Renewable Energy for Development

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Financing the path to renewable energy enterprises

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Global renewable energy markets have evolved rapidly in recent years. Investment has gone up, costs have come down, and the need for new energy alternatives has only increased in importance. And yet in the developing world today we are only scratching the surface of what can—and must—be done in order to mainstream new, more sustainable supply options into the energy mix. Besides the need for an enabling policy framework and a level playing field, the other barrier to uptake has been the lack of financing required to help these fairly capital intensive technologies compete with conventional options.

Photo: Selco

Installation of solar panels, India

Most renewable energy companies in developing countries are frustrated by the lack of interest in their businesses from finance institutions, either to finance their operations or to lend to their customers. They claim that banks don't understand their businesses, their technology or their customers and generally lack incentives to provide the kind of financial services they need most.

UNEP has been working for some time on this disconnect, trying to increasingly engage the financial community in the clean energy sector, and in so doing, helping project developers gain access to appropriate forms of financing. To implement a business activity, an entrepreneur or developer needs various forms of capital, each usually coming from a different part of the finance sector. These capital needs follow a *finance continuum* that varies somewhat by business activity, but still has some common components (see graphic on p. 3). For distributed small-scale technology businesses, the finance continuum begins upstream with the seed or *risk* capital needed to start a business. It then shifts to commercial *bank lending* to finance inventory and operations, and eventually might involve *end-user consumer* or *micro-financing* for the business customers.

Today, there are many gaps in this continuum which prevent the commercialization of renewable energy and market scale-up, and therefore dirtier, conventional technologies from being displaced. UNEP's approach is to assess these financing gaps and, when needed, to support public interventions that allow markets to grow, demonstrating new avenues to scale up public and private sector investments in clean energy. UNEP has a number of programmes under way,

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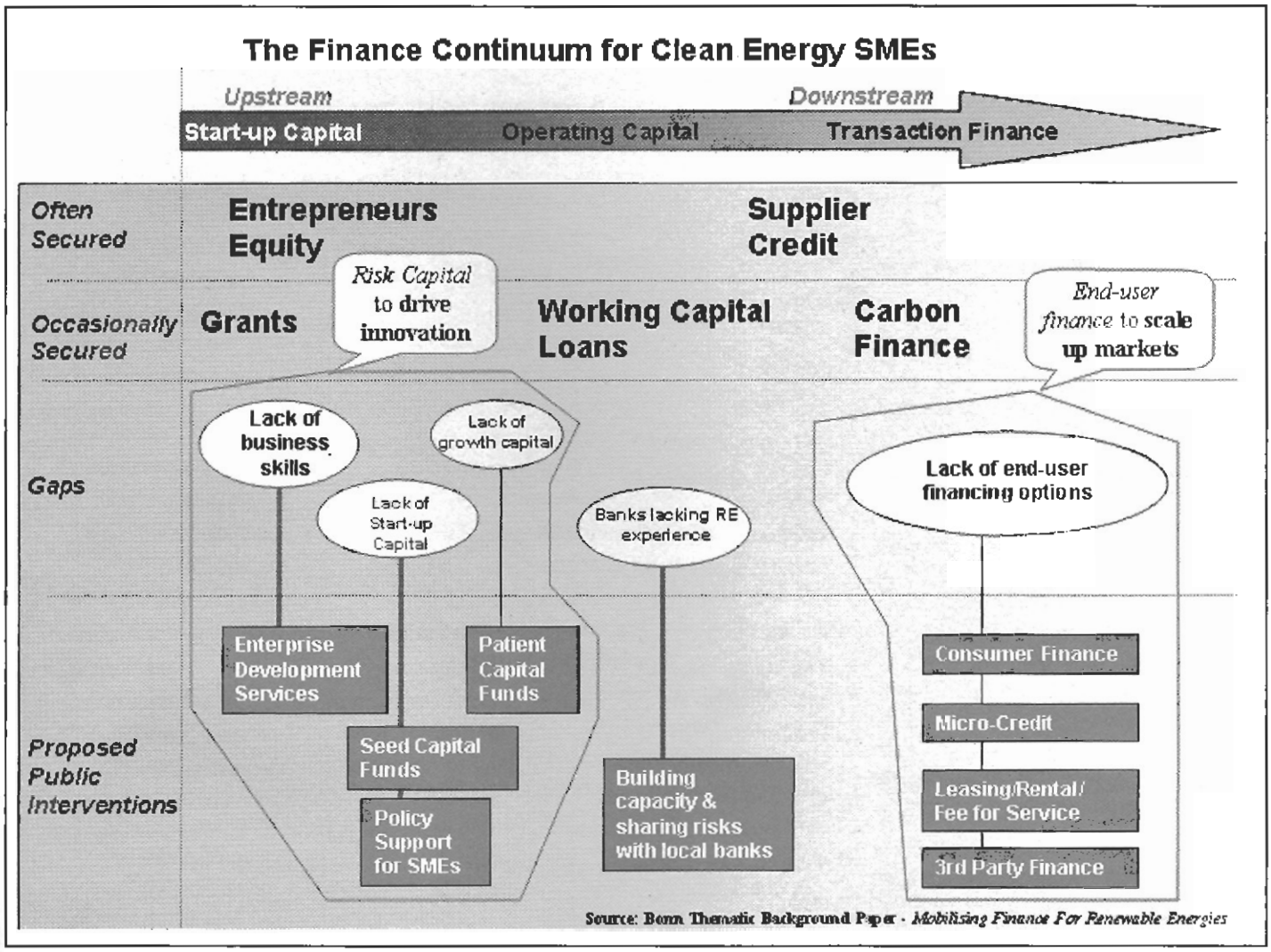


The finance continuum for clean energy small- to medium-sized enterprises (SMEs)

targeting two specific gaps in the small-scale technology businesses finance continuum—the first at the early seed-finance stage of enterprise development, and the second at the market expansion stage, when lack of end-user financing can constrain market growth.

Since 2000, UNEP's Rural Energy Enterprise Development programmes have been providing entrepreneurs with seed financing and associated technical support for developing and commercialising clean energy products and services. Volume 16, no. 3 of RED included an article on the African Rural Energy Enterprise Development (AREED) programme, which has invested in 34 clean energy enterprises in the areas of crop drying, efficient cook stoves, solar water heating, wind-pumps, biofuels and others. One follow-on initiative, jointly managed with the Asian and African Development Banks, is the Seed Capital Assistance Facility, a 9 million USD programme launched to engage commercial energy investors in the clean energy sector. By sharing transaction costs and buying up investment returns, the facility will help local sustainable energy entrepreneurs access innovation financing from the mainstream investment community.

Where the growth of small-scale clean energy technologies already commercialized on a "cash-and-carry" basis is constrained by a lack of end-user financing, UNEP has been implementing credit support programmes that help local banks build their first clean-energy loan portfolios. Such programmes are today under way in India, Tunisia, Morocco, and China. Although the local context for each programme varies considerably, there are many common elements that have helped to build experience and best practice that can be transferred to other regions.

Financing solar home systems in India

A first bank partnership was launched in 2003 between UNEP, the UNEP Risoe Centre, and two of India's largest banking groups (Canara Bank and Syndicate Bank) that provided consumer financing for solar home systems at preferential interest rates. Although

India had one of the most dynamic photo-voltaic (PV) industries in the developing world, at the time there was little bank financing available to customers, causing severe constraints to market growth. The programme involved providing Canara and Syndicate customers with an interest rate subsidy and partial guarantee, marketing support, and a vendor qualification process.

During the three years of the programme, the banks financed 19,533 solar home systems providing electric lighting to over 100,000 people. The subsidy was removed over time, leaving a commercial credit market in place for financing solar home systems. Although the sector was pretty much a cash-only business in 2003, today over 50% of sales are financed through Canara and Syndicate and a number of other banks who have entered the market.

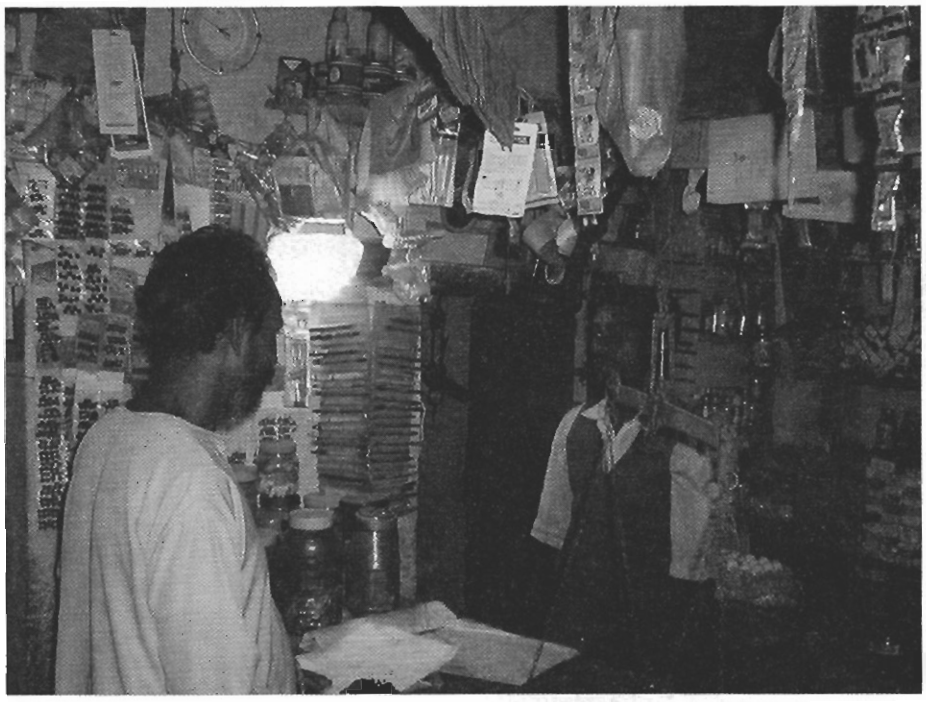


Photo: Tata BP Bankura

Shop in Bankura, India, powered by solar energy

Financing solar water heaters in Tunisia

A second such end-user financing effort called PROSOL was launched in Tunisia for solar water heating under the Mediterranean Renewable Energy Programme (MEDREP). This facility was specifically aimed at displacing use of liquid petroleum gas (LPG), the conventional choice for water heating in Tunisia. LPG prices are 35% subsidised, and with rising oil prices, are starting to have a significant impact on the public treasury. PROSOL was similar to the Indian programme in that it helped local banks provide low-cost financing to solar end-users, although in Tunisia the state utility, STEG, also played an important role by recovering the monthly loan payments via their customers' utility bills.

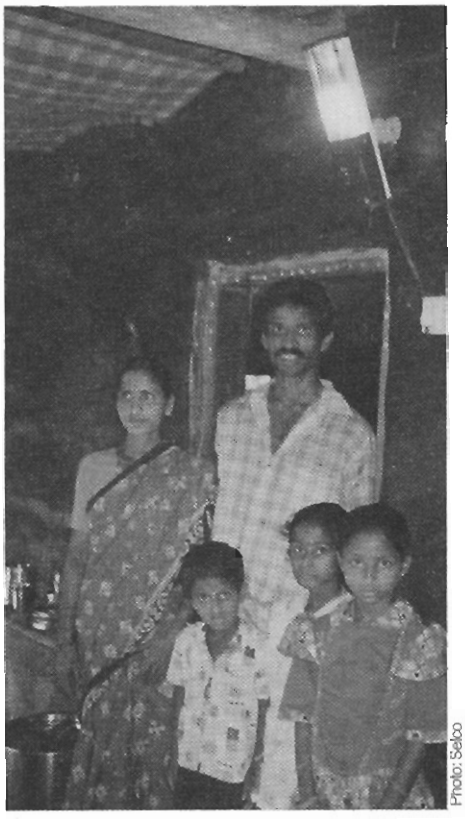


Photo: Sekco

Solar lights installed in a home, India

In Tunisia, the commercial lending rate for similar loan products was 14%, which UNEP initially brought down to 7%. With the utility acting as collection agent, the credit risk (i.e., likelihood of default) decreased, allowing the banks involved (the leaders being Amen Bank and UBCI) to agree to a further 7% reduction.

PROSOL began operating in April 2005, and by the end of 2006 over 20,000 solar water-heating systems were installed, more than doubling the size of the market from 2001, the previous best year. After 12 months UNEP's subsidy was gradually removed and the banks continued to finance the solar loans on their own terms. Based on the quick uptake in the sector, and the increasing level of bank engagement, the government passed legislation in late 2005 that made solar water heaters eligible for the energy subsidy, previously only provided to LPG technology. This helped to level the playing field, although a complete removal of the subsidy would be the optimal long-term solution.

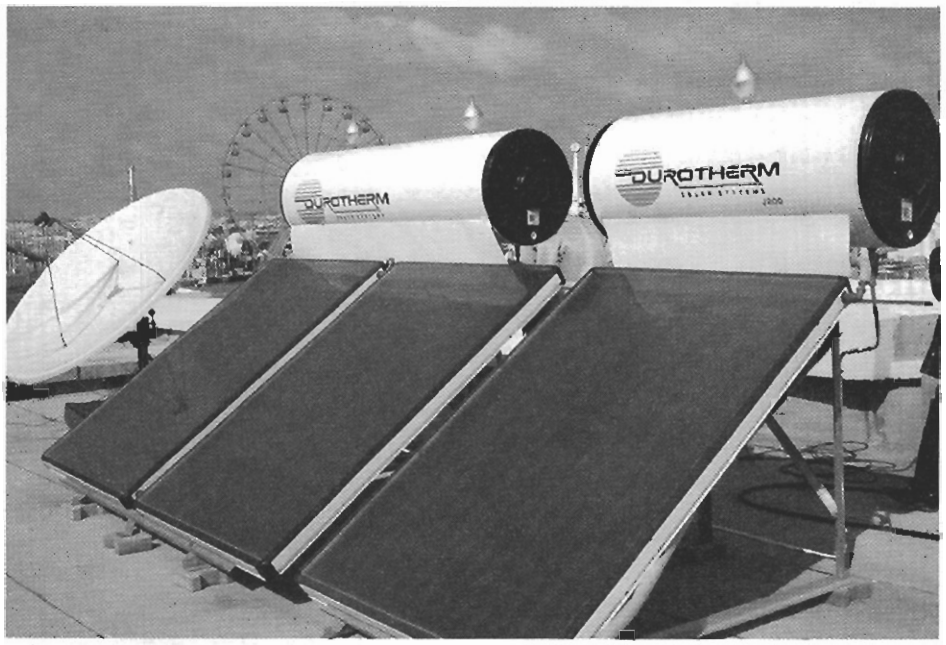
As in India, the Tunisian market responded well to the impetus and credit financing seems to be playing an important role. The Tunisian Government is now pushing to scale up this programme, targeting 250,000 m² of installations by 2009, which would require a total investment of about 125 million USD.

Of course not all markets are the same and not all approaches are uniformly successful. A hotel-focused programme was initiated in Morocco in 2006 to finance solar water heaters, and the uptake has been slower. Efforts have also been made to support similar programmes in Egypt, with limited success because of their artificially low energy prices. Clearly, financing is only one link in the value chain that also includes technology, service in-

frastructure, a stable policy framework and customer willingness to switch energy services or systems.

A number of new bank-partnership programmes are in development, including an initiative sponsored by the Global Environment Facility that will support bank lending for solar water heating in Albania, Algeria, Chile, India and Mexico. A range of approaches will be used, including a green-mortgage product in Mexico that will offer preferential financing for newly built homes that include solar systems or other energy saving technologies.

With support from the Swedish International Development Cooperation Agency (SIDA), a new programme is starting that will support clean-energy social-enterprise initiatives in Africa, offering both seed financing to get new community-based business models up and running, as well as end-user financing support through local micro-credit institutions.



Solar thermal installation, Tunisia

Linking bank lending to policy making

An interesting lesson emerging from these bank-partnership programmes is that there can be an effective feedback loop from the actions of the banking community to policy makers. When banks begin to scale up lending to a clean energy sector they send a positive signal that the technology is mature and ready to play a significant role in the country's energy mix. This change in perception can go a long way towards convincing policy makers of the need for shifts in policy frameworks from a narrow "technology demonstration" approach to a broader fiscal or regulatory approach.

This has happened both in Tunisia, with the change in energy subsidy policy, and in India, where the government is considering shifting its PV support programme away from capital subsidies and towards the interest subsidy approach. This contradicts the conventional wisdom that investment only engages once the right policies are in place. UNEP experience has been rather that financing and policy development evolve somewhat in parallel, with one community constantly influencing the actions of the other.

The field of climate mitigation offers one example of this policy/finance interlinkage. As the markets for CO_2 offsets get under way, carbon revenues become a new component of the finance continuum and their efficacy in creating permanent, verifiable emissions reductions provides feedback to climate negotiators. UNEP has initiated a number of Clean Development Mechanism (CDM) support programmes that work with host governments, project developers and carbon investors to level the playing field; empower the least developed countries to participate in the carbon market; and shape a more equitable post-Kyoto regime.

Shifting gears

Today, banks in many developing countries have sufficient liquidity (i.e., capital) and are generally seeking to develop new loan products. It is the combination of the unfamiliarity with renewable energy technologies and inconsistencies in the quality of product and service offered by the different vendors that can make lending difficult for banks. In these situations development agencies and international financial institutions need to shift away from simply relying on traditional credit-line approaches and start to focus on credit enhancements and other "soft" support that help banks set up their first loan portfolios and gain experience with clean energy sectors. They are cost-effective: the programmes in India and Tunisia have each cost around 1 million USD, far less than is usually needed for conventional public finance programmes; and are catalytic, because each will generate 5 to 10 million USD in commercial financing to between 10,000 and 20,000 household systems.

Are these various efforts enough to drive a shift in the finance sector's view on clean energy? Our experience has been that once loan portfolios get beyond 10,000 systems, then the sector is considered a reasonable commercial credit market and the banks will generally take it from there. Getting past this 10,000 threshold could help accelerate clean energy uptake in many countries. ■

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