

# **THE DIFFICULT REALIZATION OF SUSTAINABLE DEVELOPMENT: NEW INSIGHTS FROM COMBINING CRITICAL NATURAL CAPITAL THEORY AND SEN'S CAPABILITY APPROACH**

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## Introduction and Theoretical Background

Twenty years after the first Rio Earth Summit, sustainable development is not yet a reality for most people. This paper presents the main findings of a field study that was conducted in order to provide empirical evidences to support the theoretical construction of Pelenc and Dubois (2011), who have established a framework for assessing human development from a strong sustainability perspective. This framework involves combining Sen's capability approach with Critical Natural Capital (CNC) theory. This combination makes it possible to envisage criticality as an emergent property of the ecological and human value systems by defining the CNC through important ecosystem services related to people's capabilities. According to Pelenc and Dubois (2011), the capacity of people to be agents of sustainable human development depends on combining the following parameters; access to ecosystem services and substitutable resources (money, manufactured capital...), entitlements (property rights, political and economic rights etc.), internal conversion factors (health, human capital etc.), external conversion factors (social norms, institutions, etc.) and personal values, which guide the choice between possible achievements (i.e. potential functionings).

The goal of our empirical research was to understand social perceptions of ecosystem services and related capabilities structures (the constraints and opportunities facing the different stakeholders) in order to obtain the information required to define the CNC of these two biosphere reserves, and to identify the barriers people are facing to have sustainable functionings (i.e. practices or lifestyles).

## Material and Methods

We conducted this field study in two peri-urban Biosphere Reserves (one in the Paris region of France, and the other in the macro region of Santiago-Valparaiso in Chile). Four categories of stakeholders who deal with ecosystem services were interviewed: managers of protected areas, entrepreneurs, planning officers and local community groups. A sociological survey was conducted and four workshops involving the different categories of stakeholders were organized during the 2009-2011 period. The interview consisted of three stages: (i) identification of the ecosystem services and evaluation of their state of conservation by the respondent, (ii) description of the respondent's aspirations regarding the development of his/her activity and identification of the barriers to the sustainable use of ecosystem services, (iii) the nature of the relationships of the respondent with other stakeholders with regard to ecosystem service management and sustainable development more broadly.

## Results

This method enabled us to achieve the following: (i) identification of the set of critical ecosystem services that constitute the CNC of the two sites. The stakeholder surveys by questionnaire also shed light on the undervalued ecosystem services that could constitute a source of development if they were used sustainably, (ii) identification of the barriers facing the stakeholders interviewed (including those working for institutions) in achieving sustainable functionings in terms of capabilities, (iii) elucidation of the social situation of actors and socio-ecological inequalities, (iv) to bring relevant insights for characterising the tensions people experience when the value represented by sustainable development conflicts with other values that underpin their daily life practices, (vi) finally, this sociological survey allowed us to identify several categories of stakeholders based on their degree of freedom to have sustainable functionings.

## Discussion

-Although, several stakeholders recognize the critical state of the ecosystem services they rely on, they continue to value the model of development that leads to this ecological degradation. They say that this is because there is no other real alternative form of development. The goal of the biosphere reserve should therefore be to foster real alternatives that will allow people to achieve sustainable development.

-Innovative actors are inventing tomorrow's lifestyles and so their practices may not fit into existing institutional frameworks. Some of them opt to keep out the system in order to avoid seeing their freedom reduced and to be able to maintain their sustainable lifestyle. Others would like to be part of the system so that their innovation can be recognized, but there is no place for them.

-Given the rapidity of socio-environmental changes, one can ask whether the inertia that characterises institutional frameworks will not be too great to allow societal adaptations to occur quickly enough. In this respect, the comparison between these two countries: one a developed country with a strong institutional framework (France), and the other a largely unregulated emerging country (Chile), contributes interesting insights to the discussion of this issue.