Using SocLab for a Rigorous Assessment of the Social Feasibility of Agricultural Policies

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ABSTRACT

This paper presents a theoretical and methodological framework to take into consideration the social dimension in a sustainable development project. To do this, the authors have developed the SocLab software environment, which implements a formalization of a well-established sociological theory, and enables the modeling of social organizations, to analyze their properties and to simulate social actors' behaviors. SocLab was used to assess the social acceptability of new agricultural practices more in line with the preservation of water resources and natural environments, in a well defined context. The paper shows how it was used and presents the main results.

Keywords: *Agricultural Practices, Formalization, Simulation, Social Dimension, Sociology of the Organized Action, Sustainable Development*

1. INTRODUCTION

The reference model for sustainable development gives an equal importance to the economic, environmental and social dimensions. In practice, little attention is paid to the social dimension: the biophysical aspects and the economic cost of the environmental degradation and its compensation by public policies are considered with much more attention. This situation is due, to a large amount, to the informal and subjective nature of the results provided by sociological studies; they do not feature the properties of quantitative scientific knowledge, and they are difficult to handle and to merge with the results provided by economics and environmental sciences.

As a foreseeable consequence of this lack of attention to the social dimension, many public policies are quite ineffective to change the

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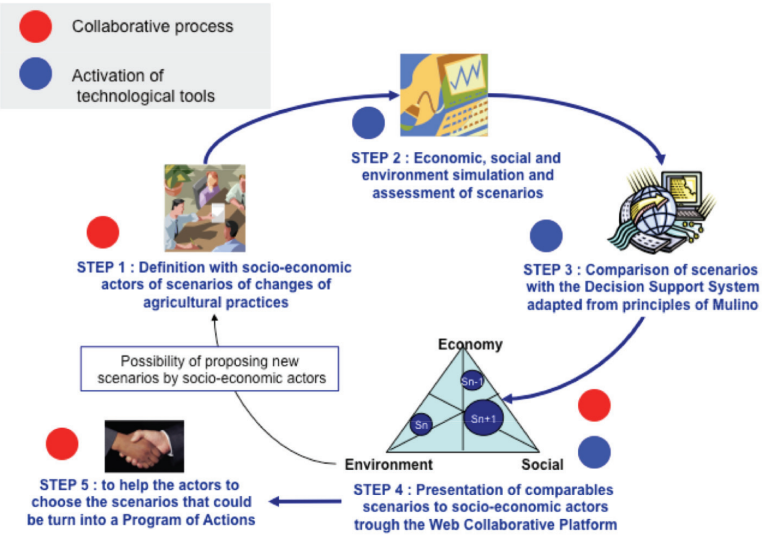
Figure 1. The process of the Concert'Eau project



social practices toward the desirable direction. The social impact of the proposed measures raising some fears, they are not accepted by the actors and thus they are not applied (Vautier et al., 2009).

The *Life* European project *Concert'Eau* was a proof-of-concept project aiming at demonstrating the feasibility to define a set of new agricultural measures proposed and accepted by the stakeholders, following the process shown in Figure 1. In this project, we were in charge, in the step 2, to assess the social acceptability of the measures proposed during the step 1. To provide a quantitative evaluation of the social dimension of each proposed measure, we have used a rigorous theoretical and methodological framework whose generic nature makes it appropriate to model and analyze the social dimension of other cases:

- We base our work on a well-established social theory, the Sociology of the Organized Action (section 2);
- We have formalized this theory as a meta-model for the description of social organizations in a rigorous way (section 3);
- We have implemented a software platform, *SocLab*, which enables to edit the model of an organization, to explore its states and to simulate the behavior of the social actors (section 4).
- Section 5 presents how we have used this framework to estimate the social feasibility of agricultural measures in the Concert'Eau project.

2. THE SOCIOLOGICAL BASE: THE SOCIOLOGY OF THE ORGANIZED ACTION

The Sociology of the Organized Action (SOA) (Crozier, 1964; Crozier & Friedberg, 1977; Friedberg, 1993) defines the organization like "a complex set of intersected and interdependent games through which persons, often provided with very different assets, seek for maximize their gains, respecting the rules of the game which are not written and are imposed by the environment, taking systematically advantage of all their assets and seeking to minimize those of the others […]. The aim is not to remove power relations – which is an impossible and unproductive task – but on the contrary to

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