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Expertise of the Agropolis scientific community

Water Resources and Management

Number 3

Study of the relationships between Water, Territories and Societies

The objectives of the research work carried out by the *Mutations des Territoires en Europe* (CNRS/UMIII)
UMR 5045 are threefold: figures and trajectories of territorial systems (transition territories: trajectories and integration process; recomposition of low density territories; metropolisation and emerging figures of new urban territories); Environment and territories: development, regulation, planning

(challenges of territorial water management in the Mediterranean; management and evaluation of lands; natural resources and territorial development); Territorial qualifications (qualification of people and of the products associated with the territories; production systems; territorial economy).

As to the second aspect, the main objective of the research is to identify the main characteristics of water management and collective practices, i.e. the dynamics of the relationships between "Water, Territories and Societies". The purpose is not to study either the modalities or the

regions, but to carry out case studies in various countries (Spain, Lebanon, Morroco, Portugal), in order to gain perspective at different scales and obtain comparative elements that enable understanding the long term evolutions that take place in this relationship. The research work sets theoretical objectives in order to define general rules that aim at understanding the society dynamics leading to the appropriation and management of water resources.

CPWF Project: improvement of water management in South-East Asian catchment basins

The CIRAD *Green* Unit – in partnership with the *International Rice Research Institute* (IRRI), the Cemagref, the Universities of Chiang-Mai, Chulalongkorn and Ubon Ratchatani in Thailand, the University of Cantho in Viêt Nam and the Ministry of Agriculture of Bhutan – submitted a project within the framework of the call for proposals issued by the *Challenge Program Water and Food.* This project has been selected and initiated in 2005.

Hence, the objectives are as follows:

- to build a methodology and tools that improve the acknowledgement of the presence of several opinions on water management and facilitate the collective evaluation of the problems faced by the various stakeholders;
- to improve the coordination between the stakeholders;
- to form a group of scientists and technicians engaged in concrete problems of concerted water management. The catchment basins studied in this project are located in different sites of the toposequence of the Mekong river (mountains in the North of Thailand and Viêt Nam delta). Another one is located in Bhutan.

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AWARE Project: water management negotiation and collective decision making support in South-African catchment basins

The recent South-African National Water Act (1998) promotes the integrated and decentralised management of water resource within a renovated institutional context. New entities - Catchment Management Agencies (CMAs) and Water Users'Associations (WUAs) — are being set up at regional and local levels. Beyond the questions concerning the priority criteria in the allotment of rights to use the resource, there is the advent of public policy networks formed on the one hand by the CMA and, on the other hand, by the WUA or the sectorial organisations (unions, syndicates, etc.). The AWARE Project (Action Research and Watershed Analysis for Resource and Economic Sustainability) conducted by the Green UPR (Cirad) adopts a modelling and support approach that aims at facilitating the negotiations and the collective decision making process around the hydric resource in the two South-African catchment basins: the Steelboort and the Kat River.

A simulation tool (AWARE) has been specifically designed to model system dynamics at the level of the catchment basin. A role playing game based on this model is being developed. The model assesses different scenarios that represent potential water management strategies as a function of their economic efficacy, environmental reliability and social fairness. The central aspect of the simulated strategies is represented by the assignment of priorities to certain groups of users of the resource within a context of competition among them. AWARE evaluates the economic (production, job creation) and environmental (preservation of the ecological reserve) impacts of the various simulated scenarios that represent alternative water management strategies.

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