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INTEGRATED ENERGY PLANNING

Y. El Mahgary & A.K. Biswas, Eds.
Woburn MA: Butterworths. 1986.
Pp. 200.

Integrated Rural Energy Planning provides guidelines for planning, development, and operation of renewable energy and related projects in developing countries. It describes a number of specific cases in Asia, Africa, and South America as presented by the authors at a Cairo meeting sponsored by the International Society for Ecological Modelling, the United Nations University, and the United Nations Environment Programme. The book's principal strengths are the concluding chapter 11 which summarizes guidelines, or how-to-do-it steps, for seeking to develop successful community projects, and chapter 8 which describes a development project in Egypt.

Dr. Salah Arafa describes, in chapter 8, the long participatory process likely to be required when the value of a different, unfamiliar technology is not obvious. His and Cynthia Nelson's work with the Basaisa village (one of about 30,000 villages of that size in Egypt) has been exemplary in the focus upon working with, rather than doing for, people. Dr. Arafa observes that "the energy problem is primarily a political problem." Workers in the field increasingly recognize that some of the rural problems are caused, at least in part, by political decisions. For example, many developing countries subsidize urban food and transportation, and military cadres at the expense of rural areas. Technological fixes can only partially compensate for this imbalance, nor can they offer more than limited possibilities for meeting rising population demands. Dr. Arafa, more than the other authors, identifies the integrated nature of a community development effort as he describes the decade-long Basaisa project. Among the numerous benefits claimed are increased status of women and children, and greater literacy and economic well-being. The most severe problems that he and other interveners identify are the high initial cost of renewable energy systems and the competitive problem that petroleum fuels are too often subsidized.

Other chapters give energy supply and use data for a number of communities. All of the authors recognize that locally feasible renewable energy systems are site specific. They have carefully chosen their technologies to fit within local environmental conditions. Unfortunately, there is very little evidence of contagious picking up and using the technologies by surrounding villagers. This may reflect inadequate participation of

villagers; it certainly reflects the fact that villagers' priority assessments rated acquisition or use of the new systems too low. Their assessments reflect risks, initial cost, operating time (and by whom), and comparative advantage over familiar approaches. As an example, in a case reported elsewhere, an Indian man employed by a renewable energy center, knowing of the increased efficiency of a differently designed chula (wood stove), still did not acquire one. He did not sufficiently value his wife's and children's time that would be saved by not having to forage for so much firewood.

The crucial elements of marketing are virtually ignored in the book. Although the title implies integration into rural usage, most of the authors focus upon technical aspects and "planning for." Successful businesses know that, for a product to be acquired and used, customers must want it enough to give high priority to acquiring it. Sadly, the book tends to ignore processes that have been tried and failed, or tried and succeeded, for spreading acquisition and use of novel products, devices, or systems. As an example of a success (also not reported in the book), an effort in Kenya developed a much more efficient charcoal stove that could be produced and sold at a profit by local artisans. Within about three years, the stoves were being produced and sold at the rate of over 10,000 per month. The book unfortunately ignores the role of local entrepreneurs in developing, testing, producing, and selling.

This reviewer believes that integrated planning needs to deal with complete systems. Furthermore, successful technical development generally requires four steps: demonstrated feasibility, an engineering model, an engineering prototype to be use-tested by end users, and finally, a production model. The book deals well with development of engineering models, but not with use-testing, much less with production models that can be recommended for emulation. As an example of premature production, China pushed biogas digesters based upon engineering prototypes using lime, instead of cement, for sealing. Seven million have been built; many have been retrofitted, yet only half of the units are being used.

When rural people assess that a new technology has significant potential value, low risks, and an acceptable cost range, news about it spreads like an infection and, as a contagious disease spreads, use spreads contagiously. These conditions offer opportunities for local entrepreneurs to develop and meet the demand. Some examples of contagious demand which have resulted in rapid spread of new technologies are rubber foot clogs, transistor radios, digital wrist watches, and television.

Chapter 11 lists a number of valuable lessons whose importance warrants summary: simplicity of system to meet local lifestyle; flexibility and ease of replacing parts; easy manageability and maintenance; optimizing mix of energy and time; optimum site selection; consistency with

culture; use of local resources; and a project must pay for itself. To these this reviewer adds: low initial cost relative to ability to pay; perceived low cost; and apparent clear advantage over alternatives.

The authors have done a service by collecting and presenting the results of the Cairo symposium. The planner, or other reader, is encouraged to read the Preface, Introduction, Chapters eight and eleven, and thumb through the other chapters to pick out what may be of special interest.

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