The Establishment of a Global Network to Support Renewable Energy Projects in Developing Countries

Todd R. Bartholf and Robert H. Bell

Renewable Energy and the Environment Program
Winrock International
1611 North Kent St., Suite 600, Arlington, Virginia 22209 USA Phone: (703) 525-9430 Fax: (703) 243-1175
Key Words: Renewable Energy: Project Development: International; Developing Countries.

ABSTRACT

Winrock International, with sponsorship from the Office of Energy, Environment, and Êechnology of the U.S. Agency for International Development (USAID) and the U.S. Export Council for Renewable Energy (U.S./ECRE), is building a global network of field offices tu provide technical and financial suppon services to developers of renewable energy projects in developing countries. Known as Renewable Energy Project Support Officer (REPSOs), these in-country facilities are managed by local institutions in coordination with Winrock's Renewable Energy and the Environment Program (REEP) headquartered in Arlington, Virginia.

This paper explains the role of Winrock in supporting renewable energy development overseas: describes the function and structure of the REPSO and emerging International REPSO Network; and outlines the comprehensive set of support services that individual REPSOs and the collective Network can provide to developers and marketers, both local and international, as they seek to advance the use of renewable energy technologies in developing countries

1. BACKGROUND

Winrock International (Winrock) was formed by the Winthrop Rockefeller Foundation in 1985 to manage the consolidation and operation of three federal programs as an international institute for agricultural development. Since its inception, Winrock has gained recognition for the successful management of numerous projects in many countries of the developing world. Support for its project involvement comes from some 40 donor agencies. Its mission is to help reduce poverty and hunger through sustainable agricultural and rural development and enhancement of the rural environment and natural resource base. Winrock's staff of approximately *250* people presently manages some 60 projects in over 20 countries.

In 1989, Winrock created the Renewable Energy and the Environment Program (REEP) to manage the Biomass Energy Systems and Technologies (BEST) project for the Office of Energy. Environment. and Technology of the U.S. Agency for International Development. More recently. Winrock has gained additional support for REEP from the U.S. Export Council for Renewable Energy (U.S./ECRE) which has allowed the program to expand its focus beyond biomass energy to its present involvement with most other renewable energy technologies (solar, wind, hydro, and geothermal). The program aims to stimulate investments in commercially-proven renewable energy technologies — when and where these investments make economic and environmental sense— to increase the supply of energy available to rural economies.

Over the past five years, REEP has worked to catalyze renewable energy development in Belize, Bolivia, Brazil, China, Costa Rica, the Dominican Republic, Egypt. El Salvador. Guatemala. Honduras, India, Indonesia, Jamaica. Mexico. Pakistan, the Philippines, the South Pacific islands. and Thailand. The experience afforded by this work, the professional backgrounds of the pmgram staff. and the international presence and reputation of Winrock have uniquely positioned REEP to create a network of field off-ices to match the global interests of the renewable energy industry with the specific needs of developing country economies.

2. THE REPSO CONCEPT

Winrock's Renewable Energy and the Environment Program has devised a strategy with a focus on the provision of field assistance to project developers. To implement this strategy, REEP has embarked on a program to establish a global network of in-country organizations that act as field offices to support local project development. Each office is known as a Renewable Energy Project Support Office (REPSO). Winrock establishes a REPSO by engaging a local institution. well positioned in the energy community. to gather vital information and work with existing support organizations to help advance projects. Each REPSO represents its respective country's participation in the global network.

Winrock is building the program on the success of its first REPSO. established in San Jose, Costa Rica in late 1991. The Costa Rica REPSO was created for the specific purpose of identifying projects to receive financial assistance for pre-investment work. Alter conducting a competitive solicitation for projects, the REPSO awarded grants to four developers to share the costs of project feasibility studies. Three of the developers have completed fcasibility work and are now seeking project financing.

Winrock has since enlarged the scope of REPSO activities to include a variety of informational and institutional support services that can help both regional and international organizations identify attractive project and sales opportunities. During 1993, Winrock established its second and third REPSOs in Jakarta. Indonesia and in Manila, Philippines. Two additional officer were added to the Network in 1994 in Guatemala City. Guatemala and in New Delhi, India.

3. RATIONALE

The REPSO functions as a window for local project developers to commercially-proven technologies and services, and as a window for industry to local opportunities and expertise.

The REPSO program is designed to tackle aggressively the major obstacles that project developers and marketers face in cultivating business opportunities in developing countries — namely, the proportionally high costs of pre-investment work for relatively small projects: the difficulty of obtaining accurate and detailed infomation on local trade. impart. power purchase, and environmental regulations; and the problem of staying alert for new and expanded project opportunities in rapidly emerging power markets.

The practical approach of the REPSO program stems from Winrock's recognition that the most effective mode of project support is through in-country, in-the-field presence. A field office is well positioned to provide accurate and thorough knowledge of local markets for renewable energy technology. The success of projects and marketing conducted overseas invariably hinges upon an awareness and appreciation of the complexities of the local business environment. The REPSOs understanding of the multiple factors that comprise the local business environment offers product manufacturers and project developers a distinct advantage over what can be achieved through individual efforts. This advantage is multiplied many times over as manufacturers and developers engage the REPSO Network to introduce their product and project ideas to a global audience of prospective investors and end-users.
In turn. the REPSO program can provide an invaluable link for local

developers to technologies and services. joint venture opportunities. and bilateral technical and financial assistance programs.

4. THE REPSO NETWORK

Collectively, the **REPSOs** form an international network that provides a medium for the critical exchange of ideas and information, helping to further promote **an** alliance between **the** growing community of renewable energy **users** and their suppliers in a common pursuit of harnessing **proven** technologies for sustainable energy development.

Winrock plans to build the International REPSO Network to include a total of 6 to 8 country and regional REPSOs by the end of 1995. Target countries (all recipients of technical assistance from USAID) for new REPSOs presently include Mexico, Brazil, and as yet unspecified countries in Africa and Eastern Europe. With their commitment to private power, urgent need to respond to rising energy demand, and considerable interest in alternative energy options, there target countries are especially prepared to welcome **new** trade opportunities in renewable energy technologies

The Network will enable international project developers and industry members tu **access** a worldwide database of up-to-date information on market developments and project opportunities for each of the renewable energy technologies. The Network will **also** benefit policy makers. emerging industry members, and technology users of member countries by providing **a** medium for sharing information on renewable energy development in other regions of the world.

5. REPSO SERVICES

REPSOs offer a variety of services to meet the needs of local and international project developers and product marketers. These services **are** offered **as** part of four broad REPSO initiatives designed to engage the resources of private developers. utilities. and country governments to advance the use of **renewable** energy systems:

5.1 Project Identification, Preparation, and Implementation

• *Resource and Market Assessments* - REPSOs assist Winrock in the preparation of **resource** and market assessments focused on specific technologies and sources of energy. These may address country-wide potential or site-specific opportunities.

• *Trade Missions* - REPSOs sponsor or organize trade missions in collaboration with industry associations and existing government programs designed to link developers with project opportunities abroad.

• *Partner Matchmaking* - REPSOs work to identify joint venture opportunities in project development, manufacturing, and downstream infrastructure building.

• *Pre-Investment* Evaluation - REPSOs offer cost-sharing assistance for pre-investment studies to reduce the financial risks that developers bear **as** they seek to identify viable projects. Cost-sharing **assistance** may **be** offered through a competitive solicitation and takes the form of **a** grant for **up** to 50% of eligible study costs, to be repaid if the project goes to closing.

• *Identification of Potential Sources of Project Financing* - REPSOs help to identify lending institutions that would be good candidates for providing project financing. One such institution, which Winrock created **as a** separate organization in 1991, is the Environmental Enterprises Assistance Fund (EEAF). The Fund provides low-interest **loans** and equity placements to commercially viable renewable energy projects which may be too innovative **or** small in scale to secure financing from traditional **sources.**

• ***Project Tracking*** - REPSOs work with local organizations to provide project evaluation and monitoring services **for** in-country development activities

5.2 Trade Promotion and Technology Transfer

Another imponant function of the REPSO's is to gather and disseminate knowledge that **can** help resolve critical problems in the deployment and transfer of renewable energy technologies.

• *Conferences and Workshops* - REPSOs host conferences and workshops to bring together various interests, local and foreign, to discuss ideas and **venturer** that can accelerate the adoption of renewable **energy** technologies.

• *Information Clearinghouse* - REPSOs facilitate the efficient **conduct** of business by providing vital infomation on local markets and regulations. REPSOs will systematically gather information on local regulation of trade, particularly as it relates to imports of renewable energy technologies: develop a knowledge of how to **move** equipment through the local customs process efficiently; provide an up-to-date list of business contacts; and build a library of national and regional publications related to renewable energy. with special emphasis on **resource** assessment and market studies.

5.3 Utility Exchange Program

The REPSO Network plays an important role in heightening utility awareness of increasingly appropriate renewable energy solutions to power supply needs in rural and remote areas of developing countries. With assistance from its REPSOs. Winrock organizes formal exchanges of information and ideas between progressive international utilities and developing country counterparts to develop a sound **analytical** framework for incorporating renewables into utility planning. This inter-utility **nexus,** and the **base of** knowledge it can create. will help lay the foundation for widespread participation **by** the largest potential customer for renewable energy in the international marketplace — the electric utilities themselves.

5.4 Renewable Energy Market Information Service

With the advantage of an in-country presence and an extensive network of contacts in the energy **sector,** REPSOs assist developers and marketers in identifying and tracking **business** opportunities by gathering detailed, up-to-date market information — on project leads, project announcements, procurements, utility and regulatory developments. financing options, applied research. conferences and meetings. and **end-user** applications. Winrock is planning to collect the information from its network of REPSOs and publish it in a quarterly newsletter beginning in first quarter 1995.

6. REPSO INVOLVEMENT IN GEOTHERMAL PROJECTS

6.1 Central America

In 1994 the REPSO for Central America conducted a solicitation in Guatemala for proposals to study the prefeasibility or feasibility of developing renewable energy projects. A fund of $200,000 was **created** with support from **USAID** and the National Rural Electric Cooperative Association to share up to 50% of the costs of selected studies.

The REPSO received twenty-two projects proposals. These covered the range of renewable energy technologies and totaled 87 MW of potential energy. All proposals were evaluated **by** the REPSO **in conjunction** with Winrock International and USAID. In the **course** of this evaluation process **seven** projects were ultimately offered cost-shared assistance.

Of the **seven,** one geothermal project was **selected.** A Guatemalan company **has** proposed to develop a geothermal project to generate between 2.5 and 3.5 MW of **power.** A portion of this power would be used on-site at a cement brick factory already in production. The majority of this power, however, would be sold to the Instituto Nacional de Electrificacion (INDE), the national utility, or the Empresa Electrica de Guatemala (EEGSA), a semi-private distribution company. The study will be conducted by a local engineering firm in conjunction with a U.S. research institute.

Geothermal power plants are already under development or in operation in Central America. In Guatemala, however, developing **a** privately-owned geothermal facility that can produce electricity is considered **a** high-risk investment. First. there is currently no geothermal facility producing electricity in the country. Second. the legislative and public policy framework for private power generation is not well defined. With its pre-investment support. Winrock believes it will assist this project developer to establish the technical and financial viability of this project, and tu **access** the financing and facilitate the policy changes needed to develop an attractive environment for this and other profitable geothermal energy power projects.

6.2 Philippines

As one component of its strategy far catalyzing the development of in-country renewable energy projects, REPSO Philippines is creating "Model Renewable Energy Project Profiles." These profiles will highlight successful renewable energy projects, explain the innovations that make them unique, and describe the pathway the independent power producers and/or utilities followed to overcome any obstacles and challenges to their development. With this tool, Winrock believes it can help to raise the level of awareness and information about the technical and financial feasibility of renewable energy projects in developing countries

REPSO Philippines' Model Project Profile initiative will focus initially on geothermal energy. The profile will briefly review three projects: the 150 MW Bac-Man project in Albay; the 112.5 MW project in Tongonan, kyle, and the 112.5 MW in Palinpinon, Southern **Negros.** The profile will focus on the Bac-Man project, describing the project's capacity, cost, operating performance, system design. development obstacles, expansion plans and socio-economic impact. This project is of special interest as it will utilize both conventional steam power plants and modular binary cycle plants.

7. CONCLUSION

With its aggressive program far linking the world now well underway, the International REPSO Network will continue to draw its strength from increasing interest by the international renewable energy industry in overseas markets and from the growing recognition on the part of both public and private sectors in many developing countries of the need for environmentally-sustainable energy development. Developing country markets already exist for many renewable energy technologies and are expected to expand enormously in the next decade as more cost-effective applications are demonstrated. Winrock's Renewable Energy and the Environment Program, with the support of its program sponsors, has identified the need for a network of field implementation facilities that can effectively provide comprehensive support to these expanding markets. The International REPSO Network is becoming widely recognized for its value in fulfilling this need.