TATA-BOX at a Glance

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Abstract In this chapter we present very briefly the main framework used to establish the TATA-BOX project and the general methodology developed to codesign the territorial agroecological transition.

Context

Environmental degradation, human health, energy crises and climate issues are forcing policy-makers and farmers to rethink the industrial and input-based model of agriculture. One way to deal with these issues is to promote a strong ecologisation of agricultural systems, based on diversification at field, farm and landscape levels to develop ecosystem services (Duru et al. 2015b). Designing and implementing such an approach requires profound change in the management of farming systems, natural resources and food chains, and in turn entails a wide range of environmental and societal changes. To support this change, agricultural actors and researchers require new tools.

Roots of TATA-BOX

To describe the nature of the complex system concerned by the agroecological transition of agriculture, Duru et al. (2014) proposed a new conceptual framework. This Framework represents local agriculture as a system of various actors whose

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Fig. 1 The DFT framework

behaviour is determined by formal and informal norms and agreements that interact, via technology, with material resources specific to farms, as well as with supply chains and natural resources (cf. Fig. 1). Two main types of resources are managed: material resources, and cognitive resources. This framework distinguishes three systems of material resources (MR) associated with the three management processes: (i) the MR system of the farm (MR-F), used by the farmer for agricultural activities; (ii) the MR system used by actors of each supply chain for collection, processing, and marketing activities (MR-PC); and (iii) the MR system used by actors for management of the natural resources of local agriculture (MR-NT). These MR systems include components that interconnect or interact, such as fields, planned biodiversity (crops, domestic animals), associated biodiversity, machinery, buildings, water resources, and labour for the MR-F system; transportation, storage, and processing equipment and roads for the MR-PC system; and water, soil, and biodiversity (including associated) resources and landscape structures (hedgerows, forests, hydrological network) for the MR-NT system. The three MR systems are interdependent. Each management process is based on, and determined by, technologies that are specific to it and used to act upon the concerned resource system. Actors with limited rationality have a certain degree of freedom and autonomy in their choices and actions.

This conceptual framework (cf. Fig. 2) can be used to analyse and characterise current forms of agriculture called “Agricultural Systems in a Territory”, and to design a future “Territorial AgroEcological System” (TAES) corresponding to a strong ecologisation of current Agricultural Systems in a Territory. A key character-

Fig. 2 The conceptual methodology for design and the agroecological transition of a territory

istic of the TAES is that it organizes interactions locally between production systems, to take advantage of their complementarities, whether these be biophysical (best use of differing soil and/or climate characteristics and/or of access to some natural resources of the farms) and/or production-oriented (e.g. organisation of crop-livestock interactions at the local scale) (Moraine et al. 2012, 2014). Duru et al. (2015a) also present a generic methodological framework to support local stakeholders in designing transition to Territorial AgroEcological Systems (tTAES). The TATA-BOX project is designed for testing and adapting a methodology to help local agricultural stakeholders to develop a vision of the desirable transition of local agricultural systems and to steer that process. The methodology is based on 5 steps: (i) characterisation of the current local agriculture; (ii) definition of the exogenous forces that will impact local agriculture in a near future; (iii) design of a Territorial Agroecological system (TAES) based on ecological principles (Biggs et al. 2012); (iv) definition of steps to attain such a system i.e. the tTAES; and (v) proposal of local governance and management to steer this transition. Importantly, each step must be performed by considering and integrating characteristics of and interactions between farming systems, and food chains, and natural resource management.

The TATA-BOX Project

The TATA-BOX project is rooted in post-normal science (Funtowicz and Ravetz 1993) and the participatory integrated assessment paradigm (Rotmans 1998). It is a transdisciplinary and participatory project with interaction between labs and on-fields arenas. To meet the requirements of the French National Research Agency which funded it, it was structured as a set of workpackages, but deconstructed to follow fields' requirements. Starting from the conceptual and methodological proposals of Duru et al. (2014, 2015a), the TATA-BOX project developed an operational set of articulated methods for supporting stakeholders to design a transition to Territorial AgroEcological Systems at local level. This methodology was structured into three workshops: (i) construction of a shared diagnosis of current issues in local agriculture; (ii) identification of the exogenous and endogenous drivers of change in the territory that determine the future of local agriculture and the co-design of a shared vision of the forms of agriculture to be developed locally to respond to current and future challenges; and (iii) co-design of the adaptive action plan to develop these forms of agriculture by specifying (a) the actions to be implemented, considering local impediments and resources and (b) the polycentric governance to be developed. To evaluate the efficiency of this operational methodology it was applied to two neighbouring study territories in south-western France, downstream and upstream of the Aveyron Valley, in partnership with the PETR (Territorial and Rural Balance Pole) Midi-Quercy Country (48 municipalities, 1192 km²) and PETR of Centre Ouest Aveyron (129 municipalities, 2998 km²).

Each of the three workshops of the methodology resulted in a one-day workshop in each of the two study territories. In each of them, the actors were invited to work in sub-working groups on each of the three key sub-domains of local agriculture (farming systems, natural resource management systems, and food chains) and in plenary sessions on interactions between sub-domains. Various artefacts (boundary objects) were developed and used to formalise and integrate knowledge and proven collaborative methodologies (e.g. meta-plan, participatory mapping, rich picture, mind-map, icebreaker), and customised methodologies were applied. One of original products was the development of a method and associated artefacts for determining the transition pathway (sequence of actions and objectives to be achieved) and the governance to steer it.

Some Key Figs

- 4-year project
- €600,000 in funding
- 4 participatory workshops
- 57 participants at the different workshops
- 40 researchers

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