

Partners

Direction générale du génie rural (Tunisia), Ecole nationale d'agriculture de Meknès (Morocco), Escuela Técnica Superior de Ingenieros Agrónomos de Madrid (Spain), Institut agronomique et vétérinaire Hassan II (IAVH, Morocco), Institut national agronomique d'Alger (INAA, Algeria), Institut national agronomique de Tunisie (INAT, Tunisia), Institut national de recherche en génie rural, eaux et forêts (INGREF, Tunisia), Institut de recherche pour le développement (IRD, France), Institut de recherche pour l'ingénierie de l'agriculture et de l'environnement (CEMAGREF, France), Instituto Superior de Agronomia (ISA, Portugal), Institut für Umweltsystemforschung (Germany), University of Tunis.

For further information

Seminar on "The future of irrigated farming in the Mediterranean region", 6-10 November 2006, Cahors, France.

Hammani A., Kuper M., Debbarh A., 2005. La modernisation de l'agriculture irriguée : actes du séminaire euro-méditerranéen, 19-23 April 2004, Rabat, Morocco. INCO-WADEMED project. Rabat, IAVH, 2 vol., 358 pp., 368 pp.

Website

www.wademed.net

Water governance

Sustainable management of water resources is a key to alleviating poverty and ensuring food security, yet efficient water governance has proved difficult to achieve in practice. The book *Water governance for sustainable development* reviews recent changes in governance, institutions, economics and water policies, with special emphasis on South African case studies. It examines how these elements have shifted from quantitative, supply-driven, centrally controlled management to more demand-sensitive, decentralized and participatory approaches. The case studies highlight the problems encountered in implementing new policies, often linked with cost recovery, between-sector water resource allocation, management and privatization of water services.

●●● Sylvain Perret, UMR: Water Management, Stakeholders and Uses (G-EAU)
sylvain.perret@cirad.fr

For further information

Perret S., Farolfi S., Rashid H., 2006. *Water governance for sustainable development: Approaches and lessons from developing and transitional countries*. London, Earthscan, Montpellier, CIRAD, 296 pp.



Water seller in Senegal
© F. Calmel/CIRAD

●●● Pig farming in the Red River Delta

The Red River Delta is a broad region of intensive agriculture in Vietnam. Livestock production is expanding at a dramatic pace, with pig farming representing a key factor for economic development. Pig rearing leads to a risk of water and soil pollution, which can in turn be detrimental to human health. How can the environmental impact of pig farming be managed while not undermining the competitiveness of the pig farms? How can the spatial and societal constraints of this type of livestock production be allowed for in development policies?

The Red River Delta region has a population of 18 million people, with densities exceeding a record 1 200 inhabitants per square kilometre, while hosting many activities that are essential to the northern Vietnamese economy. The high indus-

trial, agricultural and population growth rates are now seriously straining natural resources. Livestock production is growing dramatically in most provinces in this region to fuel the economy, with pig farming at the forefront of this development. In

Thai Binh province, production increased from 700 000 pigs in 2000 to 1.2 million in 2006 in response to high domestic and world demand for pork. Agricultural services in Thai Binh are managing a national programme for the development of lean pork

production. The aim is to support 1 600 pig farms and 16 400 family farms in the province so as to be able to produce 1.4 million pigs by 2010, and 500 000 tonnes of top quality carcass meat a year.

Better pig farm waste management

In this setting, a large-scale EU-funded project (E3P) was launched to promote the development of pig farming, waste management and environmental protection. This project was undertaken within the framework of the PRISE consortium (research on livestock production systems), in collaboration with seven Asian and European organizations. It resulted in a multidisciplinary assessment of the livestock production and waste management situation in Thai Binh province, along with the development of a highly documented local database on the topic.

This assessment was based on a set of analyses and surveys carried out under the project: collecting local agricultural statistical data, classifying pig farming units, assessing their environmental impact, and conducting a survey of stakeholders' viewpoints. A geographical information system (GIS) and an agricultural assessment tool were developed. The GIS is used to present actual or simulated regional organic matter balances, in the form of thematic maps, according to development scenarios predicted for 2010. The assessment tool is used to evaluate surplus fertilizer elements derived from livestock waste on different scales, fertilizer needs for crop fields, and nutrient requirements in fish-farming ponds. Environment-friendly waste processing and management procedures were developed on the basis of these results. The use of modelling to combine the agricultural assessment tool and the GIS is one of the unique features of the work undertaken in this project.



Pens cleaned daily on a pig farm © V. Porphyre/CIRAD

Tailored waste treatment systems

The project findings triggered demand from development stakeholders. The Thai Binh popular committee would now like to build waste treatment systems tailored to the size of farms. A project will be launched in 2007 to focus on agricultural standards to enhance organic matter use and on conditions required to meet the needs of processed (energy, compost) and recycled (agriculture, aquaculture) organic matter subsectors. It will also concern modelling of regional nutrient and biomass flows, along with a scientific support component to assist the Vietnamese partners in dealing with any issues concerning interactions between pig farming and the environment.

●●● Vincent Porphyre, UPR: Livestock Systems and Animal Product Management
 Jean-Michel Médoc, UPR: Environmental Risks of Recycling
 vincent.porphyre@cirad.fr
 jean-michel.medoc@cirad.fr

Partners

Asian Institute of Technology (AIT, Thailand), Ayuda, Intercambio y Desarrollo de Asia (AIDA, Spain), Centre for Remote Sensing and Geomatics (VTGEO, Vietnam), European Commission's Delegation to Vietnam (Europe), National Institute of Animal Husbandry (NIAH, Vietnam), National Institute for Soils and Fertilizers (NISF, Vietnam), Hanoi Agricultural University (Vietnam).

For further information

Médoc J.M., Raimbault T., Ayache B., 2006. Assessment of the balance between livestock effluent production and nutrient demand by crops in a small agricultural area of the Reunion Island. *In*: 12th Ramiran international conference on technology for recycling of manure and organic residues in a whole-farm perspective, Aarhus, Denmark, 9-11 September 2006. Tjele, Dias, Dias Report, 122-123: 65-67.

Porphyre V., Nguyen Que Coi (ed.), 2006. Pig production development, animal-waste management and environment protection: a case study in Thai Binh province, Northern Vietnam. PRISE publications, 224 pp.

Website

http://pigtrop.cirad.fr/en/worldwide/asia_VN_Asiaproeco.htm