

# Introduction

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There are many valuable lessons for all countries and companies aspiring to initiate renewable energy projects to be learned from the case studies analysed in this book. I often assured my student Research Assistants that I learned far more from them than they did from me in the course of the research they performed.

As indicated previously, I have summarized the principal lessons of the factors of success or failure of each case study, the problems encountered and the measures taken to try to overcome them. There are some general conclusions that apply to all the case studies, however, that I mention here.

Surely the most important ingredient of successful projects is knowledgeable and dedicated leadership. There are many vitally important tasks to be performed for a successful project, and competent leadership is essential.

The project leadership has first to ascertain in conjunction with local citizens and officials if the project is needed, affordable, legal and acceptable; what needs are sought to be satisfied and does the project fulfill those needs most advantageously; what mapping will be required to know what sites are most suitable from the standpoint of efficiency, environmental impact, delivery, maintenance and acceptance; what technologies are most appropriate and acceptable for the locales considered; what equipment will be required and how will it be obtained, delivered and maintained; what expertise and labor will be needed, from where it will be obtained, what training will be required, what will be the standards for such training and what redress will there be for training failures; how community participants will be informed about all aspects of the project, have input into its need and design and how will their approval be determined; how will arrangements be made for the construction, or import of the relevant technology components and maintenance and repair of them; arrangements for negotiation of contractual terms and conditions particularly where outsiders are involved, making arrangements to assure that the work is done properly and complies with all construction, safety, labor and environmental laws and regulations; provides that the companies contracted take responsibility for satisfactory performance of their work and for compensation for any damages or injuries resulting from negligent

failures of performance; for training local workers, contracting for and training all personnel and government officials responsible for all aspects of the work, and for making arrangements for approvals by the appropriate government officials; provisions to assure that the host country shares adequately in the project revenues; how jurisdictional disputes among government departments that may have overlapping jurisdictions will be resolved; and how oversight and evaluation will be managed.

There are so many tasks to be performed properly in organizing and executing a renewable energy project; errors in any of them that could lead to failures, even could be life-threatening. When projects are contemplated in low income developing countries, it is important to keep in mind that they cannot afford failures and that one failed project would likely discourage other similarly situated countries from undertaking projects. So great care in selecting, designing, obtaining participant and governmental approvals, selecting and training qualified personnel and contractors, assuring adequate protections and maintenance provisions in contracts, and executing and overseeing implementation and operation of projects, while avoiding even any hint of corruption; these factors all are critically important. If a proposed project is expected to fail any of these tests, it should not be undertaken.

The book analyses renewable energy initiatives in China, including parts on biogas, solar thermal utilization, photovoltaics and off-shore wind, with a separate chapter on China's nuclear initiatives even though in itself it is not a renewable energy source, but it impacts on the ability of China to invest in renewable energy, and chapters on renewable energy in the Philippines, Morocco, India, Brazil, Indonesia and Pakistan. These contributions were all initially researched and drafted by Pace Law School student Research Assistants. I edited and contributed to each and wrote a separate chapter on hydroelectric dams and the Three Gorges Dam project in China.

