

## ● Agrobiodiversity and sustainability: a collaborative approach

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### Background

Ensuring food and nutrition security of populations in the face of climate change will be one of the greatest challenges in the years to come. Increasing attention is being paid to agrobiodiversity and agro-ecological practices as a pathway to resilience and sustainability of agricultural and food systems. This requires a greater focus on ecological and social processes in agrosystems, but also a greater consideration of the views and values held by agrarian communities, leading to more just and equitable sustainable agriculture. But how can we co-construct these pathways?

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#### Further reading

HERAS M., TÀBARA J. D., 2014 – Let's play transformations! Performative methods for sustainability. *Sustainability Science*, 9 : 379-398.

## Perspectives on agrobiodiversity from the natural and social sciences

Plant agrobiodiversity – on which the livelihood strategies of small-scale farmers have been based since domestication over 12,000 years ago – is the result of processes linking agrarian societies, crops and their environment. Agrarian societies have played and still play a key role in creating and managing this biodiversity. Through their practices such as naming, selecting and circulating seeds, they have shaped agrobiodiversity to suit different environmental conditions, different cropping systems and their own cultural preferences. But more recently, research, the seed industry and agricultural policies have had an impact on the diversity of plants grown by farmers and their access to seeds. Apart from its functional and cultural roles, agrobiodiversity has an economic and political aspect and raises issues around food and seed sovereignty and farmers' rights.

## Revamping partnership research practices

With smallholders managing 83% of the world's farms, producing between 30% and 53% of all calories, and conserving far more agrobiodiversity, it is clear that these agrarian communities are key partners in achieving new and ambitious goals for sustainable agriculture. This requires the co-construction of multi-partner collaborative research frameworks and moving from a community

of researchers to a community of research. Involving new stakeholders in research projects is a challenge for everyone involved, both scientists and farmers. These challenges are linked to the plurality of issues and sometimes divergent interests, to the historical relationships between stakeholders, to the production of knowledge and the ways in which it is leveraged (FAIR database, co-publication), to project time frames, and to the lack of adequate institutional frameworks for collaborative approaches with non-institutional stakeholders. Overcoming these challenges to revamp our partnership research practices requires inventive means to engage and stimulate collective intelligence.

## Arts and science through the lens of sustainability science

The last decade has seen renewed interest in the role of the arts in the natural sciences. There is a wide range of artistic approaches useful to science, including photography, drawing, writing, dance and theatre. These approaches bring in new elements – including emotions, beliefs and aesthetics – that can be used when observing and interpreting the world around us and when co-producing new knowledge with society. One of these approaches is forum theatre, a medium that fosters reflexivity and encourages individual, collective and institutional transformations. Forum theatre was devised by Augusto Boal in the 1970s to discuss situations of tension, intentional or otherwise, between a variety

of stakeholders, and has four stages: (I) creation of a play inspired by real events, depicting tension between various characters; (II) performance of the play to an “interested” audience; (III) at the end of the performance, a moderator invites the audience to share their feelings and interpretations of the play and the actions of the characters; (IV) having become “spectators”, the audience is then invited to take the stage to explore together alternative ways of dealing with the tension depicted. The forum theatre format of action/reflection/action lends itself well to this collective exploration through reflexivity, experimental embodiment and emotional experience.

### Showcasing research practices and collaborations on genetic resources: *TIRPAA ma graine*

The play *TIRPAA ma graine*<sup>1</sup> (“Don’t mess with my seed”) allowed us to explore the issues of agrobiodiversity governance and fair and equitable research practices with a variety of stakeholders (scientists, farmers, NGOs, policymakers, funding bodies, etc.). The play was written by researchers from various disciplines and backgrounds, and scripted by a professional Senegalese forum theatre group, the KadduY-araax, who introduced a range of artistic, scenic and aesthetic techniques. The play portrays



Performance of the play *TIRPAA ma graine* in Djimini, Senegal, as part of the 2018 International Farmers’ See Fair.

various characters: an expatriate researcher, a national researcher, farmers and a gene bank. These characters are caricatures, as is typical of forum theatre. Caricatures are a good way to provoke reactions and make power relations, tensions or issues explicit to a wide audience. The first scene deals with the communication issues between researchers and farmers during seed collection. The second scene highlights the many values and identity dimensions that farmers attach to seeds. The third and fourth scenes examine the national and international frameworks that govern the circulation of seeds in relation to the collaborative practices of researchers and farmers and the (non)recognition of local knowledge. The fifth and final scene raises the issue of intellectual property

<sup>1</sup> • The title of the play is a play on the French words “Tire pas” (here meaning “Don’t mess with”) and “TIRPAA”, the French acronym for the *International Treaty on Plant Genetic Resources for Food and Agriculture*.

rights and making good use of research findings at the individual, collective and institutional levels.

By addressing these different aspects in front of a variety of audiences (research institutions, farmers' fairs, etc.), forum theatre was deployed as a research method to identify the injustice felt by different groups and the conditions for developing more just and equitable agrobiodiversity research and governance practices from the viewpoint of the various stakeholders. This was only possible

through close collaboration between the biological sciences and the social sciences and humanities. Forum theatre also provides a way of reaching and engaging with audiences beyond our research communities by opening up spaces for dialogue between science and society. Appealing to an audience's emotions and personal experience improves our understanding of the issues at stake and is a first step in engaging society in the issue of shared governance for the common good provided by agrobiodiversity.

## KEY POINTS

Agrobiodiversity is one of the tools available to co-construct, with indigenous peoples and local communities, agricultural pathways that strike a balance between productivity, human well-being, biodiversity conservation and adaptation to climate change. Performative approaches like forum theatre provide fertile ground for environmental action research. These open innovation mechanisms support the co-construction of agricultural practices and research frameworks that reflect the diversity of issues and value systems encountered in a multi-partner collaborative research context.

# SUSTAINABILITY SCIENCE

**UNDERSTAND, CO-CONSTRUCT, TRANSFORM**

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