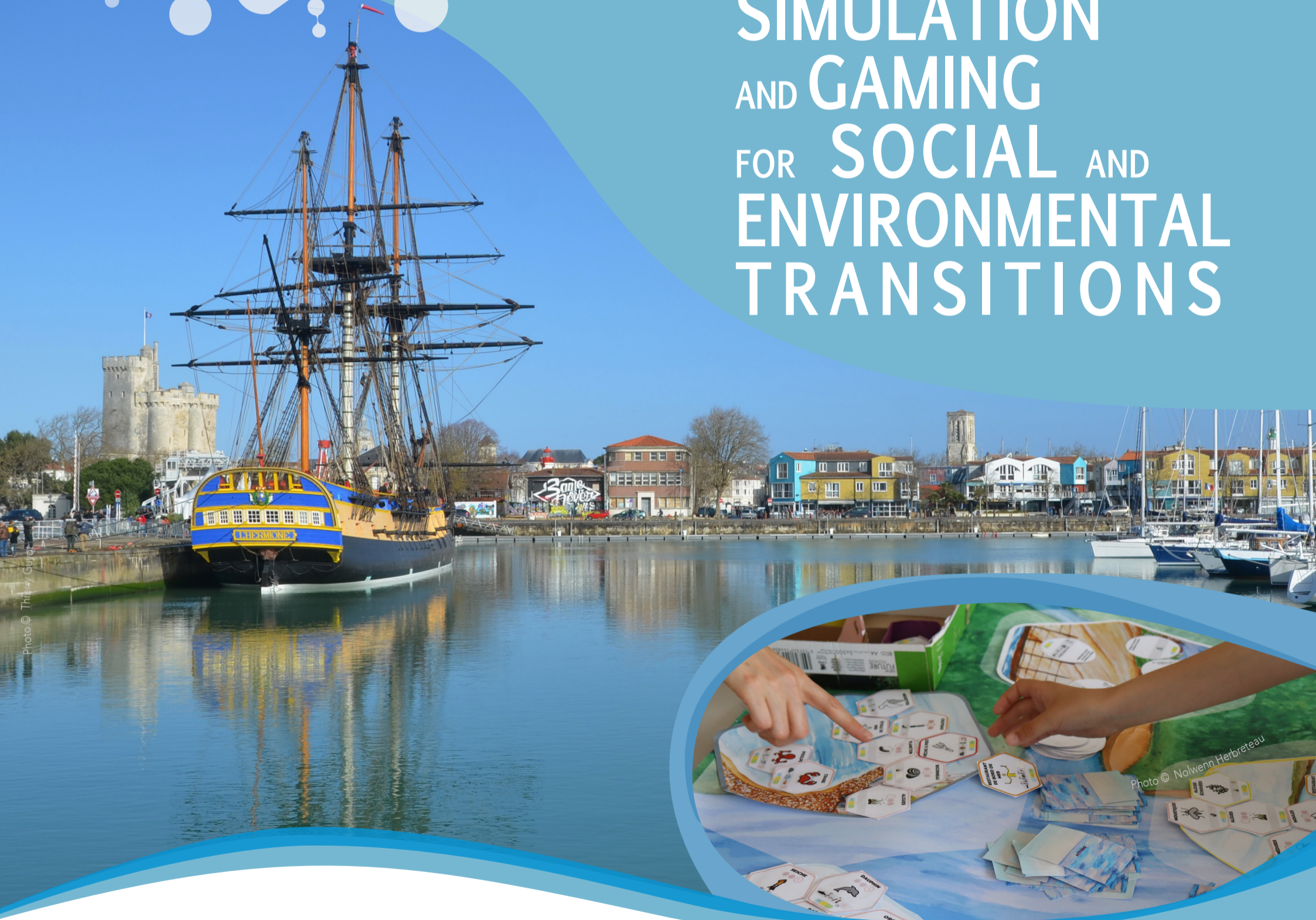


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A game to understand changing commons in the Bolivian Altiplano: what future for communities?

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Abstract. In this study, we seek to analyze the reconfiguration of traditional common property natural resources management in the Bolivian Altiplano. We focus on two intertwined commons, water and land. The modification of a role-playing game set up during the first phase of the project, by integrating these two new dimensions, allows us to understand the current state of these commons and their evolution.

This participatory approach aims at validating the results of the previous diagnosis through the improvement and re-appropriation of the game model by the inhabitants of the communities. A qualitative analysis of the exchanges during the game sessions also enables a better understanding of the discourse around the collective management of water and land, the evolution of the community identity and the changes in the governance system.

Through the use of the game, we hope to open an intergenerational dialogue on the future of the communities and the territory.

Keywords: Role-playing game, participatory process, commons, territorial diagnosis, prospective

1 Commons in the Bolivian Altiplano

Since Ostrom's publication [1] in response to the tragedy of the commons predicted by Hardin [2], the concept has experienced an effervescence that goes beyond the scientific field. Whereas Hardin announced that the common management of natural resources could only lead to catastrophe, Ostrom proposed a third way between state management and private property to think about collective action and the self-organization of societies around their resources [3].

Bolivia is a country rich in case studies dealing with commons issues. Apart from the emblematic case of the birth of a common during the Water War in Cochabamba [4] the common management of natural resources, mainly land and water, is traditional in indigenous Andean peasant communities. These fit perfectly into the Ostromian framework of governance unit [5]. There are little researches on the central Altiplano and the literature on the commons in the Andean valleys cannot be applied to this study area due to the difference in relief.

In a context of globalization and population growth, the Bolivian countryside of the Altiplano is experiencing a rural exodus and an ageing population [6,7]. The unit of production and management is shifting from the community to the family. Young people who go to the city to study or work rarely return [8]. As rural communities seem gradually abandoned, what happens to the water commons for irrigation and livestock and the land commons?

2 Objective and issues of the study

The objective of this paper is to understand:

How to design a serious game for an integrated approach of two intertwined commons: the water commons for irrigation and livestock and the land commons.

To what extent would such a game allow us to discuss the current state of these commons and their evolution, related to the future of the community, in order to think about a territory project?

3 Methodology

3.1 Background of the research

This work is a continuation of a ComMod approach [9] carried out within the framework of the Wasaca project, funded by Agropolis Fondation. A role-playing game, Sumak Kawsay, was co-designed with farmers and herders from the two communities studied: Realenga in the municipality of Machacamarca and Santa Maria in the municipality of El Choro. The co-design process was based on the proposal of a martyr version of the game, intended to be improved, thanks to the reactions and recommendations of the players. Minor modifications were made during the game session, and major ones were made from one session to another.

This game allowed us to support a participatory diagnosis of the intervention situation and to understand the main issues experienced as such by the farmers and breeders of the Altiplano [10]. It allowed us to refocus the project on 1) the commons and the will to live together in the community, 2) water for irrigation and livestock and 3) land tenure.

3.2 A game on the commons

First, we clarified the diagnosis of the collective management of water and land through participant observation and semi-structured interviews with institutions (governmental, union and indigenous), farmers and breeders, comuneros¹ and residentes².

In a second phase, we adapted Sumak Kawsay to new questions about the commons. We complexified the board and focused the game on the access to water and land in a context of water scarcity and population growth.

The game prototype was tested with local partners: the Center of Ecology and Andean People and the Technical University of Oruro. We then organized game sessions in the two communities, following the same co-design process as the previous game. Both sessions and debriefing have been recorded, filmed, transcribed, and then qualitatively analyzed using the Nvivo® software.

The ComMod approach was initiated with local partners from the irrigators' network. These irrigator leaders helped us in the organization of the sessions, which constitutes a bias in the selection of participants. To limit this usual bias in participatory approaches, we have conducted complementary interviews with comuneros and residentes excluded from the commons, who are therefore not part of the irrigators' association or who have a limited access to land, but are considered as part of the community.

4 Expected results

During the game sessions, our understanding of the system and our diagnosis are confronted with the views of the inhabitants of the communities. Their feedback allows us to correct and improve the game model and to complete the diagnosis.

Faced with a discourse of loss of reciprocity, the game provides an opportunity to discuss the future evolution of the management of the commons, but also of community identity and interdependence networks.

This work also helps to understand the polycentricity of governance and the entanglement of levels of collective action. We therefore expect to highlight the existing tensions between family and community strategies.

Finally, we expect that the game, used as a support for the comparative case study, allows for the discussion of differences in customs and conceptions of justice in access to land and water. It

¹ Permanent residents of the community.

² Community members migrants or dual residents.

should also enhance what can be considered as common and what cannot, and how these commons could evolve.

5 Discussion: Social impact and perspectives

The first version of Sumak Kawsay highlighted the interest of the participants in this game and their desire to disseminate it in the community in order to discuss the issues surrounding water and livestock farming but also to train young people and encourage them to stay. This new version of the game would thus be an opportunity to open an intergenerational dialogue on the future of the territory.

In the next phase of the project, we will develop an agent-based model from the game to further develop the prospective dimension of the ComMod approach.

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