



## **Development of mathematical models to elaborate strategies, select alternatives and development of plans for adaptation of communities to climate change in different geographical areas including costs to implement it**

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There is evidence that the climate changes and that now, the change is influenced and accelerated by the CO<sub>2</sub> augmentation in atmosphere due to combustion by humans. Such “Climate change” is on the policy agenda at the global level, with the aim of understanding and reducing its causes and to mitigate its consequences. In most countries and international organisms UNO (e.g. Rio de Janeiro 1992), OECD, EC, etc . . . the efforts and debates have been directed to know the possible causes, to predict the future evolution of some variable conditioners, and trying to make studies to fight against the effects or to delay the negative evolution of such. The Protocol of Kyoto 1997 set international efforts about CO<sub>2</sub> emissions, but it was partial and not followed e.g. by USA and China . . . , and in Durban 2011 the ineffectiveness of humanity on such global real challenges was set as evident. Among all that, the elaboration of a global model was not boarded that can help to choose the best alternative between the feasible ones, to elaborate the strategies and to evaluate the costs, and the authors propose to enter in that frame for study.

As in all natural, technological and social changes, the best-prepared countries will have the best bear and the more rapid recover. In all the geographic areas the alternative will not be the same one, but the model must help us to make the appropriated decision. It is essential to know those areas that are more sensitive to the negative effects of climate change, the parameters to take into account for its evaluation, and comprehensive plans to deal with it. The objective of this paper is to elaborate a mathematical model support of decisions, which will allow to develop and to evaluate alternatives of adaptation to the climatic change of different communities in Europe and Latin-America, mainly in especially vulnerable areas to the climatic change, considering in them all the intervening factors.

The models will consider criteria of physical type (meteorological, edaphic, water resources), of use of the ground (agriculturist, forest, mining, industrial, urban, tourist, cattle dealer), economic (income, costs, benefits, infrastructures), social (population), politician (implementation, legislation), educative (Educational programs, diffusion) and environmental, at the present moment and the future.

The intention is to obtain tools for aiding to get a realistic position for these challenges, which are an important part of the future problems of humanity in next decades.