

Ocean Economy- Regional Climate Modelling and Sustainability Issues

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Editorial

The ocean is one of the most important natural resource for mankind and countries worldwide have recognized its tremendous potential in sustaining their economic development. Nations worldwide are actively engaged in developing the ocean economy including Mauritius with a combined Exclusive Economic Zone and Extended Continental Shelf of 2.3 million km². As the Earth's climate warms up, weather related natural disasters are now becoming more intense and frequent and sea levels are rising with significant impacts on coastal populations, economies, and natural resources, including inland water resources. The marine and coastal environment and the goods and services it provides, are under threat in many regions of the world including Mauritius [1-4]. Besides the possibility of actual drowning of some low-lying islands and atolls, the increasing reach of storm waves result in coastal erosion and saltwater intrusion of freshwater reservoirs. Sustainable development however provide more enduring goals than those of economic growth or economic development as our existing paradigm of development not only contributes to the depletion and degradation of the natural resources but also accentuates the problems of inequality, unemployment and poverty. Future policies and programmes of accelerating environmentally responsible development will not happen by chance and it is therefore, important to seize the current opportunity to bring about real, if not radical change where technological advancement provides an opportunity to mitigate the devastation caused by natural disasters to a great extent. Implementing sustainable solutions for coastal areas worldwide is not simply a problem for engineering research. Given the importance of coastal water quality to its tourism economy, Mauritius is evaluating other water quality issues relevant to river catchment management and finding solutions to eutrophication issues in coastal lagoons and groundwater. There is a close linkage between the energy issues and nutrient discharge and recovery issues. In addition, recovering the nutrients available from using wastewater for agricultural irrigation can be pursued and may become more significant as a side benefit of drought management. There has been significant literature evaluating the constraints that limit such solutions [5,6].

A holistic and proactive approach towards prevention, capacity building, mitigation and preparedness is used for disaster management. Sustainable and vulnerability issues in the coastal zone of Mauritius are being addressed and how appropriate management of these resources can help coastal communities prepare for and adapt to a changing climate in line with the green economy [7,8]. Data from RegCM, a 3D, sigma coordinated regional climate model and its latest version RegCM 4.3 including several features related to climatic interactions for parameters such as temperature and humidity can be compared with the measured data from different meteorological stations in the considered region as obtained from the weatherspark website and strategies developed for climate change adaptation measures, smart cities and renewable energy and sustainability goals in Mauritius in line with COP21, Paris, 2015 [9-11].

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