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Application of a crop-farm-indicators modelling chain to assess the impact of the EU nitrate directive in the Midi Pyrenees region

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Why and how design monitoring processes of farmer practices at local/regional level? Agronomists endorsing Community Information Systems on farmer practices

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Introduction

Sixty years after its launching through the «Marshall Plan», the European agriculture revolution is up again, but with some strong contradictions: water pollution, biodiversity erosion, landscape uniformization, ethical crisis (Fresco, 2000). These harmful side-effects of agriculture could be aggravated if the evolution of agricultural practices continues following the current trends towards greater concentration, intensification and technicality.

We focus our communication on agricultural practices, from their choice by farmers decisions to their effects, as they continuously remodel our agricultural landscapes. The approach of farming systems as landscape “builders” is a new one, but its background is the vision of land as resource for agriculture (de Wit, 1992; Lardon et al, 1990). These farmer practices changes appear to be strongly linked to all the severe environmental questions in Europe (Benoît et al, 2005).

But there is a large lack of data and information systems helping stakeholders in their negotiations. The object of this paper is to propose a research procedure of farmer practices monitoring at local/regional scale and to illustrate it for some european situations: München watershed protection, the Seine basin, four specific regional zones in France. We name Community Information Systems on Agricultural Practices (CISAP), those monitoring processes.

Methodology

We jointly develop a social and technical organizational arrangement on agricultural production, faced to landscape transformations, and other processes effected by individuals whose actions both take place within, and shape a recognized and bounded agriculture-dominated area (“*territoire and terroir*”). Gaining a better information on these processes makes it possible to address them via analysis, modeling and recommendations.

We consider those Community Information Systems as social and technical organizational arrangements which connect information and knowledge, practices and landscapes.

Results

CISAP as a tool to produce changes in local farming systems:

The design of monitoring of farmer practices is a central challenge for stakeholders and researchers on farming system changes if we want to protect natural resources. For us, the main questions are:

- How to build a generic framework for those data ? This question refers to collective building of facts and argues studied as situated and distributed knowledge (Amin et Cohendet, 2004; Brassac et Le Ber, 2005).
- How can we organize numerical data bases linking cropping system, farming system, soil, communes, environmental zones? We propose to use the UML modelling framework to organize the levels and their relationships.
- What should be the rules for data use? This central question will lead to improve the status of information uses during farming system changes
- How can we take into account the “situated and distributed” dimension of those data? This question helps us to identify all the stakeholders involved in farmer changes for natural resources management (Le Ber et Brassac, to appear 2008).
- For those monitoring, what kind of complementarity have we to build between remote sensing, statistical datas, local surveys?
- How to help stakeholders build and manage CISAP? (Nogry et al. 2007)

To illustrate answers to these questions we use a survey on 32 european CISAP to evaluate their effectiveness (Nogry et al, 2007).

To conclude, we propose a generic framework for future CISPA and a list of main key points to help agronomists involved in their development.

References:

Amin, A., Cohendet, P. (2004). Architectures of knowledge. Firms, capabilities and communities. New York: Oxford University Press.

Brassac, C., Le Ber, F. (2005). Inscription spatiale d'une activité cognitive collective de représentation de l'espace, *Intellectica* 41-42, 181-200.

Le Ber, F., Brassac, Ch. (to appear 2008). Étude longitudinale d'une procédure de modélisation de connaissances en matière d'organisation du territoire agricole, *Revue d'Anthropologie des Connaissances*, Vol 2, n° 2. (il est sous presse).

S. Nogry, F. Le Ber, Brassac C. (2007). Modélisation d'épisodes de conception d'observatoires à partir de corpus narratifs. In: Actes du 15ème atelier de raisonnement à partir de cas (RàPC2007), Plateforme AFIA, Grenoble, éd. par A. Cordier et B. Fuchs, pp. 103-110.

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