World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Renewable Energy and Environment: Design of a Decision Aided Tool for Sustainable Development

Authors : Mustapha Ouardouz, Mina Amharref, Abdessamed Bernoussi

Abstract : The future energy, for limited energy resources countries, goes through renewable energies (solar, wind etc.). The renewable energies constitute a major component of the energy strategy to cover a substantial part of the growing needs and contribute to environmental protection by replacing fossil fuels. Indeed, sustainable development involves the promotion of renewable energy and the preservation of the environment by the use of clean energy technologies to limit emissions of greenhouse gases and reducing the pressure exerted on the forest cover. So the impact studies, of the energy use on the environment and farm-related risks are necessary. For that, a global approach integrating all the various sectors involved in such project seems to be the best approach. In this paper we present an approach based on the multi criteria analysis and the realization of one pilot to achieve the development of an innovative geo-intelligent environmental platform. An implementation of this platform will collect, process, analyze and manage environmental data in connection with the nature of used energy in the studied region. As an application we consider a region in the north of Morocco characterized by intense agricultural and industrials activities and using diverse renewable energy. The strategic goals of this platform are; the decision support for better governance, improving the responsiveness of public and private companies connected by providing them in real time with reliable data, modeling and simulation possibilities of energy scenarios, the identification of socio-technical solutions to introduce renewable energies and estimate technical and implantable potential by socio-economic analyzes and the assessment of infrastructure for the region and the communities, the preservation and enhancement of natural resources for better citizenship governance through democratization of access to environmental information, the tool will also perform simulations integrating environmental impacts of natural disasters, particularly those linked to climate change. Indeed extreme cases such as floods, droughts and storms will be no longer rare and therefore should be integrated into such projects.

Keywords : renewable energies, decision aided tool, environment, simulation
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020