

Part 2: Summary (no more than 2,500 characters)

Environmental problems represent both a serious challenge and a remarkable opportunity. In the face of emergent severe global and local threats, the environmental and consequent economic costs of continuing 'business as usual' are large, in a number of domains of which climate change is the most publicized but not the only one. On the one hand, a more efficient and sustainable equilibrium between human requirements and the capacity of natural systems to provide the corresponding ecological services requires complex and demanding changes in most countries' economy and, to some extent, social structure. On the other hand, environmental challenges offer vast opportunities for the development of new economic sectors and the creation of jobs.

In this area of socio-economic enquiry there a need of analytical tools for developing scenarios associated with the implementation of alternative economic policy choices and consumption behaviours. The main goal of the project is the study of the relationship between socio-economic dynamics (supply and demand levels and composition, water and energy consumption, pollutant emissions, demographic trends, environmental policies) and environmental dynamics (pollution, CO₂ concentration and climate change, water availability, and so on), with a specific focus on feedbacks existing between the two dimensions. The first research activities will be centred on energy production and CO₂ emissions, while a second stage aims at extending the analysis to water management issues. The overall goal is to develop a comprehensive model of economy-environment relationships to be applied to a sample of Mediterranean countries.

The contribution of the proposed research consists in distilling and refining analytical tools for ecological-economic modelling that are being developed in the international research environment – input-output environmental modelling, environmental indicators, dynamic simulation models – and their application to the analysis of Italian and Mediterranean scenarios.

The model will be tested against empirical data and will be used to analyse the environmental and economic implications of alternative scenarios, thus providing informational support for policy design.