

approved as a “concession” by the central government. The model has been adopted as a national strategy by the South African government. South Africa has set a goal of 100% electrification using grid and nongrid (PV) alternatives by the year 2010. A third major application of the fee-for-service model is in Argentina under a World Bank loan.

*Rental/Leasing (Entrepreneurial Model):* A variation on the fee-for-service approach is leasing. In the Dominican Republic, Soluz Dominicana, an affiliate of the US-based Soluz, Inc., has established a pioneering model using a leasing approach. Soluz charges \$10 to \$20 per month per SHS. Over 2000 systems are in service. Maintenance is provided by the company.

*Tax-driven leasing and other financial engineering:* In India, nonbanking finance companies (NBFCs) did some “financial engineering” in the 1997 to 2001 period to create a single-payment lease structure for PV-powered water pumping. The NBFC collected a single, up-front lease payment from the farmer, typically 30% of the system cost. The NBFC then took out a 10-year, 85% loan from IREDA, bearing 2.5% interest. Finally, the NBFC absorbed the 100% first-year depreciation that is available for PV in India, yielding 34% after-tax cash value. The three inflows totaled approximately 150% of the cost of the PV system. The extra 50% was deposited at 12 to 18% interest, from which the IREDA loan is repaid in 6 and 10 years. This model yielded the NBFC a cash-positive deal from day one and a good profit. The net result was a win-win situation: the government’s objectives for additional use of photovoltaics were met, the available incentives were fully absorbed by the financial community, and farmers got water-pumping systems that they otherwise could not afford. Nonbanking finance companies such as Sundaram Finance and Srei International participated in this approach. This example illustrates how governments can mobilize private sector capital through tax and loan policy. It also illustrates how unstable government policy can cripple PV markets – financing of PV water pumps through this technique came to a halt when IREDA stopped making PV loans at the 2.5% rate of interest, thus eliminating the interest arbitrage that the NBFCs had built into the model.

As seen above, the financing of photovoltaics in rural areas of the world’s developing countries is beginning to occur in a number of ways – bank loans, microcredit lending, NGO programs, cooperative financing, fee-for-service models, rental/leasing, and tax-driven leasing. This is a period of renovation. Considerable efforts will be needed to promulgate the use of successful models and build a higher level of acceptance of PV financing by the financial community.

## 24.6 SOURCES OF INTERNATIONAL FINANCING

### 24.6.1 International Aid and Donor Funding

In the past, the programs to fund photovoltaics in the developing countries have been sponsored by donors and aid agencies. OECD countries provide about \$50 billion per year in Official Development Assistance (ODA). These amounts include funds channeled by individual countries through multilaterals, such as the United Nations Development Program (UNDP). More recently, in line with GEF grants and World Bank financings, donor agencies have shifted increasingly towards the support of *financing*, rather than