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GENERATION OF ALCOHOL PRODUCTION SCENARIOS AS SUPPORT FOR THE FORMULATION OF PUBLIC POLICIES APPLIED TO THE ADAPTATION OF THE NATIONAL SUGAR AND ALCOHOL INDUSTRY TO THE CLIMATE CHANGES

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SCIENCE QUESTIONS AND OBJECTIVES

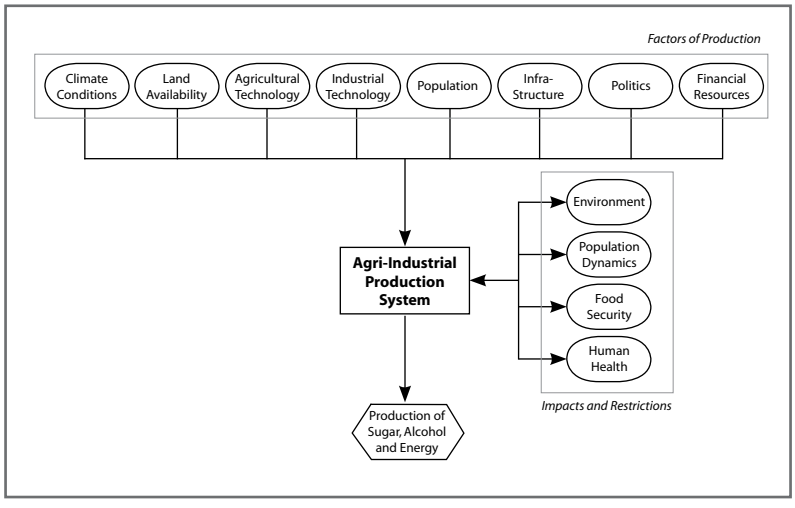

Figure 1. Inputs, factors of production, restrictions and impacts involved in the production of alcohol

The theme of climate changes became part of the everyday life of people and discussions subjects of national and international development policies, as the possibility of climate change is getting bigger in the most drastic way. The main approach recommended at this time is starting to develop methods of adaptation of the human activities to these changes, because the costs and impacts of inaction can be very high. Among the agricultural crops of great importance for the country, the sugar cane has a special feature in the context of climate change due to the potential expansion of the use of alcohol fuel in Brazil and in the world, in the coming years, as a way of mitigating the emissions of greenhouse gases (GHGs). There is, first, a great interest in the expansion of areas for planting sugar cane aimed at meeting the growing demands of alcohol fuel, whereas, on the other hand, several justified restrictions by the potential impacts on the environment, in the food and nutritional security, in the demographic dynamics and in human health and, also, the concerns about the effects of climate change on agriculture. This expansion should be properly planned, also considering, the adaptation to the climate changes, so that Brazil does not miss a great opportunity for business and development, but also, does not have economic, social and environmental damages because of hasty decisions and without the necessary technical and scientific basis. This case shows that the great challenge is to adapt a complex productive system, with several inter-relations, to the climate changes, and as such will be handled in the Project by experts from several knowledge areas, such as, climatology, demographic dynamics, food and nutritional security, scientific communication, public policy, geo-processing, environment, human health and scientific and technological development. The tool to be used in the analysis on the adaptability of the sugar and alcohol sector to the climate change and, in general, the adaptability of the agribusiness as a whole, will be the scenery of the production of ethanol fuel and associated impacts.

CURRENT RESULTS AND PERSPECTIVES

The main expected results with the development of the Project are the scenarios for the production of alcohol obtained from a combination of the determinant factors of this production, for two representative regions in Brazil (one developed and another interested in expanding) in three different periods. These results should enable the obtainment of another relevant result that is the general analysis of the adaptability of an important productive sector of the country to the climate changes. This analysis, in practice, will allow to assess the adaptation capacity of the society to the climate changes due to the complexity of the interrelations of the studied sector with political, economic, social and technical fields.

In addition to those expected results, should also be obtained other important ones throughout the Project, such as:

- Identification of three to five models for forecasting climate changes that are best suitable to Brazil and to impacts and vulnerability evaluations of crops to climate change;
- Identification of the relation between the expansion of plantations of sugar cane and the food and nutritional security;
- Determination of the relation between the expansion of planted areas with sugar cane and the demographic dynamics;
- Deepen communications, for several different public, on the issue of climate change in multiple media;
- Effects of the various technologies available in the adaptation to climate change;
- Effects of the modification of the atmospheric composition due to the use of ethanol fuel on human health;
- Suggestion for public policies to the adaptation of the production of ethanol fuel to the climate change;
- Better knowledge of the relation between the climate and the production of sugar cane;
- Improve of the accuracy, objectivity and anticipation of the harvests of sugar cane forecast methods;
- Methodology that allow to integrate the several different knowledge with the purpose to achieve the overall objective of the Project;
- Training of qualified staff in the area of climate change.
- Evaluations of the climate change impact in the chosen test-areas.

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