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# Individual vs collective in public policy design, a cooperation example in the Marais Poitevin region

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**Abstract:** The conciliation between different issues such as production activities, biodiversity conservation and water management remains unsolved in many places in the world. As a striking example, the wet grasslands of the Marais Poitevin region (France) present many obstacles against the integration of previous issues, especially in terms of public policy design. The socio-cultural situation in this region shows a high degree of political resistance and questions the relevancy of the current Agri-Environmental Schemes (AES) as an incentive for livestock farmers to adopt biodiversity friendly practices favoring the birds' richness of the area. Yet, the current AES based on financial support has been interpreted as a production support and has still not fulfilled its goal of agro-ecology development. The reasons of the poor effect of public policy are studied using a two-fold approach based on ethnographic field and a computer-assisted role-playing game. The game combines an agent-based model and a tabletop artifact. The game is based on two sessions involving different AES to be tested. The model simulates the grass regeneration and flows of water through a canal system and a surrounding network of plots with culture (wheat, corn, sunflower, alfalfa), pasture and mowing. The game is played by 9 players who embody their role in real life, i.e. water managers, biodiversity managers and 7 farmers. The behaviors of the players during the sessions have been observed and analyzed through a microeconomic conceptualization. A comparison is proposed between the first session where the current AES were tested and the second session where collective public policy instruments were tested. Such comparison identifies individual and collective level on an economic perspective and brings new concerns for public policy design. It also highlights the topic of integrated environmental management and questions the relevancy of participatory approaches and contradiction/dilemmas resolutions in environmental development.

**Keywords:** public policy, biodiversity, wetland, collective arrangements, companion modelling