# NARRATIVE GAMES FOR SOCIAL LEARNING:
## GAME DEVELOPMENT AND APPLICATION ON TRANSFORMING FAIRTRADE RULES FOR SMALLHOLDER ORGANIZATIONS

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## 1. INTRODUCTION

- In the Global South, export-oriented food market has often coincided with crop production intensification, reducing the cultivated biodiversity of smallholder farmer systems.

- There is a need to support smallholder organizations to transition towards a sustainable production for varieties & species-diverse supply chains.

- Learning and understanding the challenges that smallholders face is needed to address sustainability transition in the food system.

- Within serious games, narrative games have shown their potential to discuss complex problems with a broad audience. But, more work is needed to test collective decision-making processes and social learning.

- Our research presents the development, testing, application and assessment of our narrative game named SCENE (Supporting Collective Evaluation of NarrativEs).
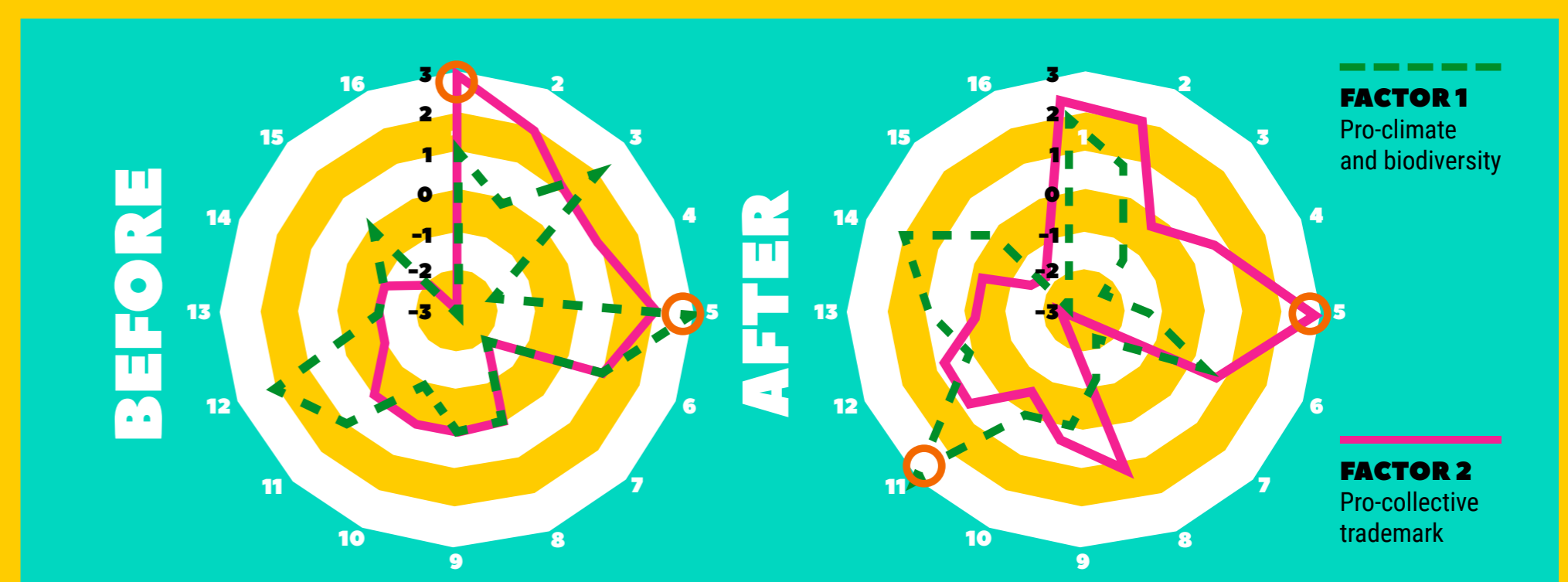
## 2. METHODS

- We present the iterative developing methods for designing the narrative game including: (1) narratives development and testing; (2) online game development in the open-source platform Twine; (3) game illustration development; (4) game test and assessment methods development; (5) game application (Figure 1).

- Our application consists of three game-based workshops. Each included a preparation phase in which group leaders were interviewed using a backcasting method; and a follow-up interview reflecting on the participants' social learning, positionality and agency.

- The impact of the game on social learning was assessed using Q methodology before and after the game sessions (Figures 2, 3).

- In the game application, we focused on renewing fairtrade certification schemes and quinoa smallholder organizations and agrobiodiversity in the high Andes.



**CO-DEVELOPING NARRATIVES**

**STEP 1**
1. LITERTURE REVIEW
2. EXPLORE STAKEHOLDER PERSPECTIVES
3. EXPERTS' CONSTRUCTIVE CRITISISM
4. DEVELOP THE NARRATIVES AND FRAME THEM INTO A "QUARTET" GAME
5. CHOOSE THE MOST RELEVANT NARRATIVES OF THE "QUARTET" WITH STAKEHOLDERS

**GAME CO-DESIGN AND TEST**

**STEP 2**
6. DESIGN AND CODE THE NARRATIVES INTO A NARRATIVE
7. COLLABORATE WITH AN ARTIST TO CO-DESIGNING THE GAME ILLUSTRATIONS
8. ONLINE GAME TESTS WITH GAME EXPERTS AND STAKEHOLDERS
9. DESIGN GAME-BASED WORKSHOP AND ASSESMENT

**FIGURE 1.** Narrative game iterative development process in two steps: co-developing the narratives (Step 1); and game co-design and test (Step 2). The process presented is inspired by the companion modelling approach (Étienne 2013).

**PHASES** | **OBJECTIVES** | **METHODS**

1. PREPARATION → 1. EXPLORE LEADER FUTURE PERSPECTIVES → BACKCASTING INTERVIEW

2. GAME-BASED WORKSHOP → 2. EXPLORE AND ASSES GROUP PARTICIPANT SOCIAL LEANIING AND COLLECTIVE SCENARIO EVALUATION → 1. PRE-Q SURVEY 2. BRIEFING 3. GAME SESSION 4. DEBRIEFING 5. POST-Q SURVEY → EXTERNAL FEEDBACK

3. FOLLOW-UP → 3. EXPLORE LEADER REFLECTIONS ON THE METHOD, SOCIAL LEARNING, POSITIONALITY, AND AGENCY → FEEDBACK AND REFLECTIONS INTERVIEW

**FIGURE 2.** Overview of the research objectives and methodological process in three phases: preparation, game-based workshop, and follow-up.



1. Climate change has increased the risk of quinoa yield loss in the Andes.
2. Frosts reduce quinoa yields in the Andes.
3. Rising quinoa prices create new opportunities for the Andean community.
4. Rising quinoa prices favour the production of the few varieties in the Andes.
5. Diversification of quinoa varieties is essential to cope with the effects of climate change.
6. Smallholder Andean younger generations seek to live in cities.
7. Smallholder Andean older generations seek to live in cities.
8. Agriculture is not an attractive activity for the younger generations in the Andes.
9. Soil availability is a limiting factor in the Andean community.
10. Labor is a limiting factor in the Andean community.
11. A collective trademark for quinoa developed by the Andean communities can foster the development of a fair market.
12. A collective trademark for quinoa developed by several Andean countries can support the development of a fair market.
13. The development of a collective trademark can support Andean traditional agricultural practices.
14. The development of a collective trademark can favour Andean traditional quinoa varieties.
15. The promotion of traditional Andean quinoa varieties is an added value for the market.
16. The promotion of improved Andean quinoa varieties is an added value for the market.

-3 -2 -1 0 +1 +2 +3
MOST DISAGREE | MOST AGREE

**FIGURE 3.** Overview of the research objectives and methodological process in three phases: preparation, game-based workshop, and follow-up.

## 3. RESULTS

- The game-based research method presented and its assessment, highlighted new certification scheme ideas for promoting local agrobiodiversity for export. We assessed the shift in understanding, before and after the game sessions using the Q methodology (Figure 4).

- Based on the result of the Q analysis two archetypes were obtained:

**FACTOR 1** named "Pro-climate and biodiversity": Fairtrade retailers represented by this archetype are aware of climate change's effect on quinoa production in the high Andes in both, before and after the game sessions. After the game sessions, their opinion remains strong on this aspect, but in addition, they seek quinoa diversity as a resource to face climate risk challenges.

**FACTOR 2** "Pro-collective trademark": Fairtrade retailers represented by this archetype believe that having a transnational collective trademark among different Andean countries can favour a fair and biodiverse quinoa market. Their opinions shift before and after the game session regarding their opinion on the impact that a collective trademark can have on the local system promoting diverse quinoa varieties for the market.



BEFORE | AFTER

FACTOR 1 Pro-climate and biodiversity
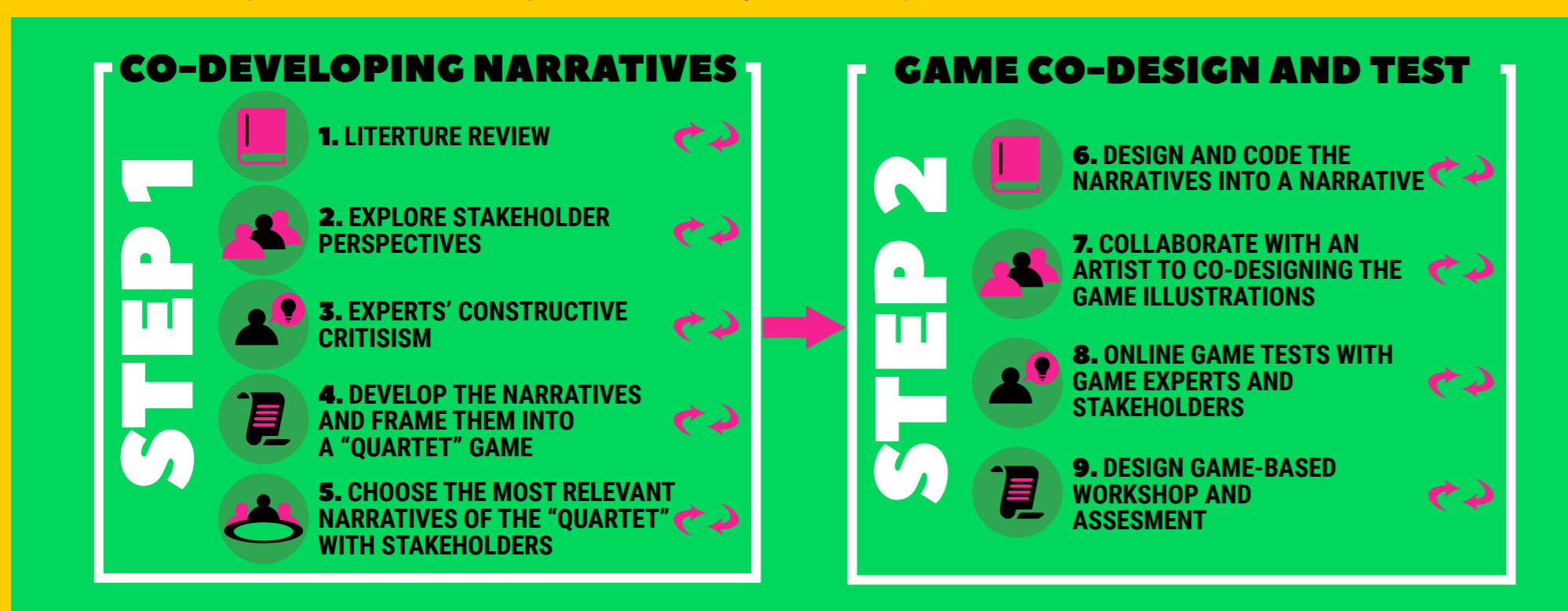
FACTOR 2 Pro-collective trademark

**FIGURE 4.** Spider diagrams summarizing the Q-survey and related statements ranking (1-16) of the workshop's "A" and "B": before the game sessions (on the left) and after the game sessions (on the right). In both diagrams factor 1 "Pro-climate and biodiversity" is a black line, while factor 2 "Pro-collective trademark" is the dotted black line. The statements with the highest ranking (+3) are highlighted with an orange circle for both factors.

## 4. CONCLUSIONS

- Our research presented the development, testing, application, and assessment of a narrative game named SCENE to foster social learning and facilitate collective scenario evaluation of fairtrade retailers on smallholders' perspectives.

- This research method and its assessment highlighted new certification schemes for promoting local agrobiodiversity for export and acknowledging and sharing with the consumers the development of traditional practices and perspectives.

- We assessed a shift in understanding, before and after the game session, as an essential component for social learning and we highlighted how some participants valorised more local agrobiodiversity, while another group valorised more local governance initiatives such as collective trademark.

- Our approach and method could be applied to several products marketed from the global south, where smallholder farmer organizations maintain traditional varieties and practices.

- This remote approach can foster the dialogue among several actors involved in the supply chain and consumers to re-imagine a sustainable and fair market.
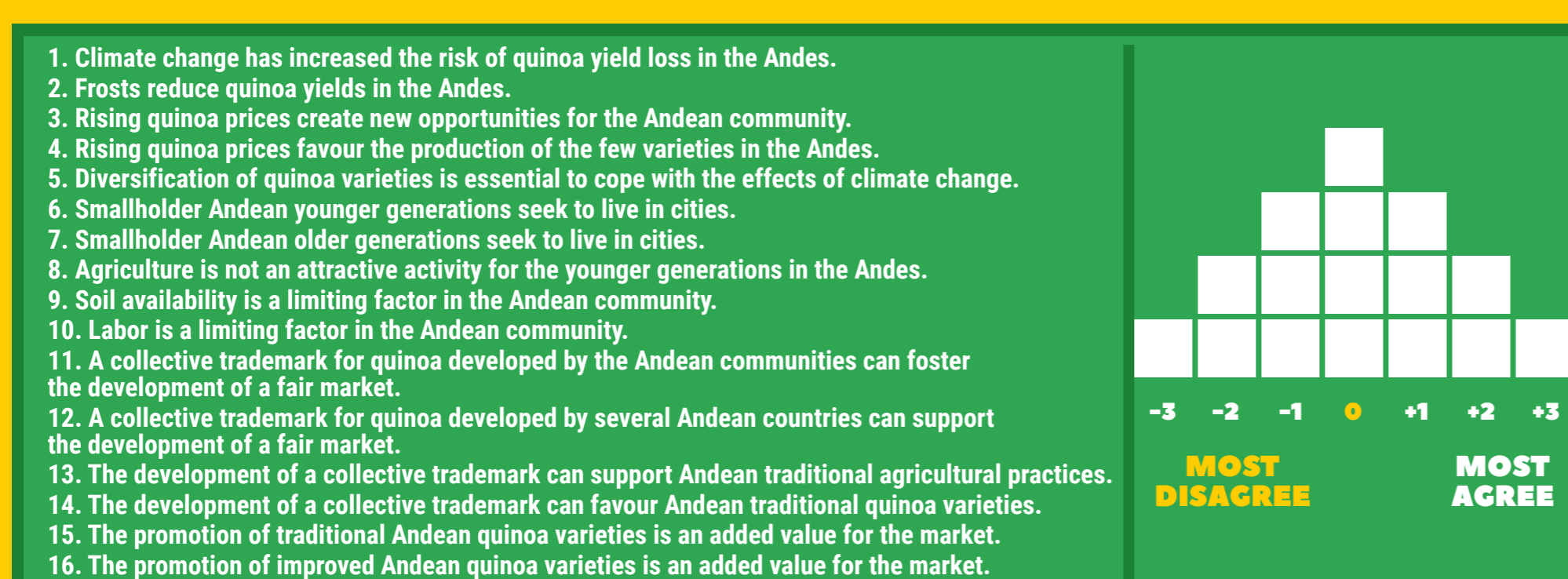
**DOWNLOAD AND PLAY THE DEMO OF SCENE GAME!**

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