Micro-finance and Credit in the Development of Renewable Energy Sector

Renewable Energy (RE) projects have distinct differences from other projects (even those involved with the development of conventional energy programmes) due to the following characteristics:-

- They tend to have a high initial development cost with relatively lower operational costs
- Being capital intensive they are highly dependent on the condition of capital cost financing and at the same time need to compete with energy programmes that may be obtaining some degree of subsidy through either direct government intervention on the tariff or through avoidance of the environmental costs associated with conventional energy.
- Basic operational information relating to raw materials and other field data is often poor or sketchy in comparison with other types of projects

Table 1 Level of investment for renewable energy projects ($ million)

	Micro <100kw	**Small 100kw-1MW**	**Medium 1-20 MW**	**Large 20 MW+**
Biomass		0.1-0.8	0.8-16.0	>16
Hydro	<0.1	0.1-1.0	1-20	>20
Wind	<0.1	0.1-0.9	1-18	
Solar Thermal	<0.3	0.3-3.0	3-60	>60
Solar PV	<0.6	0.6-6.0		

Source: Quoted in Lindlein and Mostert (2005)

The development of agricultural and rural enterprises is often constrained by the need for credit and the difficulties of farmers and the rural community to gain access to financing institutions. The range of credit co-operatives and micro-credit organisations is not always adequate to meet demand and farmers are faced with trying to access funds from commercial banks. Rarely are such institutions sympathetic to the needs of the rural community and demand collateral for their loans and impose commercial rates of interest. Complex land tenure issues often make collateral in the form of land far from straight forward and the rural community is forced to seek loans from the informal or non institutional sources where interest rates tend to be prohibitive. If small-scale biomass energy projects are to become a major feature of the energy landscape then access to funds will be essential. In this section we look at some of the issues and the ways that renewable energy projects are being financed.

Sri Lanka has a long history of Government support to the development of rural credit, even going back to the time before independence when the Colonial government enacted the Co-operative Credit Societies Ordinance in 1911 and by 1926 a total of 315 co-operatives were active (Chandrasiri, 2005). Following independence, a whole series of

credit schemes have been supported by the government through the Central Bank and the Rural Banks (Multi-purpose Co-operative Societies). These schemes have attempted to provide credit at manageable levels of interest but in the long-term have been unsuccessful with a gradually fall in the level of repayment. Reasons tend to be a genuine inability for the lenders to repay due to crop failure and to falling gate prices of agricultural crops in real terms, but probably more important, arising from an attitude that credit from a government agency is to be regarded as a form of subsidy and does not need to be repaid.

The per capita level of employment in the public sector is the largest in Asia and tends to be heavily politicised, The agricultural sector employs one third of the available labour force and contributes 20% of the GDP (in 2000). Microfinance in Sri Lanka is dominated by co-operative and government micro-credit schemes and the sector has been subsidy dependent. Currently there are over 300 Cooperative Rural Banks and 8,000+ Primary Societies of the Thrift and Cooperative Societies. Because of he highly subsidised micro-credit industry, only a few commercial banks are involved in the sector, these are the Hatton National Bank, the Seylan Bank and the Sampath Bank. However in 2000, these commercial banks only provided 1.2% of the total loans. The following table summarises the importance of each lending institution in Sri Lanka as of June 2001.

Table 2 National lending in Sri Lanka (June 2001)

Bank	No. of Loans	Average Value (US$)
Bank of Ceylon	100,241	203
Peoples Bank	194,000	111
Samurdhi Bank	326,236	71
Hatton National Bak	9,237	456
Seylan Bank	4,500	244
Sanasa Development Bank	6,270	227
Rural Development Bank	80,860	444
Co-operative Rural Banks	577,622	95
Thrift & Credit Co-operative Societies	252,682	125
SEEDS	240,383	31
Janashakthi	17,654	54
	1,809,685	**112**

Government remains the main shareholder of the key rural Development Banks, which has the drawback of introducing the danger of possible political interference. One of latest schemes to fail was the Revolving Fund Based Credit Scheme set up by the Ministry of Agriculture in 1993 and by 1998 this had broad national coverage. Interest was set at 1.3% per month. The scheme was however discontinued partly due to the fact that repayment levels were again low but it became eclipsed by the development of the Govijana Bank which was being promoted for political reasons. Funds were therefore amalgamated into the Govijana Bank, which had been set up in 1995 and by mid 2000 was operating in 18 districts. The Department for Agrarian Services is responsible and

the Bank operates through Agrarian Service Centres to provide credit to farmer's organisations. In order to attempt to improve the level of repayment, each farming organisation needs to become a share holder (minimum 50 shares) of the Bank and each individual customer is required to their own shares (minimum 1 share). The group has responsibility for the individual lender and is therefore able to put pressure on recalcitrant payers. A further condition is that the local group has to have at least 50 members in order to be recognised.

A series of other movements operate in a similar fashion i.e. the Thrift and Credit Cooperative Movement (SANSA) which similarly ensures that the group takes on responsibility for over-seeing the payment records of its members and the Samurdhi Bank Societies, which are operated by the Samurdhi Movement, a national programme aimed at poverty reduction. Loan payments are monitored regularly with the help of the Divisional Secretaries (Chandrasiri, 2005). A similar movement – the Sarvodaya Movement has given rise to the Sarvodaya Economic Enterprises Development Services (SEEDS). This organisation is the most financially self sufficient microfinance institution within the NGO sector. SEEDS has embarked on programme to support rural electrification with the emphasis being directed to home solar and micro-hydro units rather than dendro power. The programme of support operates under the World Bank RERED Programme (see below). Again to protect their overall credit worthiness, SEEDS undertakes a direct check of each potential customer. Field officers visit their home to assess their credit worthiness. A minimum down payment of 15% is required and is collected up-front by the solar power installation company. The balance is granted as a loan and repayments are made over 1-4 years. The solar unit is installed immediately and the company paid by SEEDS. A field officer calls each month to collect the agreed repayment and the unit is only signed over to the customer once all repayment has been completed. This comprehensive checking on each loan together with frequent direct contact has led to dividends in terms of a very low level of default, apparently no more than 2%

The lessons that have been learnt in Sri Lanka in terms of rural credit and the difficulty of identifying adequate collateral are that the Micro-credit Institutions (MCIs) should put emphasis on the group approach and deal with legally recognised user groups rather than individuals. By giving the responsibility for screening and monitoring for new members to the user group; if the individual fails to repay their loan, the group overall suffers and hence group pressure will reduce the overall default rate. Such groups tend to operate on a voluntary basis with respect to office holders and therefore overall organisation costs are low. With those organisations where their organisation structure is such that frequent monitoring and contact is possible with each lender (as in the case of SEEDS) then again the overall default rate should be low; but this needs to be balanced against the overall increase in operational costs in running such an organisation.

The continuing problems that the MCIs tend to face however is their general lack of funds and the consequent restrictions on the size and numbers of loans that can be given. Where the smaller MCIs have tried to circumnavigate this problem by taking in outside

funding they have sometimes got into problems by failing to meet the demands of the external funding agents.

Programme Funding – the example of the RERED Programme

Credit is required at distinct levels – at the level of the individual/group; at the level of the project; and at the level of the programme. Opportunities for large scale donor support to RE should be encouraged providing it is carried out with complete co-operation with existing financial institutions and instruments and recognises the strengths and weaknesses of the local capital market. During the last decade the World Bank and the other multilateral banks and the donor agencies have been more active in supporting RE programmes. Given the gap in the capital markets of Developing Countries there is a task for the public sector and the donor community to provide guarantee schemes:

Table 3 Some guarantee instruments provided by the Multilaterals

Entity	Instrument	Funds ($)	Period	Requirements
MIGA Multilateral International Guarantee Agency	Political risk Insurance	>150 million	> 20 yrs	Letter of approval from host government
World Bank Project Finance Dept.	Partial credit and partial risk gurantees	> 150 million	> 20 yrs	Requires formal counter guarantee by host government
IFC International Finance Corporation	Funding and Financial Gurantees	> 150 million	> 20 yrs	Private sponsor to have a major stake
IADB Private Sector	Funding ,Political Risk Insurance and Partial Credit	> 75 million or 25% of total	> 20 yrs	As above

Source: P. Lindlein and W. Mostert (2005)

In Sri Lanka, a good example of the effective use of international funding for the support of renewable energy programmes is provided by the former Energy Services Delivery (ESD) Project (1997 – 2002) and the ongoing Renewable Energy for Rural Economic Development (RERED) Project (2002-2007). These projects are supported by credit under the World Bank together with grant aid under the Global Environment Facility (GEF). An Administrative Unit set up within DFCC Bank implemented the ESD Credit Programme, and now manages the RERED Project.

The programme supports the provision of on and off-grid electricity services and socio-economic development in rural areas through: (i) hydro, solar PV, wind and biomass renewable energy technologies; (ii) credit financing through private participating credit institutions; (iii) output based grant mechanisms for off-grid systems; (iv) technical assistance for promoting productive applications of off-grid electricity; and (v) technical

assistance for promoting energy efficiency, developing carbon trading mechanisms and integrating renewables into government policy. (J. Nagendran, 2005)

As shown in Figure 1, the IDA credit line is channelled through the Central Bank of Sri Lanka (CBSL) to approved participating credit institutions (PCIs) to refinance sub-loans disbursed to investment projects set up by sub-borrowers. The absence of a long-term debt market to mobilise matching finance for grid-connected mini hydro and off-grid village hydro projects impeded banks willing to lend to these sectors. This barrier was overcome under the renewable energy programme when long-term financing through a World Bank credit line became available. The Government, as borrower, receives concessionary terms and re-lends to PCIs in local currency at market rates, while absorbing the exchange risk. PCIs thus have access to long-term funds at market rates, and more importantly, are hedged against currency depreciation, which is consistent with the rupee cash flows of their sub-borrowers.

Refinance is limited to 80% of the sub-loan disbursed, and is provided at a floating rate of interest equal to the 6-month Average Weighted Deposit Rate, a market based benchmark. PCIs provide the balance 20% from their own resources, and negotiate with the sub-borrower the interest rate on the loans as well as the other terms and conditions such as the extent of loan financing (gearing ratio), tenure, grace period, collateral etc. The lending programme is on commercial terms, with the PCI making its own creditworthiness assessment and negotiating the terms of the sub-loan.

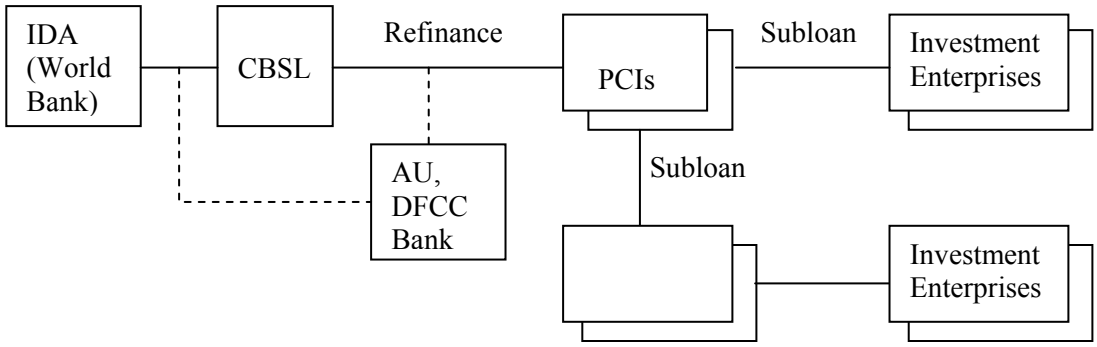

Fig 1. Credit Line Administration

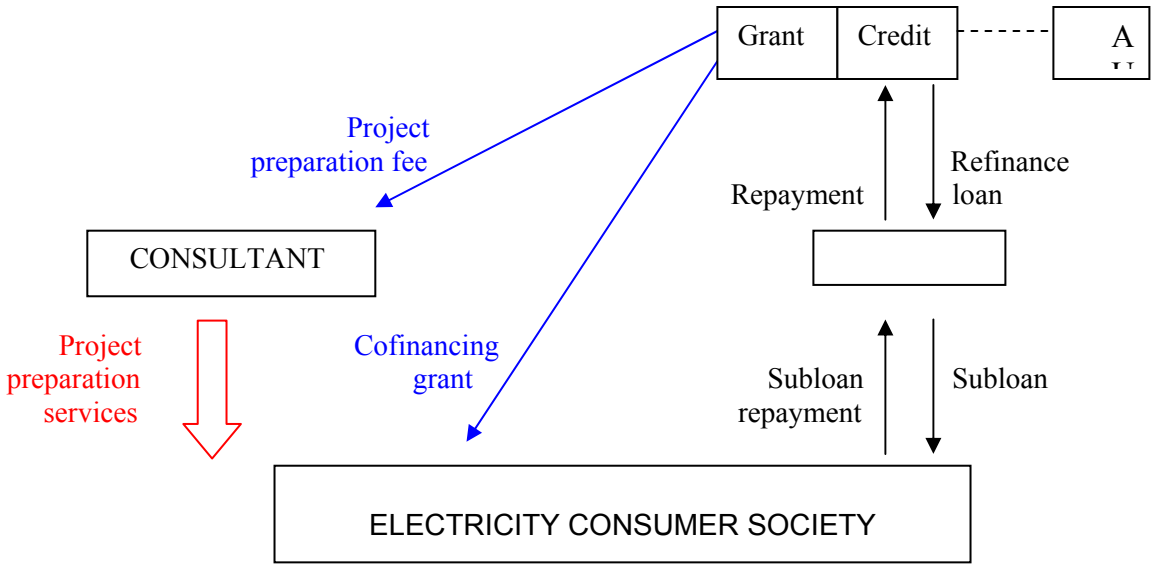

Fig 2. Financing Model for Off-grid Village Hydro Schemes

Source: J. Nagendran 2005)

The approach to financing biomass projects in India

In order to cater to the ever-increasing electricity demand within the rural sector, an appropriate mix of decentralised energy generation sources such as solar, wind and biomass can be adopted. Currently, biomass helps to meet 70% of the basic energy needs of the rural areas almost covering 70% of the population in India. The total power generation potential from surplus biomass resources of the country is estimated to be 19,500 MW.

The national network of Rural Banks was established from the 1970s and by 1999, there were some 196 different banks with 14,000 branches providing complete national coverage. However, in spite of such impressive coverage, the banks had minimal effect on the amount of microfinance lending available to the poor; with the rural banks being dominated by the wealthy members of society and the commercial banks focused on the requirements of the urban population. Worse, political interference had led to poor financial practices and the banking system faced a total debt of Rs 300 billion by 1999. Reform has allowed the banks to operate in a more financial acceptable manner and the majority are now profitable. The key change that has come into fruition in recent years

has been the rise of the Self Help Groups (SHG). By loaning to recognised groups rather than individuals, the level of repayment of loans has dramatically improved. By 2002, 461,000 SHGs had developed; however it has to be said that there distribution is skewed with Andhra Pradesh, Uttar Pradesh and Tamil Nadu being home to a major proportion. (R.Chakrabarti).

It is likely that much of the move towards the use of SHGs came from the success in Bangladesh. The Grameen Bank was established in 1976 with the objective of ensuring that credit was available to the rural poor. There are now 1,000 branches of this organisation with complete national coverage. The lesson that the Grameen provided was that a high loan recovery rates (95%) can be achieved with no collateral. Instead potential borrowers must first be part of a group of at least 5; if the borrower defaults, then the others forfeit their chances of a loan . Repayment is usually spread over just one year and interest is applied at 20%.

The Indian Government has taken several initiatives to strengthen the institutional rural credit system. The rural branch network of commercial banks have been expanded and certain policy prescriptions imposed in order to ensure greater flow of credit to agriculture and other preferred sectors. The commercial banks are required to ensure that 40% of total credit is provided to the priority sectors out of which 18% in the form of direct finance to agriculture and 25% to priority sector in favour of weaker sections besides maintaining a credit deposit ratio of 60% in rural and semi-urban branches. Although these measures have helped in widening the access of rural households to institutional credit, vast majority of the rural poor have still not been covered. Also, such lending done under the poverty alleviation schemes suffered high repayment defaults and left little sustainable impact on the economic condition of the beneficiaries. (Tiwari and Fahad)

The commercial banking sector was reluctant to become involved in financing RE and so the Government of India established an exclusive financing organization viz., Indian Renewable Energy Development Agency Ltd., (IREDA) in 1987. This is under the administrative control of Ministry of Non-Conventional Energy Sources (MNES) and has the role of supporting various renewable energy projects including Biomass Power projects. The objectives of IREDA are to operate revolving fund for promotion, development and commercialisation of new and renewable sources of energy and to extend financial support to relevant projects. Rajkumar, (2005).

The Ministry has supported establishment of first two demonstration projects of size 6 MW each in the year 1998 & 2000 by extending capital grant to the extent of 15% of the capital cost. Private entrepreneurs were encouraged to set up further biomass power projects through suitable interest subsidies. An interesting innovation in the loan agreements is to link interest subsidy rates to the boiler pressures so as to encourage the maximum use of units operating at higher pressures, which are rated as being more efficient, The interest subsidy (for biomass power projects and bagasse cogeneration projects) varies from 1% - 6 % corresponding to boiler pressures of 40 to 80 bar.

IREDA supports biomass power projects having installed capacities ranging from 1 MW to 7.5 MW with the boiler pressure from 63 bar to 100 bar. Interest rates linked to the boiler pressures vary from 10.75% to 11.50% p.a.. Interest subsidies offered by the MNES is over and above IREDA's lending rates. The project promoters therefore are able to access financing at substantially lower cost than prevailing market rates. Projects designed around higher boiler pressures get benefit of lower interest rates as an indirect encouragement for building in generation efficiency. IREDA extends financial assistance of up to 70% of the project cost with a 10 year repayment period, which includes a moratorium of up to 3 years.

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