

CO-CREATING RESILIENT FARMING FUTURES: EXPLORE THE ROLE OF AGROFORESTRY TOWARDS AGROECOLOGICAL TRANSITION TO ADAPT TO CLIMATE CHANGE

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INTRODUCTION

We present a novel approach to facilitate the co-creation of agroforestry systems towards agroecological transition. We demonstrate the method by applying it to a case study of complex coffee agroforestry systems in La Dalia, Nicaragua.

Participatory games are effective tools used in action research coordinate farmers concerning land use decisions at the landscape level. Thus, for imagining different perspectives introducing scenario methods to participatory games is needed to extend the frame of the game co-creating with the actors desirable future. **Backcasting** allow the participants to define a desirable future and then works backwards to identify the steps (levers and roadblocks) that will allow to reach it.

Our objective are to explore:

1. Current vision that farmers have about the role of agroforestry towards agroecological transition to adapt to climate change;
2. Farmers' vision of their farm in the future in terms of structure as well as economic, social and environmental benefits against climate change;
3. Potential limitations and barriers for implementing an agroecological transition pathways.

METHODS

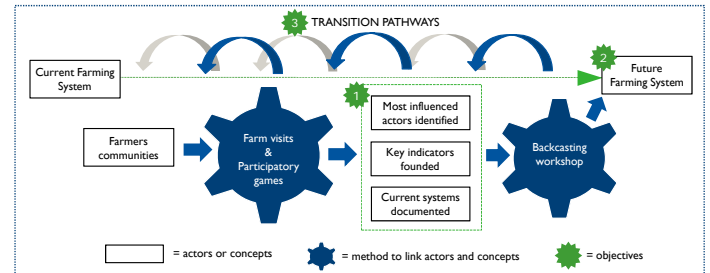


Figure 1. Overview of the general methodology and the different objectives of our study.

RESULTS

Participatory games

- Most of the players saw the game as a tool to realize how farmers can collaborate, making decisions together or alone, to achieve common or individual goal.
- Conflict topic was between organic and conventional agriculture for amount of work intense and the lack of experience in using organic practices (i.e. compost, or integrated pest management). Plus, not higher selling price and lower yield for organic production.

Backcasting workshop

- **Productivity & market targets** was the most conflictual. Organic agriculture has lower coffee yield then conventional. Farmers sell the coffee beans to local cooperatives or external companies they receiving different income. The participants proposed for the ideal situation a better price for all, organic and conventional producers based on strong local cooperatives which cover more communities, provide a recognize label concerning sustainable practices and fair trade and a better supply chain for coffee complementary products as fruits and seeds.
- **Soil fertility targets** were based on the difference between organic farms or not. Not organic farmers highlighted the necessity to use chemical fertilizers due to the lack of knowledge on alternative practices as compost making or integrated soil management.
- **Biodiversity targets** was established by the participants starting from the current trees associated species richness that were evaluated in the communities where the game sessions took place. The participants entirely agree to largely increase the plants diversity in the farm by sharing knowledge and practices of different trees species used in the communities.
- **Land use targets** were not an issue concerning the no interest in expanding the land by the participants. This is due to the fact that hard working condition, lack of time and lack of labor do not allow to work on a larger land

CONCLUSIONS

- Co-create resilient farming future using participatory games and backcasting workshop highlighted the need to diversify the farming system and the practices, while creating a unique and stronger community.
- As output of the backcasting the participants showed that they are not interested in developing a totally organic system. This is due to the fact of the less labor available - within the abandon of the countryside by the younger farmer for the city - and subsequently the limited number of the family available to work.
- Farmers see the utilization of conventional products necessary, on the other hand as the monetary availability is limited the utilization of them it is restricted and according to their future desires it will remain restricted and used only if strictly necessary.
- The introduction of a little orchards, vegetable garden, animals as chickens, pigs and aquaculture will provide not only a better diet, but also a possibility to all the family to develop their interests as taking care of them in a contest of gender equality.



VIDEO



QR code. Video presentation of the poster