for bundling projects, the registration and monitoring costs would be unbearable for project developers.

Box 2. The Nepal Biogas CDM Project

Inflexible bundling rules for small-size technologies would lead to a significant increase in the preparation and implementation cost of the project and would unnecessarily increase the effort required by government parties to the project, who would need to approve each single project. In order to stay below the 15 MW thresholds for small biogas plants, it would be necessary to split the Nepal Biogas Project in approximately 31 small-scale CDM projects – each project would bundle around 6,500 biogas plants. Assuming a validation cost of US\$ 5,000, and an annual certification cost of US\$ 5,000 per project, this would mean an increase in validation and certification costs alone from around US\$ 110,000 to around US\$ 3,400,000. The cost of registration would increase to US\$ 930,000, given that it would be necessary to pay a registration fee of US\$ 30,000 for each project. In sum, the total cost of validation, registration and certification would be US\$ 4,340,000 – i.e., an increase of US\$ 4,200,000. The volume of emission reductions that could be claimed from the project would also be reduced if all biogas plants in a bundle would have to select the same crediting period. The loss of emission reductions would depend upon the rate at which it would be possible to enrol new biogas plant – in other words, on how long it would take identify 6,500 new biogas plants that could be put together in a bundle. This loss of ERs could be quite significant in itself.

Source: UNFCCC and Carbon Finance

While the impact of carbon markets to address issues such as poverty alleviation may be looked at indirectly, the project's focus on engaging women is even less. Out of the large portfolio of CDM projects not even five projects involve women. For small-scale projects, CDM executive board has permitted bundling of projects. As previously stated in this report, poverty alleviation initiatives are by nature small in scale and designed to address specific socio-economic and geographical conditions. This posts an additional constraint to those organizations working on poverty alleviation or increasing energy access to the poor. Given the small scale of their activities, there is a need to bundle them in order to make the production of their credits economically attractive to the financing mechanisms. The future of carbon markets lies by in making bundling or alterations programmatic in order to scale-up as well as achieve development benefits.

An additional potential constraint is the certification and monitoring requisites that emission reduction projects must meet. In order to have certifiable emission reductions (CERs), the projects must be evaluated by professionals knowledgeable on the approved methodologies of the CDM Board. This evaluation and monitoring is costly and in the case of small organizations, unaffordable. Even the small scale CDM requires minimum carbon savings of 150,000 tonnes per year because otherwise the transaction costs of submission, registrations fees, validation costs and certification procedures are too high. (Source: Asian Development Bank).

Smokeless
Chulha



Finally, it is necessary to say that clean or non-emitting technologies are not always the most appropriate energy carrier for the poor, because in some cases the availability of traditional or fossil fuels may still prove to be the most appropriate technology in certain circumstances. In these cases, emission reduction projects would not be an appropriate means to provide the poor and women with access to modern energy carriers. These energy access interventions may be better addressed under the MDG or poverty reduction funds.

5.0 CONCLUSION

Carbon finance can work for pro-poor development provided appropriate mechanisms are created for cross-linkages with poverty reduction funds. While in the post-2012 architecture, there is a need for a multi-mechanism

platform to address this issue instead of a single point solution, in the interim period leading up to 2012 setting up a small scale carbon facility fund would be an appropriate mechanism.

Can Carbon Finance Work for Pro-Poor Development?

Although the access to energy is not an MDG in itself, the adequate provision of energy is crucial for improving livelihoods. While the current contribution of carbon markets to improving the poor's access to energy appears to be limited, new projects with a potentially larger contribution to sustainable development, such as energy efficiency improvements in rural households or rural renewable electricity generation, are beginning to draw significant attention. Carbon finance can work for pro-poor development provided appropriate mechanisms are created for cross-linkages with poverty reduction funds. This would require some fundamental focus as discussed below.

Infusing Investments

One of the most critical constraints in enabling energy access to meet both developmental and environmental agendas is the lack of adequate financial resources. Investments in energy for development projects, mainly coming from multilateral sources, have recently declined. Even private sector investments are channelled through the infrastructure sector supporting supply side generation, but the demand side projects are not a favoured choice. Although globally investments in clean energy are on the rise, they still require innovative financing options:

- Making better use of private investment, aid and grants, micro financing schemes, and FDI (Foreign Direct Investment). Here, the role of government in enabling both public and private energy infrastructure development (political commitment, mobilising financial resources and the selection of appropriate projects) remains crucial.
- New sources of capital through carbon funds could provide opportunities for the energy sector by making energy technologies available to meet energy demands.

Incentivising Technology Functionality

While carbon markets do create an incentive for keeping a system functional, the upfront costs of the system remains a key barrier. The big question here is can the carbon markets address the upfront costs, as the inherent problem of existing mechanisms are such that they further enhance the upfront cost of technology/project. In order to overcome these, following options can be explored:

- Poverty reduction funds under the MDGs could bring the investments needed to fund a switch to energy efficient technologies and renewable energy interventions. These funds can be used to bridge the gap in technology cost.

- Carbon markets involve a mechanism in the form of payment for delivering environmental services and since this payment (carbon credits) is linked to the functioning or non-functioning of the technology, it also acts as an incentive to keep the technology running. This is a significant change from traditional energy interventions where investment tended to be linked to programme implementation, and post-implementation services (e.g. maintenance) had to be funded by the individual users.
- Pre-payments for small-scale clean energy projects through engagement of project developers, financial institutions and the corporate sector that need to off-set their carbon emissions.
- Further, income-generating activities can be boosted through auxiliary activities linked to carbon credit projects such as marketing and repair and maintenance services. Community-based projects can also involve afforestation and reforestation activities. Involvement of social entrepreneurs for scaling-up clean energy projects have gained traction and needs infusing investments in promoting these local entrepreneurs through different financing options including pre-payments from carbon finance.

Solar Water Heater
at Giathang village,
East Sikkim
District



Reforming Carbon Markets

While the current contribution of carbon markets to improving the poor's access to energy appears to be limited, new projects with a potentially larger contribution to sustainable development, such as energy efficiency improvements in rural households or rural renewable electricity generation, are gaining importance. Nevertheless, within the overall project portfolio, the contribution of carbon markets to meeting sustainable development objectives will probably remain low unless there are cross-linkages with poverty reduction funds. Given that there is a growing awareness of certain flaws in the current CDM, there increasing pressures for a revamp in the post-2012 architecture. This will require exploring ways of putting:

- A real emphasis on the sustainable development benefits of individual projects, like placing a financial value on sustainable development (including making poverty reduction an integral part of the objective) and reflecting this in the price of carbon. Nevertheless, this needs to be done in a way that still prioritises emission reduction and does not dilute the emission reduction effect.

- It would also require expanding our understanding of sustainable development through stakeholder involvement, transparency and respect for the rights of local communities and indigenous people to be ensured. For carbon markets to be helpful to women and the poor, three factors are essential: capacity building, organisations and institutions and government support.
- A further need is for programme based activities, rather than project based activities-, based carbon market mechanisms, as well as for simple mechanisms for bundling projects together.
- Another way forward is that in the post-2012 carbon markets, the focus could be perhaps limited to carbon dioxide and methane mitigation projects, instead of covering all the six greenhouse gases as is now the case, which would likely reduce the share of carbon market benefits being accrued by industrial gases projects. Limiting carbon markets to carbon dioxide and methane mitigation projects would give a greater emphasis to renewable/clean energy projects. In the developing countries, this could result in energy access projects being financed through carbon markets with more immediate development and poverty reduction benefits.

It can be safely concluded that there is a need for a multi-mechanism platform to address this issue instead of a single point solution. The purposes emphasised may well differ from one mechanism to another. This wider approach needs to be investigated with the idea of including it in the post-2012 architecture.

The **interim period** leading up to 2012 could serve as a phase to develop a market mechanism that delivers energy access projects which in turn provide development and poverty reduction benefits. It is in this interim phase where institutions like UNDP can play a pivotal role by leveraging and establishing a funding mechanism, which demonstrates efficacy of such approach:

- Raise awareness on small-scale carbon financing by working together with civil society organisations, industry associations, project developers and government. The UNDP, by nature of its role and engagement within India, is well-placed to take a lead role in creating a platform to create policy impetus for carbon financing of small-scale projects.
- Establish a small-scale carbon facility fund by bringing in investment from diversified sources – public and private sector investments, bi-lateral and multi-lateral funding institutions and financial institutions.
- Host carbon facility fund with existing financial institutions such as National Bank for Agriculture and Rural Development (NABARD), who have the expertise and experience of managing similar funds.
- Create a basket of financing options to meet problems of upfront costs by leveraging carbon credits.
- Set-up a technical unit that reviews and takes a decision on small-scale projects ensuring strong development and environmental integrity.

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ANNEXURE I

Carbon Markets Mechanisms

1. Clean Development Mechanism

Clean Development Mechanism (CDM) is one of the flexible mechanisms following the Kyoto Protocol. It is a project-based mechanism designed to permit developed countries to finance projects for reducing greenhouse gas emission in developing countries by acquiring Carbon Emission Reduction (CER) credits, and thereby achieve their targets.

The CDM has a two-fold purpose: (a) to assist developing country Parties in achieving sustainable development, thereby contributing to the ultimate objective of the Convention. (b) Assist developed country Parties in achieving compliance with part of their quantified emission limitation and reduction commitments under Article 3. All projects that aim to generate CERs under CDM rules must essentially meet the same criteria and complete the same steps. All CDM project activities must result in reducing or absorbing GHGs that are real and measurable and would not have occurred in the absence of the proposed activity.

Current CDM Financing Facilities

Market mechanisms have been working since the past decade to address environmental issues and hence, within a very short span of time a rapidly expanding multibillion-dollar international market has spurred as the outcome of CDM and JI. The eligibility criterion for the CDM project activity includes sustainable development as one of its crucial consideration. Therefore, in order to get financial flows for sustainable development, emission offset markets are right option.

Given below is the list of all the CDM financing facilities under the major financial organisations which can be leveraged for additional environmental finances:

Asian Development Bank

ADB has following financing facilities i.e. The Clean Development Mechanism Facility and The Carbon Market Initiative.

a. Clean Development Mechanism Facility

ADB does not currently operate a carbon fund. However, it has been extending CDM assistance to DMC clients through the CDM Facility (CDMF) launched in August 2003. The objective of the CDMF is to help DMCs to benefit from the CDM. The CDMF has three main functions: (i) it assists DMCs, through ADB operations departments, to source funds for emission reductions; (ii) it helps DMCs to process CDM requirements for identified projects; and (iii) it provides information and advice on emerging carbon markets. The CDMF aims to add value to projects in ADB's lending portfolio by providing support during the project preparation stage. Projects supported by and marketed through the CDMF have attracted competitive offers from buyers.

b. Carbon Market Initiative

The Carbon Market Initiative (CMI) is one of the Asian Development Bank's (ADB) new initiatives under its Clean Energy and Environment Program. It is an innovative financing scheme that supports the development of clean energy, energy efficiency, and greenhouse gas (GHG) abatement projects in developing countries in Asia and the Pacific that are eligible under the Clean Development Mechanism (CDM) of the Kyoto Protocol (KP). CMI has three components:

- (i) Upfront carbon financing through the Asia Pacific Carbon Fund (APCF)
- (ii) Technical CDM support through the Technical Support Facility (TSF)
- (iii) Marketing support for carbon credits through the Credit Marketing Facility (CMF)

European Bank for Reconstruction and Development

In October 2003, the European Bank for Reconstruction and Development (EBRD) established its first carbon fund, the Netherlands Emissions Reductions Co-operation Fund, with the Government of the Netherlands. The fund buys carbon credits from its Joint Implementation projects (footnote 8) in 13 countries in transition in Central and Eastern Europe. The total capitalization of this fund is €32 million. 36. In May 2006, EBRD announced the launch of the €150 million **Multilateral Carbon Credit Fund**, a joint venture with the European Investment Bank. The fund will buy carbon credits under the EU ETS as well as from Joint Implementation and CDM projects.

The World Bank

The World Bank has been a pioneer in the carbon market, mainly through the establishment of carbon procurement funds to secure carbon credits on behalf of investors. These funds typically enter into pay-on-delivery contracts and contribute to the positive cash flow of projects after the start of operations and the delivery of emission reductions. Recently, some funds have secured limited insurance against non delivery of CERs and are able to offer partial upfront payments. The funds in the World Bank portfolio were not solely intended to procure carbon credits, but also to help create demand and spur the global carbon market. The World Bank has following facilities:

a. Prototype Carbon Fund

The Prototype Carbon Fund (PCF) is a trust fund of the World Bank, launched in January 2000 to provide financing for projects reducing emissions of greenhouse gases. The PCF is an innovative funding mechanism of \$145 million. The contributors to the Fund (the participants) are six public sector entities (five governments and one state-owned development bank) and seventeen private sector entities (see Annex II for list of participants). Practically the PCF finances projects which generate emission reductions in developing countries (CDM projects) and Economies in Transition (EIT) countries (JI projects). In return for the finance that it provides, the PCF acquires the exclusive right to part of those reductions, which helps the participants meet their respective national and international emission abatement targets. Countries hosting PCF projects are sign a Host- Country agreement with the PCF and become part of the PCF Host Country Committee.

b. Bio Carbon fund

The World Bank has mobilized a fund to demonstrate projects that sequester or conserve carbon in forest and agro-ecosystems. The Fund, a public/private initiative administered by the World Bank, aims to deliver cost-effective emission reductions, while promoting biodiversity conservation and poverty alleviation. The Fund is composed of two Tranches: Tranche One started operations in May 2004, has a total capital of \$53.8 million; Tranche Two was operationalized in March 2007 and has a total capital of \$ 38.1 million. Both Tranches are closed to new fund participation. The Bio Carbon Fund can consider purchasing carbon from a variety of land use and forestry projects; the portfolio includes Afforestation and Reforestation, Reducing Emissions from Deforestation and Degradation and is exploring innovative approaches to agricultural carbon.

c. The Netherlands CDM Facility

The World Bank announced an agreement with The Netherlands in May 2002, establishing a facility to purchase greenhouse gas emission reduction credits. The Facility supports projects in developing countries that generate potential credits under the Clean Development Mechanism (CDM) established by the Kyoto Protocol to the UN Framework Convention on Climate Change.

d. Community Development Carbon Fund (CDCF)

The CDCF provides carbon finance to projects in the poorer areas of the developing world. The Fund, a public/private initiative designed in cooperation with the International Emissions Trading Association and the United Nations Framework Convention on Climate Change, became operational in March 2003. The first tranche of the CDCF is capitalized at US \$128.6 million with nine governments and 16 corporations/organizations participating in it and is closed to further subscriptions. The CDCF supports projects that combine community development attributes with emission reductions to create “development plus carbon” credits, and will significantly improve the lives of the poor and their local environment.

e. Carbon Partnership Facility (CPF)

The partnership (buyers and sellers) entails two trust funds (i) the Carbon Asset Development Fund (CADF) to prepare emission-reduction programs.

(ii) The Carbon Fund (CF) to purchase carbon credits from a pool of emission-reduction programs. The CPF targets long-term emission reductions. To do this, the CPF purchases emission reductions for at least 10 years beyond 2012. It becomes operational when purchase commitments reach US\$500 million and similar sales commitments have been made.

Japan Bank for International Cooperation and Development Bank of Japan

a. Japan Greenhouse Gas Reduction Fund (JGRF)

The objective of the JGRF is to purchase emission reduction credits (Emission Reduction Units (ERUs), Certified Emission Reductions (CERs), Assigned Amount Units (AAUs), and Verified Emission Reduction (VERs) generated from the greenhouse gas (GHG) emission reduction projects that are implemented in developing countries and economies in transition and to allocate them among the contributors. Under the mechanism adopted for purchasing emission reduction credits, Japan Carbon Finance purchases them first and sells them to the JGRF.

a. Japan Carbon Fund

Japan Carbon Finance Ltd., signed a Memorandum of Association with The Energy and Resources Institute (TERI) of Delhi, India, on 3rd February 2005 for (newswire18, 2008) developing Clean Development Mechanism projects (CDM) in South Asia including India. The projects are being developed for selection under the Japan Carbon Fund, operated by Japan Carbon Finance.

ANNEXURE II

Matrix of Carbon Financing Facilities

Institution	Facility/ Fund	Components of the facility	Projects types	Type of carbon fund
World bank	Bio Carbon Fund		Land use and forestry projects	Multilateral and government
World bank	Carbon partnership facility	Carbon asset development fund (CADF) and carbon fund (CF)	Power sector development, EE, gas flaring, urban development and transport	
World bank	Community Development Carbon Fund and CDCFplus		Community development projects (mini-and micro-hydro, wind energy, small municipal and agricultural waste, energy efficient appliances, and clean transport)	Multilateral and government
ADB	CDM facility			
ADB	Carbon market initiative (CMI)	Asia pacific carbon fund, (APCF) technical support facility (TSF), credit marketing facility (CMF)	clean energy, energy efficiency, GHG abatement projects	
	Eco securities/ standard bank carbon facility			Multilateral and government
ADB	Future carbon fund			
UNDP, UNEP, WORLD BANK	Global Environmental Facility	Special climate change fund (SCCF), small grants programme (SGP) and strategic priority on adaptation (SPA)	RE, EE, sustainable energy, adaption, new-low GHG technology and enabling activities, national communications and other obligations under the UNFCCC	Multilateral and private

Institution	Facility/ Fund	Components of the facility	Projects types	Type of carbon fund
International fund for agricultural development (IFAD)			Natural resource management (efforts to combat deforestation, soil degradation, desertification)	Multilateral and private
International monetary fund (IMF)				Multilateral and private
JBIC and DBJ	Japan carbon fund (JCF)			private
JBIC and DBJ	Japan GHG Reduction Fund (JGRF)			
KfW förderbank	KfW carbon fund		Renewable Energy, Land fill gas, Coal mine methane, coal bed methane, Fuel Switch, Energy efficiency, Carbon sequestration, Carbon capture and storage (CCS), Land use, land use change and forestry.	private
UNDP and FORTIS	MDG carbon facility (MDGCF)		Methane mitigation, EE, RE, bio sequestration, transport, cleaner energy	
EBRD	Multilateral carbon credit fund (MCCF)		Energy efficiency, Renewable energy, Avoided venting/ flaring, Fuel-switching, GHG Sequestration	Multilateral and government
World bank	Netherlands CDM facility (NCDMF)			Multilateral and government
World bank	Prototype Carbon Fund (PCF)			Multilateral and government
Rabobank	Rabobank-Dutch government CDM facility		Sustainable energy, renewable energy and clean energy	Multilateral and government

ANNEXURE III

Matrix of Carbon Financing Facilities

Annexure III: Small Scale Projects Facilities

Small-scale projects contribute to sustainable development, especially its social dimension, much more effectively compared to large projects. This is because of higher level of community involvement in such projects. A clean, reliable source of energy and access to it, is a key element in supporting sustainable livelihoods. Small-scale renewable energy projects introduced at the community level can reduce the emissions of greenhouse gases relative to their conventional counterparts and are eligible for carbon financing through the Clean Development Mechanism (CDM).

The Marrakech Accords recognized that high transaction costs would be a significant deterrent for small-scale CDM project development and instructed the CDM Executive Board to develop simplified procedures for small-scale CDM projects. While the simplified procedures will provide considerable assistance in reducing transaction costs, additional costs remain that would limit the ability of small industries, local governments, NGOs and small private sector project developers from using the CDM. Unless assistance is provided to project developers such as NGOs and small enterprises in developing countries to prepare sound, low-cost, small-scale CDM project proposals, an excellent opportunity for supporting sustainable development will be lost.

Particularly, for smaller projects, which generate smaller amounts of CERs, the transaction cost appears to be a large barrier to implementation. To cater for improved feasibility of smaller projects, the EB has adopted simplified modalities and baseline procedures to so-called small-scale CDM projects, of which three types are defined:

- i. Renewable energy projects with a maximum output capacity of 15 MW
- ii. Energy efficiency improvement projects up to 15 GWh/yr
- iii. Other projects that directly emit up to 15 kton CO₂-eq/yr

In India's case, the CDM market is dominated by small-scale projects which include renewable energy projects and energy efficiency projects. India has the highest share of small scale projects followed by China, where the share of large scale projects are more compared to small scale projects. In other active host countries such as Mexico, Malaysia, Philippines and Indonesia, the share of small scale projects is again higher than large scale. However, besides China the only two countries which have larger share of large scale projects are Brazil and Chile. This shows that barring few almost all host countries have more number of small scale projects with India in the lead.\.

These small-scale projects have a large potential to contribute to sustainable development, as they often generate local employment, improve air quality, introduce new technologies and of course mitigate greenhouse gas emissions. Most employ renewable electricity technologies such as small/micro hydro or biomass or some energy efficiency technologies.

In order to identify the development value of small scale projects, WWF introduced the gold standard, which establishes a set of four criteria to identify CDM projects that meet minimum international environmental impact, sustainable development and additionality criteria. The objective of the Standard is to provide assurances to buyers of CERs generated by CDM projects that have been recognized as Gold Standard that these projects do more than meet the basic CDM requirements as set out in the Marrakech Accords. Buyers of these CERs can be expected to pay higher than market price for CERs generated by high quality CDM projects. The importance of the approach cannot be underestimated as the Gold Standard seeks to ensure the environmental integrity of the CDM, especially in host countries without environmental best practice and sustainable development legislation. (small scale CDM project development, 2004)

CDM projects must meet four criteria to satisfy the Gold Standard:

- Reduce emissions through the use of renewable energy or energy efficiency
- Meet a set of best practices for environmental impact
- Meet a set of sustainable development criteria
- Would not have gone ahead without the CDM

The baseline and additionality requirements as outlined in the UNFCCC simplified procedures for small-scale CDM projects meet most of these conditions by definition. Thus, most small-scale renewable energy or energy efficiency CDM projects if developed in accordance with the simplified procedures, meet the proposed Gold Standard.

An option - not yet applied - to make very small projects more viable, is bundling. In this case, several projects of similar context are put together to form one CDM project, for which one baseline needs to be developed. For example, five micro-hydropower plants of 3 MW capacity each may be put together in one project. This could generate approximately 70,000 CERs/yr, which is translated into 350,000 \$/yr at 5 \$/tCO₂-eq. This amount is large enough to limit the transaction cost to a small percentage (5-10%) of CER revenues. In this fashion, bundling facilitates development of small projects under the CDM. The potential in terms of sustainable development as well as climate change mitigation for renewable electricity projects under the small-scale CDM appears to be large. However, the success of this will depend among others on the possibilities of bundling, institutional capacity in host countries, CDM finance possibilities and of course, the price of CO₂ credits.

MDG Carbon Facility

The MDG carbon facility was introduced in order to facilitate the concept of sustainable development.. This is an innovative partnership between UNDP and Fortis for the development and commercialization of emission reduction projects which will aid in achieving the Millennium Development Goals. The MDG Carbon Facility operates within the framework of the Clean Development Mechanism and Joint Implementation, the market-based mechanisms of the Kyoto Protocol that allow developed countries to meet their emission caps by purchasing carbon credits from developing country projects that contribute to reducing greenhouse-gas emissions.

The MDG Carbon Facility aims to bring about market transformation with respect to carbon finance in developing countries – affecting the transition from a pre-market to a fully market-enabled environment that supports emission reduction projects with high MDG benefits and attracts substantial direct investment from the private sector. Under the MDG Carbon Facility, UNDP will provide technical assistance to developing country emission reduction projects, ensuring that these projects meet the Kyoto Protocol's agreed standards and deliver real, sustainable benefits to the environment and broader human development. Fortis will then purchase and sell the carbon credits generated by these projects. The proceeds from Fortis' purchases will provide a new flow of resources to finance the much needed investment and promote development. The partnership between UNDP and Fortis covers an initial pipeline of projects which will generate 15 million carbon credits during the Kyoto Protocol's first commitment period (2008-2012).

UNDP has established the MDG Carbon Facility to help leverage the potentially significant benefits of carbon finance for the developing world. The core objectives of the MDG Carbon Facility includes

- i. Broadening access to carbon finance by enabling a wider range of developing countries to participate, particularly those countries which are currently under-represented in the carbon market.
- ii. Promoting emission reduction projects which contribute to the MDGs, yielding additional sustainable development and poverty reduction benefits. However, there is limited evidence to show that MDG CF has been able to make a significant impact on sustainable development.

Global Environmental Facility

Special Climate Change Fund (SCCF): The SCCF, established in response to guidance from the Conference of the Parties to the UNFCCC, was originally aimed at supporting activities in the following areas:

- a. Adaptation
- b. Technology transfer
- c. Energy, transport, industry, agriculture, forestry, and waste management
- d. Economic diversification

Small Grants Programme (SGP): the Small Grants Programme (SGP) started in 1992 is managed worldwide by UNDP on behalf of GEF. It provides supports for small scale, community based activities which can contribute to the four GEF thematic areas. Institutions eligible for funding include non- governmental organizations (NGOs), community based organization (CBS), people's associations and others. The pilot phase of the programme has been successfully complete in India.

The Strategic Priority on Adaptation (SPA): the objective of the strategic priority on adaptation (SPA) is to reduce vulnerability and to increase adaptive capacity to the adverse effects of climate change in the focal areas in which the GEF works. The SPA, as part of the GEF trust fund, will support pilot and demonstration projects that address local adaptation needs and generate global environmental benefits in all GEF focal areas. Projects that generate both local (development-focused) and global benefits will be eligible under the SPA, if their benefits are primarily global in nature.

Other Facilities

International Fund for Agricultural Development: The International Fund for Agricultural Development (IFAD), a specialized agency of the United Nations. It finances agricultural development projects primarily for food production in the developing countries. IFAD is dedicated to eradicating rural poverty in developing countries. Working with rural poor people, governments, donors, non-governmental organizations and many other partners, IFAD focuses on country-specific solutions, which can involve increasing rural poor peoples' access to financial services, markets, technology, land and other natural resources.

International Monetary Fund (IMF): The IMF's primary purpose is to ensure the stability of the international monetary system. To maintain stability and prevent crises in the international monetary system, the IMF reviews national, regional, and global economic and financial developments. It provides advice to its 184 member countries, encouraging them to adopt policies that foster economic stability, reduce their vulnerability to economic and financial crises, and raise living standards.

The IMF also makes financing temporarily available to member countries to help them address balance of payments problems—that is, when they find themselves short of foreign exchange because their payments to other countries exceed their foreign exchange earnings.

And it provides technical assistance and training to help countries build the expertise and institutions they need for economic stability and growth.

Rabobank: Rabobank Group is a full-range financial services provider founded on cooperative principles. It provides Food and Agriculture financing and sustainability-oriented banking. The Group comprises 174 independent local Dutch Rabobanks, a central organization (Rabobank Nederland), and a large number of specialized international offices and subsidiaries. Food & Agribusiness is the international prime focus of the Rabobank Group. It includes **Rabobank-Dutch government CDM facility.**



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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