Reconciling Critical and Engaged Approaches

Environmental Justice at the Heart of Floodplain Management

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Background

Phnom Penh lies at the junction of four rivers and marks the beginning of the Mekong delta. The Cambodian delta plains are characterised by earthen canals that result from both hydrological processes and human interventions dating back to the mid-nineteenth century. These *preks* shape the landscape and serve a variety of purposes: communication routes, irrigation for agriculture, fishing areas, etc. For about two decades now, the Cambodian government together with its technical and financial partners has viewed *preks* as a means of intensifying regional agricultural systems. Ambitious programmes aimed at greater control of water flows have been implemented and are characterised by a low level of attention to environmental justice issues.

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For more information

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Description of the Research and System

The research, launched in 2016, is carried out independently alongside development programmes financed by AFD for the sustainable intensification of irrigated agriculture in Cambodia, and the research seeks to influence those programmes. In addition to researchers from IRD and CIRAD, it involves academics from the Royal University of Agriculture (URA) and members of a Cambodian NGO, the Irrigation Service Centre (ISC), which specialises in supporting groups of farmers, including irrigation specialists. The research activities have three main objectives: 1) to better understand the socioenvironmental dynamics within Cambodia's delta plains and the role of preks; 2) to create multi-stakeholder consultation arenas that give greater weight to the knowledge and priorities of communities living along the preks; 3) to propose floodplain management approaches that do not rely solely on building water-resource control infrastructure and agricultural intensification, but instead take into account the floodplains' multidimensionality.

The Participatory Research Tools Mobilised

The research combines the analytical frameworks of development anthropology and studies of science and technology with a companion modelling approach that aims to enable heterogeneous actor groups to identify natural resource management issues and respond collectively. It adopts

Participatory workshops in which the serious game 'Dai Prek' facilitates exploring different management scenarios for Cambodia's floodplains.

an approach that is both engaged and reflective: the researcher's non-neutrality is assumed, and an analysis is made of how their values, interests and objectives shape and constrain the participatory research process—not to disqualify it, but to better appreciate its potential scope. The approach relies on intermediary objects such as serious games or agent-based models, which are used in participatory workshops that include debates about the problems to solve and

the collective responses. Companion modelling is characterised by an iterative process during which the tools (initially designed by a subgroup of actors, here IRD and CIRAD researchers) are gradually modified. An interdisciplinary diagnosis (hydrology, agricultural practices and rural economics, natural resource management, demographic dynamics and sociopolitical relations) was carried out through interviews with various stakeholders (decision makers, development agents, local elected officials, users of natural resources). We then developed a serious game called 'Dai Prek', whose play materials consisted of a series of plywood tiles that participants could assemble or a simplified map of Cambodia's delta plains to represent their living environment. Participants took on the role of farmers or decision-makers with the shared objective of reaching a certain level of agricultural production while protecting the environment from any degradation. They could choose from a list of possible actions whose agricultural and environmental impacts vary depending on the uncertain hydrology. Thus, the collected data reflected each participant's priorities and visions; observation of the game sessions also helped to clarify actor relationships. The game was not intended to generate the 'best' trajectory but to spark a discussion about different possible development paths for Cambodia's delta plains and their implications in terms of agricultural practices, flood dynamics, as well as the distribution of potential social and economic costs and benefits.

The Results and Effects Achieved Through the Research

The participatory research aimed to identify alternatives to building hydraulic infrastructure for agricultural intensification in Cambodia's delta plains, ideally proposed by local communities themselves, and then have those options implemented. The research opened up a debate, but development projects continue to prioritise infrastructure. This is because it is difficult to reverse construction objectives that had already been set during the projects' design as well as due to professional practices and cultures firmly rooted in engineering that still dominate the agricultural water sector. While on-the-ground practices have not changed much, the way they are planned has shifted dramatically: participatory research activities contributed to the emergence of territorial planning for interventions that takes into account the region's complex hydrology. This territorial approach complements a cost-benefit assessment that had tended to evaluate hydraulic infrastructure independently of its environment. The research was thus embedded in particular territorial trajectories, which were later completely overturned by the Cambodian government's decision to build a canal several hundred kilometres long linking Phnom Penh with the Gulf of Thailand. In another vein, the partner NGO has appropriated the methods used, adapted them to local needs and now employs them autonomously to support irrigation groups in other parts of Cambodia.

TAKEAWAYS

Reconciling the methods of participatory research and critical analytical frameworks, such as development anthropology and science and technology studies, provides fertile ground for understanding the stakes of development while also shaping a collaborative research agenda committed to environmental justice.

SUSTAINABILITY SCIENCE

PARTICIPATORY RESEARCH

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Photo p. 12: "Phil'eau" workshop to raise awareness among young people in rural areas about environmental issues and water conservation, Saint-Louis, Senegal.

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Photo p. 38-39: "Phil'eau" workshop in an Ameth secondary school, Saint-Louis, Senegal.
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