

Preface

Sustainable Development is defined as meeting the needs of the current generation without compromising the ability of future generations to meet their own needs. Nowadays, Sustainable Development has been the subject of wide-ranging discussions and debates within government, non-government and academic circles, being a major focus of national and international economic, social and environmental agendas so that a good quality of life can be enjoyed by current and future generations. However, Sustainable Development is threatened by industrial pollution emissions which cause environmental problems such as deforestation, soil erosion, acid rain, toxicity, water pollution, depletion of fisheries and the expansion of desert areas. The problem of climate change, which occurs due to the increasing concentrations of greenhouse gasses in the atmosphere, has caused great concern at all levels, from the general public to national governments and international agencies. Renewable energy sources can be an important remedy to many environmental problems that the world faces today. Some new governmental policies have been adopted to encourage the introduction of energy efficiency measures, the technical changes and the renewable and sustainable energy. The energy planning scenario has completely changed over the last two decades, from an almost exclusively concern with cost minimization of supply-side options to the need of explicitly multiple and potentially conflicting objectives. In addition, different and numerous groups of actors, such as institutions and administration authorities, potential investors and environmental groups, get involved in the process. This complex environment indicates the multi-criteria character of the problem. The traditional single criteria decision-making approach is no longer able to handle these problems. The policy formulation for fossil fuels energy substitution by renewable energies must be addressed in a multi-criteria context. Multi-criteria decision-making is a decision support approach that is suitable for addressing complex problems featuring high uncertainty, conflicting objectives, different forms of data and information and multi interests and perspectives. The multiplicity of criteria and the complexity of energy planning and energy projects makes multi-criteria analysis a valuable tool in the decision-making process. It is the aim of this book to show the use of the multi-criteria decision-making methods

to provide valuable assistance in reaching equitable and acceptable solutions in the selection of renewable energy projects. This book is aimed at those actors who bring along different criteria and point of view, have interests at stake and therefore, influence the decision-making process.

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