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Large-scale participation in policy design: citizen proposals for rural development in Tunisia

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ABSTRACT

More and more literature and practice recommend involving the public at the early stages of the policy cycle, i.e. issue identification, definition of the policy objectives and policy design. Policy design involves, among others, identifying solutions, ideas or alternatives which may address the policy objectives. Three main arguments are often put forward to advocate for the involvement of stakeholders, or the public, in policy design: a "user-centered" argument (i.e. for the policy to better meet people's priorities), an innovation argument (i.e. to conceive new solutions) and a collective argument (i.e. to identify collective actions and better tackle environmental problems). However, in both research and practice these arguments have been challenged. Research has insufficiently generated evidence of the influence of large-scale participation in policy design on resulting proposed actions. The objective of this paper is to analyze whether a large-scale participatory process leads to action proposals that fit people's priorities and that are innovative and collective. It draws from a land management and rural development policy design experiment conducted in six vulnerable areas of Tunisia. 4,300 direct participants were involved and 11,583 action proposals were collected. Our results highlight the influence of the local circumstances on innovation and the interest towards collective actions. Our results also show that whether policy design is made individually or in group influences the outcomes. The results also suggest that appropriate facilitation can help fostering more collective and innovative actions. We conclude the paper by opening up the idea of hybridizing policy design methods with methods from political and agricultural sciences in order to better understand the drivers and rationalities behind participants' action proposals.

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1. Introduction

Stakeholders and the public are increasingly solicited by governments and public bodies to participate in the public decision process (Bayley and French 2008). For long, public participation was more commonly implemented at the latter stages of the policy cycle, when several alternatives to a given problem had already been identified. The public is then asked to contribute an opinion about these alternatives. However, this late participation strongly limits the ability of stakeholders to seriously inform the process, as there is little room for maneuver and change in decision making at this stage of the policy cycle (Mintrom and Luetjens 2016).

More and more literature and practice therefore recommend involving the public right from the early stages of the policy cycle, i.e. issue identification, definition of the policy objectives and policy design (Fig. 1) (Floc'Hlay and Plottu 1998; Barbier 2005). This integration of "users" at a very early stage is one of the core principles of design theory (Buchanan 1992; Rowe 1998; Dorst and Cross 2001; Liedtka et al. 2013). Design theory focuses on "users", as "the people who will use the final product or artifact to accomplish a task or goal" (Abras et al. 2004). Literature on policy design and decision-making prefers the term "stakeholders", understood here as people or organizations either affected by the decision process or who can affect it (Glicken 2000). In this paper, we will therefore use the term "users" only when mentioning design theory references. Alternatively, we will prefer the term "stakeholders". Similarly, "the public" is broadly defined here as "citizens and communities", i.e. people who may take part in a dialogue with officials. Following Barnes et al. (2003), we acknowledge that the way "the public" is constituted is socially constructed and affects the practices of participation. Hence we will use the word sparingly, mostly in terms like "public participation", "public policy" and "public services".

The policy design stage involves the deliberate and conscious attempt to define policy objectives and connect them to instruments or tools expected to realize those objectives (Howlett et al. 2015). In other terms, policy design involves, among other activities, identifying solutions, ideas or alternatives which may address the policy objectives.[1]

Although the public is rarely involved in policy design (Colorni and Tsoukiàs 2018; Ferretti et al. 2019), three main arguments are often put forward to advocate for such involvement. The first argument relies on a « user-centered » orientation stemming from design theory. The underlying idea is that the involvement of potential users in the identification of the problem and the generation of alternatives will lead to a policy that better meets their needs and better responds to the issues that are a priority for them, hence leading to better outcomes for society. The involvement of users in policy design is also expected to increase the overall legitimacy of the process, and ultimately the success in the implementation and long-term impact of the intended actions. This "user-centered" approach is particularly highlighted in the literature on public policy design and public service design (Weller et al. 2017; Allen 2020).

The second argument relates to innovation. It could be summarized as "the more participants, the more innovative ideas". The rationale is that the structured integration of different stakeholders' knowledge allows to unleash creativity and conceive new solutions (Moore 1995). This argument is often put forward in the literature on innovative design (Tavella and Franco 2015). Finally, the third argument relates to collective action. This argument is particularly emphasized in the collaborative environmental governance literature. It relies on the idea that many, if not most, environmental problems are collective action problems (Bodin 2017). The hypothesis is that by thinking together about possible actions, participants will build relationships of trust, social learning will take place, and eventually participants will be eager to implement collective actions. These changes will increase the chances to tackle environmental problems.

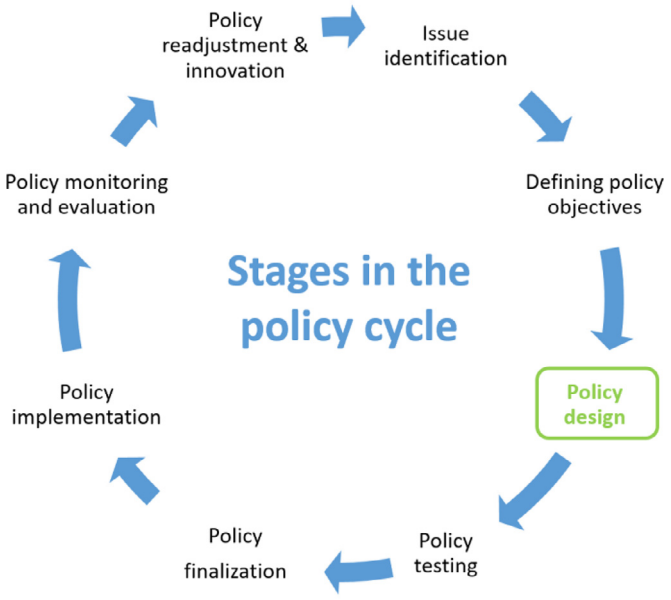


Fig. 1. *Policy design in the policy cycle* (based on Lasswell 1956; Tsoukias et al. 2013).

These arguments have been challenged by several researchers. Conway and Mustelin (2014) and Butler et al. (2016), for instance, relate experiences where stakeholders involved in development planning tended to focus on conventional and immediate development needs (e.g. improved road access, intensification of agricultural production and product quality) rather than transformative ones. They call transformative strategies ones that could tackle systemic causes and generate a substantial change in social-environmental systems. Many authors also demonstrate that the engagement of diverse stakeholders with differing perspectives can lead to ambiguity and polarization, and limited capability to develop innovative ideas (e.g. Brugnach and Ingram 2012). In practice, Le Masson (2017) advances that brainstorming – a method used in participatory decision-making processes to get participants to generate new ideas – does not necessary allow the generation of innovative alternatives, especially when it is used in a group, as participants tend to focus on consensual solutions rather than innovations. In this regard, Paulus and Brown (2003) advance a number of social and cognitive processes – including information sharing by partners, intra- or intergroup competition and ascendancy of facilitators or group leaders – which influence the brainstorming process and affect both the motivation and the ability of participants to generate new ideas. Finally, regarding collective action, Bodin (2017) shows that collaborative initiatives sometimes end up with a simple compilation of "wish lists" that reflect more individual interests than collaborative solutions to common problems. Several authors also highlight collaboration barriers that can emerge due to the lack of effective interaction mechanisms, high level of ambiguity, or limited transparency (e.g. Margerum and Robinson 2016).

Research is still lacking regarding the results of public participation in policy design in terms of the actions proposed. Especially, few papers analyze the characteristics of the proposals made by the public in regards to the consistency of the actions with the priority issues at stake, innovativeness and collectiveness. Moreover, few papers analyze the results of policy design when carried out with many participants in a low tech, low literate and rural context. Our paper aims at bridging this gap.

These issues are particularly relevant in Tunisia. Since the 2011 revolution, the government has demonstrated strong willingness to involve the public in the design of policies. The new Tunisian Constitution (2014) and the Code of Local Collectivities (2018) both advocate

[1] In design thinking, this stage is called "ideation" (Brown and Wyatt 2010; Ogilvie and Liedtka 2011). For consistency however, we will use the term "policy design" throughout this paper.

decentralization and public participation in decision-making regarding land use and development. This willingness is illustrated in the national strategy for the management and conservation of agricultural land at horizon 2050 (BRL ingénierie and STUDI 2017) and especially in the associated program on climate change adaptation for vulnerable rural territories (PACTE, 2018-2024) that is presented in this paper. PACTE aims to implement a large-scale participatory approach for the elaboration of territorial development policies in vulnerable areas of Tunisia. Between 2018 and 2020, a large number of inhabitants – many of whom are poorly literate - were thus involved in the policy design stage: they identified and prioritized issues in their territories and proposed actions. In total, nearly 4,300 direct participants were involved in five governorates in Tunisia, and 11,583 action proposals were collected.

The objective of this paper is to analyze whether such a large-scale participatory process for policy design leads to action proposals that fit people's priorities and that are innovative and collective. The first criterion, adequacy with the issues considered as priorities by the inhabitants, is quite straightforward. The other two criteria seem particularly relevant in the Tunisian context. Indeed, a priori, actions do not necessarily need to be innovative, as long as they respond to the socio-environmental issues at hand or in other words, as long as they "work". In parallel, as frequently discussed in the adaptation literature, transformative change is not always needed. In many cases, incremental adaptation is useful as well. However, studies have shown that, in the Tunisian rural context : (i) past and current actions to solve different problems (i.e. non-innovative actions) are often not sufficient to lead to a clear improvement of the situation (e.g. Sghaier et al. 2009) and (ii) actions carried out collectively have a greater potential to solve most of the existing issues in these areas (e.g. environmental problems, infrastructure, need for better "agency" in the value chains, etc.) than actions carried out individually (e.g. Fourati 2016).

In the following section, we review scientific literature that analyzes the results of a policy design process carried out in a participatory way and with many actors. In the second section of the paper, we describe the participatory process that was implemented in Tunisia and the methodology that was used for analyzing the 11,583 action proposals. The third and fourth sections present and discuss the results of our analysis. Action proposals are analyzed based on three criteria: consistency with the issues at stake, innovative actions and collective actions. The conclusion draws the lessons learnt for large-scale participation in policy design.

2. Literature review

Several fields of research explore the results of public participation in the early stages of the policy cycle. These include, among others, participatory design (Schuler and Namioka 1993), co-design (Sanders and Stappers 2008) and open design (Boisseau et al. 2018). Among them, more and more authors are interested in the "ideation" stage which we call here policy design (Ogilvie and Liedtka 2011; Ferretti et al. 2019). Policy design involves generating ideas, solutions or alternatives which may address the policy objectives (Brown and Wyatt 2010). Public policy alternatives are "options for government action comprised of different sets of policy means—that is policy tools and their calibrations—bundled together into packages of measures which are expected by their designers to be capable of attaining specific kinds of policy outcomes" (Howlett and Rayner 2013). As decision-makers are confronted with increasingly complex problems, much of the design literature has focused on how best to generate innovative alternatives. These innovations are seen as a way to bring about significant changes and to respond to "wicked problems" that cannot be solved by usual solutions.

In the field of management science, several approaches were therefore developed to support collective creativity, innovation and ideation in the policy design stage. These include for example the Policy-Knowledge Concept Proposals (P-KCP) tool (Pluchinotta et al. 2019). This tool is based on the C-K theory by Hatchuel and Weil (2003; 2009). The P-KCP tool consists in four main participatory phases: 1/ an initial problem formulation of the policy issue, 2/ a collective problem formulation by building a summary of current knowledge about the policy issue at hand, 3/ an exploration of new alternatives and 4/ the building of a decision support model using the set of alternatives previously produced. In the same line of research, Brun et al. (2019) explore the contribution of visual stimuli, such as pictures sketches or 3D-printing prototypes in idea generation. Ezzat et al. (2017 p.1) suggest a process, called minimal executive feedback-based learning process, to help "individuals inhibit intuitive paths to solutions and then gradually drive their ideation paths toward creativity".

Beyond the management literature, these questions have also become extremely popular in the environmental field, which considers that innovations are necessary to bring about the transformations needed to achieve "sustainable futures" (Le Masson et al. 2006; Prost 2018; Berthet et al. 2019; Kagan et al. 2020). Several authors in this field consequently explore different approaches to foster the generation of creative solutions towards sustainable social-ecological systems. In the agricultural field, Faure et al. (2019) mention several innovation support services which may support the "initial idea" and the "inspiration" stages: exchanges of experiences, field visits and meetings with experts. Several authors also suggest back-casting as an approach allowing to foster participants' imagination and support creativity (Sisto et al. 2018; Achuenu 2019). Mangnus et al. (2019) explore the use of a combination of methodologies including visioning, back-casting and simulation games. Galafassi et al. (2018) highlight the role of stories in generating shared meanings and opening up spaces for exploration of knowledge assumptions. Kagan et al. (2020) explores jamming, i.e. a session that brings together different individuals who collaborate to create something that emerges from the dialogue between the participants, as a tool to generate a vision-oriented design towards creating futures.

Several authors have also sought to connect the two fields of literature on participatory approaches and design sciences in the field of agronomy and environment (for a literature review, see Prost 2018; Salembier et al. 2018). Berthet et al. (2016) analyse three participatory design methods to foster agroecological innovation: ComMod (Companion Modelling for concerted management of natural resources), Forage Rummy (simulation-based board game for designing farming systems) and KCP. In her PhD, della Rossa (2020) combines a socio-technical system diagnosis, innovative design workshops inspired by the C-K theory and the evaluation of innovative concepts through a role-playing game in order for participants to identify technical and organizational innovations to face a pollution issue in Martinique (Caribbean). Several other researches in agronomy apply the C-K theory or derivatives and combine it with other approaches (e.g. Ravier 2017; Leclère 2019).

However, these approaches focus mainly on the process, methods and combinations of methods to foster creativity and innovation rather than on the results of such processes. Moreover, these approaches rather deal with innovation, and do not analyze to what extent the actions proposed by the participants in these processes are consistent with the priority issues at stake or whether they target collectives. Finally, these approaches are often carried out with relatively reduced groups of stakeholders or experts, not with large populations.

We therefore turned to the literature on participatory and collaborative planning. Indeed, although planning and policy-making have some differences (see Howlett and Lejano 2013; Peters 2018 for a discussion about this), we argue that participatory planning also includes a design stage and has been tested with larger groups of actors. Among this literature, we looked specifically for research analyzing the proposals, ideas and solutions of a design stage carried out with many participants.

A particularly relevant example from this point of view is the example of the *Grand Débat* in France. In 2019, following a wave of social protests (the "yellow vests"), the French government organized a national Great Debate with the aim of "debating issues essential to the French" and "putting forward their proposals and ideas". A total of 1.2 million people participated (Fourniau 2019), via four main channels: 1/ an online platform (https://granddebat.fr) on which participants could

either make open contributions on one of the four themes imposed by the government – i.e. democracy and citizenship, ecological transition, taxation and public spending, and organization of the State and public services (République Française 2019) – or answer a questionnaire composed of closed questions; 2/ open contributions in the form of citizens' notebooks available in town halls, local initiative meetings, or letters and emails; and finally 3/ national thematic conferences and regional citizens' conferences. What is interesting in this experience is that many of the citizen proposals deal with themes other than the four that had been imposed by the government. This shows the importance not only of allowing participants to make proposals, but also of enabling them to identify policy issues or problems that are a priority for them. The imposition of these four themes was strongly criticized and contributed to the creation, by an opposition group, of another platform, the "True debate" in which the themes were not imposed (Fourniau 2019; Legris 2019; https://le-vrai-debat.fr/). This experience also highlights the difficulties in analyzing not only the proposals resulting from such a large policy design stage, but also the representativeness and inclusiveness of the process itself (Fourniau 2019). To our knowledge, other examples of participatory policy design exist worldwide (e.g. WWViews Alliance 2012) but few with such large-scale participation.

Participatory budgeting experiences also provide valuable insights since they are often carried out with numerous participants and include a design stage. McNulty (2012), Falanga (2018) and Bednarska-Olejniczak et al. (2020) for example analyze participatory budgeting experiences respectively in Peru, Portugal and Poland. Yet, if they examine the policy areas covered by the proposals, they do not necessarily analyze the proposals stemming directly from the population. Moreover, the collection of proposals and their analysis is often facilitated by the use of digital technology, which cannot be mobilized in a rural and low-tech context such as the Tunisian context presented in this article.

Two papers in the field of participatory planning in rural areas provide valuable insights on the question explored in this article. The first one, previously cited, shows that the options proposed by people in a rural low-literate context in Indonesia were rather short-term, and responded primarily to individual interests rather than to collective issues (Butler et al. 2016). The second one analyzed bottom-up planning in 239 villages in Purbalingga District, one of the most impoverished areas in Central Java Province in Indonesia (Sutiyo et al. 2020). Results highlight that participants prioritized programs that provided direct benefits in the short-term, such as provision of staple foods, cash transfer, house reparation or farming machinery. The authors also pinpoint that participants "cited the need for more income generation, but they were not able to explain what this might entail in detail and simply wanted the government to provide jobs" (p.52). These two testimonies show that in contexts of large-scale participation in rural areas, citizens tend to prioritize short term basic needs rather than long term innovative proposals. Indeed, in large-scale participation processes, dedicated support allowing participants to construct innovative and long-term proposals is more difficult to implement, which often leads participants to express primarily short-term needs.

By and large, the topic of large-scale participation in early stage of policy design have been addressed using several approaches, but there have been very limited studies about the results of this type of process in a low tech, low literate and rural context, in terms of the characteristics of citizen proposals.

3. Material and methods

3.1. Context

The climate change adaptation program for vulnerable rural territories of Tunisia (PACTE) started in 2018 for a period of six years. The program is piloted by the Tunisian Ministry of Agriculture, with the support of Tunisian and French researchers. The PACTE program is responsible, among other things, for implementing participatory planning approaches and decentralized governance for territorial development in six vulnerable areas of Tunisia. These areas were selected according to criteria of socioeconomic and ecological vulnerability and are spread over five governorates: Kairouan, le Kef, Sidi Bouzid, Siliana and Bizerte (Fig. 2).

The program is being implemented in a context of high unemployment rates, strong social protests, as well as economic and health difficulties generated by the Covid 19 pandemic. In addition and except for municipal elections organized in 2018, for most of the citizens who participated, this is one of the few times they have been asked to express their opinion on a public policy.

In this paper, we focus our analysis on three intervention areas: Bizerte, Kairouan and El Ayoun (Fig. 2). By doing so, we are able to better contextualize the results and provide a detailed analysis for each intervention area. The three intervention areas were chosen because they represent an interesting diversity in terms of environmental and socioeconomic conditions as well as in terms of methodology applied (Table 1).

3.2. Participatory process

A participatory process was implemented in each intervention area with facilitation from rural development support officers who are agents of the regional or local agricultural administration. These agents received extensive training on group and workshop facilitation techniques and participatory rural appraisal methodologies. In the rest of the article, they are referred to as "facilitators". For each intervention area, a referent researcher provided specific support to the facilitators and an observer was also recruited and trained to monitor and observe all the participatory events. Observers take notes on what participants say and how they behave and interact (tensions, etc.). They also take photos and videos of the various events taking place in the intervention area. They record the presence of participants using participant cards. All of this data is translated, computerized and analyzed by observers and researchers. In addition, facilitators record all participatory events in a "logbook" via a KoBoCollect[2] form installed on their digital tablet.

The participatory process implemented includes four main phases (Noury et al. 2017):

Phase 1, issue identification (December 2018 to May 2019), was based on a participatory diagnosis of the intervention area. This diagnosis was made primarily through individual and collective interviews with inhabitants, transect walks and participatory mapping. At the end of the diagnosis, facilitators and referent researchers identified development issues for each living territory[3], based on livelihood assets endowments of the local communities and concerns voiced by the inhabitants during fieldwork. In Bizerte and Kairouan intervention areas, these issues were validated by the population during small intermediate meetings organized at living territories' scale. In El Ayoun, those meetings could not take place due to human resources shortages and security reasons. Restitution workshops were then organized with the population in different places in all the intervention areas, during which the results of the diagnosis were presented and discussed. Then, participants were invited to vote in order to prioritize the issues that they considered as most important in their living territory. In order to ease the voting process, the number of issues available for participants to vote on was limited to 4 or 5 in each living territory. The way in which facilitators grouped to-

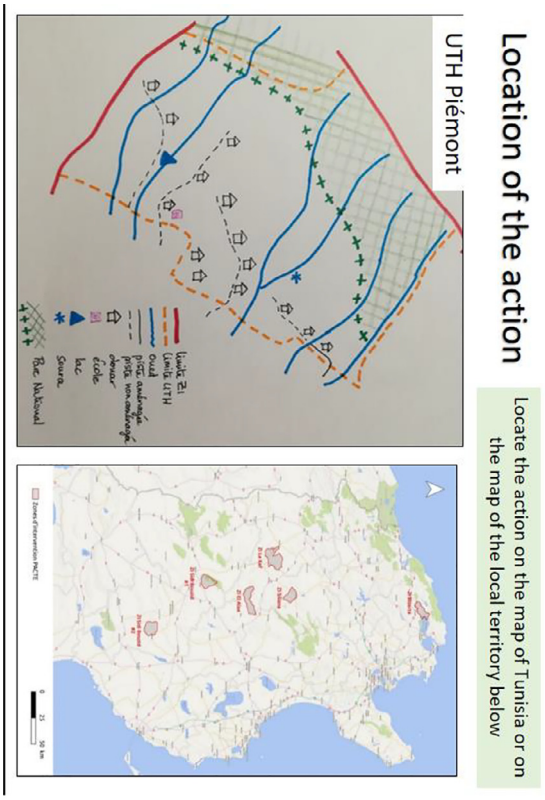
[2] See https://www.kobotoolbox.org/.

[3] Living territories are subdivisions of the intervention areas. They are defined as " territories within which a given population : (i) maintains sustained social relations, (ii) carries out its main livelihood activities, (iii) shares a common stake in the management of a given natural resource, and/or is organized in a group, association, or professional organization"(DGACTA 2016). In the PACTE program, the diagnosis was first elaborated at the level of living territories and then synthetized for the whole intervention areas.

Fig. 2. Localization of the six intervention areas (the areas in red are the ones presented in depth in this paper).

gether previously identified issues varied according to the intervention area and sometimes to the living territory.

Phase 2, prioritization of the issues and collection of action proposals (September 2019 to December 2019), took place during the same restitution workshops. Participants were first invited to make action proposals for their territory, during a "rain of ideas" session, i.e. each participant wrote down one or more action proposals on small sheets of paper. Then, action proposals were recorded using a specific template (Fig. 3). An example of action proposal was first filled out collectively on a poster. This exercise allowed participants to understand the different subparts of the action template and to ask clarification questions to the facilitator. Then, participants were divided into groups to fill out several action sheets collectively, each group working on one of the territory priority issues. At the end of the workshop, facilitators distributed blank action sheets to participants. Each action sheet had a unique identification number, in order to track its evolution through time. Some sheets were also left at



① PACTE action proposal

Explain here and on p. 2 your proposal for action in favor of the development of your territory and the well-being of its inhabitants. Fill out one form per proposal. They will all be reviewed by experts, discussed with your Territorial Committee and perhaps integrated into a future territorial action plan.

***Contact person**: ((Name / contact of the facilitator))*
http://www.********.**** (PACTE website)

Sheet completed on (date)*: ..... in (place)*: .....
Name pf the proponent (Last name/First name): .....
Written by (Last name/First name)* : .....
Contact (phone/email):.....

TITLE*	
Explanations* (how, why?)	
Bénéficiaries	*Who will benefit from this action ?*
Contributions	*Who should implement this action? What will the proponent do himself?*
Where ?	*Place or scale: Douar/ Intervention area/ Municipality/ Governorate / Nationwide*
When ?	*Now / Within 5 years / After 5 years*
Issues	*Issue 1 / Issue 2 / Issue 3 / Issue 4*

Date of the data entry:..... Intervention area:.....ID:.....
Category of the proponent: inhabitant/territorial committee/expert

② Detail of the PACTE action proposal

Optional part to be completed AFTER page 1, with the help of the facilitator

TITLE		
Linked actions	*Other actions required :*	*Conflicting actions, to be avoided:*
Risks, questions	*Doubts about the feasibility of the action, questions to the experts*	

What resources are needed to carry out the action ?

Natural resources	
Social support	
Budget (initial & operation)	
Work (initial & operation)	
Authorizations, legal	
Other resources	

What are the expected impacts?

Natural resources	
Incomes	
Employment	
Organisational impacts	

Notes of the facilitator:

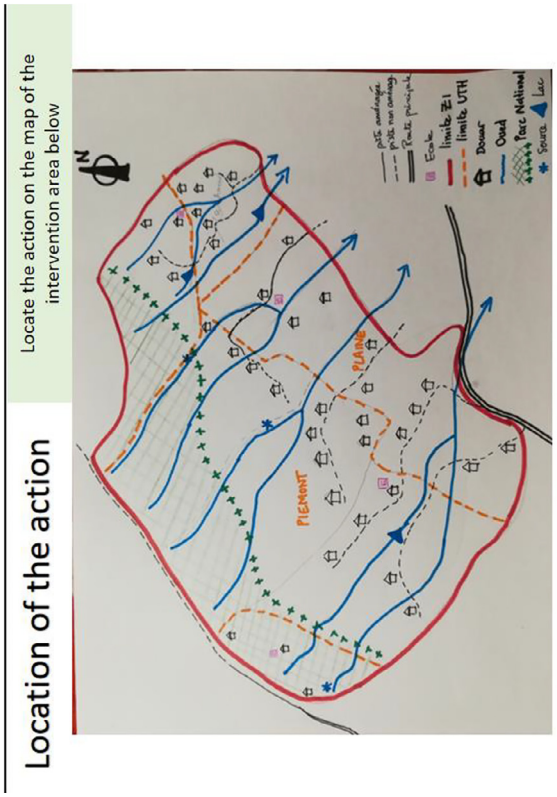


Fig. 3. Action proposal template (translated from Arabic, size = A5, leaflet format, the maps allow the proponent to locate the action at three different scales).

Table 1
Specificities of the three intervention areas analyzed in depth in this paper.

Bizerte	Kairouan	El Ayoun
Northern Tunisia; Mediterranean climate with hot, dry summer but significant rainfall during winter Heterogeneous area with steeply sloping mountainous lands, mountainous forested lands and flat lands. Local livelihood activities include rainfed and irrigated agriculture, cow, goat and sheep farming and seasonal off-farm work. The socioeconomic development level varies significantly from marginal, remote areas in the uplands to more developed areas near main roads.	Central Tunisia; semi-arid climate with low rainfall throughout the year Fairly homogeneous area with hilly, moderately sloping lands. Local livelihood activities include rainfed agriculture, goat and sheep farming and seasonal off-farm work. According to 2015 regional development indicators (Boussida et al. 2018), the area is ranked among the 10 least developed administrative delegations of the country.	Central Tunisia; semi-arid climate with low rainfall throughout the year Fairly heterogeneous area with both mountainous steeply sloping lands and flat lands. Local livelihood activities include rainfed agriculture, sheep farming, harvest and sale of natural products and seasonal off-farm work. According to 2015 regional development indicators (Boussida et al. 2018), the area is ranked among the 10 least developed administrative delegations of the country.
		
Action proposals were mostly made during workshops through facilitated, collective discussions	Action proposals were mostly written by individuals at home	Action proposals were mostly written by individuals at home
		

various strategic locations in the territory (grocery stores, coffee shops, individual houses, etc.). The objective was to allow anyone, even people who had not participated in the workshops, to make action proposals. Three to five weeks later, the facilitators went around the intervention areas to collect action proposals.

The ensuing two phases, policy development (December 2019 - ongoing as of September 2021) and policy implementation, involve setting up territorial committees (composed of representatives of the local population, elected municipal councils, the civil society and the private sector), design of plans based on the stakes prioritized and the actions proposed by the population, technical, financial and legal expertise of the plans, ex-ante impact co-evaluation by territorial committees and regional experts, and finally, translating the action plans into investments[4] and effectively implementing and monitoring the chosen actions.

Policy design encompasses phases 1 and 2. Both phases were carried out with local populations. Activities were systematically and widely advertised beforehand by the facilitators and the meetings were open to anyone who wanted to participate. The inclusion and representativeness of participants (in terms of gender, age, socio-professional category and geographical origin) were monitored by keeping records of individual participants and additional efforts were made when gaps were noted (e.g. additional workshops for women, Facebook groups to communicate with younger people, etc.) (see Hassenforder et al. 2021 for more details). It must be noted that, although other individual characteristics (e.g. education level, social standing, etc.) also represent important elements to account for in a participatory process, the facilitators often had to make quick choices to adjust e.g. the workshop sequence, the composition of the working groups, etc. during the process itself. For that purpose, they often relied exclusively on simple and relatively obvious criteria such as gender and age. Furthermore, being asked about one's level of education in the context of rural Tunisia can be seen as stigmatizing for people with a low level of education.

There were some differences in the way this process was implemented in each of the intervention areas, particularly during the action proposals collection phase. These differences are due, among other things, to the willingness of the facilitators to adapt the method to the local context and to specific constraints (harvest schedule, climatic conditions, etc.). The main difference was between Bizerte and other areas. In Bizerte, although blank action sheets were distributed in the territory, a large proportion of action proposals were filled in collectively during the workshops (398 out of 1,224 proposals). In other terms, in Bizerte, policy design was largely made in groups. Other areas followed the process described above, but the composition of the groups during the workshops varied. For example, in El Ayoun, men and women formed separate groups. In the following workshops, as well as in other areas, mixed groups were formed, trying to balance both gender and age.

In total, the first two phases of the process brought together nearly 4,300 direct participants, including 35% of women, over more than 100 public events. Some workshops gathered as many as 205 participants, while others gathered as few as eight. A large majority of participants are between 30 and 59 years of age (62%) or over 60 years of age (26%).

[4] As a side note regarding actual funding and implementation of the actions, facilitators made explicit to participants involved in phase 1 and 2 that only part of the proposed actions would be financed and implemented – i.e. firstly, actions that would be selected by the territorial committees; and secondly, either collective actions relative to land and natural resource management, forestry, agriculture and livestock farming (eligible to PACTE funding) or any other actions for which the territorial committees would be able to secure funding.

Only 2% of the participants were under 20 years of age. Many participants have several professional activities, and most have a secondary agricultural activity.

3.3. Analysis of the action proposals

First, facilitators classified the action sheets according to the place where they were collected and the main topic of the proposal (e.g., development of livestock activities, construction of water supply networks, soil conservation schemes, etc.). A team of research assistants translated all action sheets from Arabic to French and entered them into a database using the KoBoCollect tool. Due to the very large number of action sheets, similar proposals coming from the same living territory were merged, and appeared in the database only once. For example, in El Ayoun, eleven action sheets proposing to drill a borehole to provide domestic water in douar Joueline were aggregated into a single record in the database. Conversely, when several actions were proposed on the same sheet, "new" sheets were generated and entered in the database as separated records. For example, in Kairouan, an action sheet issued from douar Bsilet and asking for irrigation water and sheep farming was separated into two different records. To allow the tracking of proposals the identification numbers of the original action sheets filled by the population were recorded for each merged or "new" action sheet. Broad domains of actions (e.g. income generating activities, water related actions, soil and water conservation measures, transports, etc.) were defined by the facilitators during a training workshop in January 2020. More domains were added during the analysis process to reflect particular requests in some intervention areas (e.g. housing improvement, social benefits). Each recorded action was then associated with one or several action domains and with the living territories where the proponents suggested them to be implemented. In case of ambiguity regarding the meaning of the proposal (often due to translation or low literacy of proponents), the facilitators went back to the original action sheets and asked the proponents for clarification.

In each intervention area, facilitators and referent researchers analyzed the distribution of action proposals per domain of action and geographical location within the intervention area, as well as the nature, diversity and details of the proposals. In addition, they specifically examined the following three criteria:

- **Consistency of the action proposals with the issues at stake**: Issues that had been formulated by the population were first grouped into a limited number of categories, defined by facilitators and referent researchers, in order to allow a comparison between intervention areas. Each action proposal was then assigned to one or several issue categories (coded as 1 when the proposal addressed the issue, 0 otherwise). For example, proposals related to the development of income generating activities were associated with the issue "Improving income and living conditions"; those regarding the construction and improvement of roads and farm tracks were associated with the issue "opening up the territory". Proposals related to public transports were associated to two issues: "opening up the territory" and "development of public services". Facilitators and researchers carried out an initial assignment exercise in each intervention zone. The researcher who led the analysis of the action proposals then checked the consistency of the categorization throughout the six intervention areas and the team discussed the categorization in the event of differences in assessment. It was then possible to compare the importance given by the population to each issue through the votes expressed during the diagnosis restitution workshops or according to the share of the different issues to which the proposed actions respond. Situations where many proposals address a secondary issue, or where very few actions were proposed in response to a specific issue, were identified. Similarly, the cases where some proposals address one important issue, but contradict another one, were also pinpointed.
- **The innovativeness of the action proposals**: Following Sartas et al. (2020) innovations were defined as "novel solutions for problems". In this case, we considered as "innovative", actions which had never been implemented in the intervention area, even if they are not intrinsically new. Actions were coded 1 if they were innovative, 0 otherwise.
- **Whether the proposed actions aimed at benefitting individuals or collectives**: for the purpose of this analysis, actions were considered as "individual" when they benefitted only one individual or one family, and as "collective", when they benefitted at least two families or a small village.

Due to the processing of the proposals (merging and separation) and limited resources for data entry, it was not possible to assess how many people contributed to the proposals. Indeed, for the actions proposed by only one person in each territory, and when the proponent participated to one of the diagnosis workshops, his/her participant ID number was recorded. This was not the case for the actions corresponding to "merged" proposals. We can only tell how many people participated in the diagnosis restitution workshops and, for only a share of the proposals, whether contributors participated to the workshops.

4. Results

Table 2 shows the quantitative analysis of the action proposals collected in each intervention area.

4.1. Consistency of the action proposals with the issues at stake

Figs. 4, 5 and 6 compare, on the one hand, issues that were prioritized in each intervention area (through the votes by participants during Phase 2 workshops) and, on the other hand, the number of action proposals that were made for each issue. These results were obtained after the abovementioned issue categorization process.

Overall, in terms of both distribution of votes and distribution of action proposals per issues, Bizerte displays a greater dispersion than the other intervention areas. This is likely an effect of the greater heterogeneity of the socio-environmental context that characterizes this intervention area (see Table 1). Independently of such dispersion however, the local priorities expressed in the votes during Phase 2 workshops appear to match relatively well the priorities expressed in the action proposals. The same observation can be made for El Ayoun but this is clearly not the case in Kairouan.

Regarding the main discrepancies between votes and action proposals, for all three intervention areas, local concerns towards 'income, farming activities and living conditions' appeared to be reflected stronger in the action proposals than in the votes during Phase 2 workshops – with the largest deviation being observed in Bizerte. In this regard, we can hypothesize a link with the process itself, as issues were defined collectively during Phase 2 workshops (which does not fit well with dimensions like incomes and farming activities that are managed individually) while actions were proposed primarily by individuals.

Regarding 'access to water', we observe much less action proposals than votes in Bizerte, which is consistent with the above hypothesis on collective definition of development issues versus individual definition of action proposals. The prioritization appears more balanced in El Ayoun while much more action proposals than votes were recorded in Kairouan. For the latter intervention area, this is largely an effect of the process. Because the number of issues available for participants to vote on was limited, in this intervention area, 'access to water' was often encompassed into broader definitions of issues relative to basic infrastructures while it was considered independently during the analysis of the action proposals.

Finally, a similar effect can also be put forward for Bizerte and Kairouan where the lack of 'public services' was generally integrated into broader issues of 'limited accessibility' during the collective workshops and ensuing votes whereas it translated into requests for 'public

Table 2
Analysis of the action proposals collected in the six intervention areas.

Intervention area	Total number of action proposals	Number of innovative actions	% of innovative actions	Total number of collective actions	% of collective actions	Number of participants in the action proposal workshops*	Number of households in the intervention area	Average number of action proposed per household**
Bizerte	1224	56 different proposals (87 in total)	4,6% (7,1%)	862	70.4%	660	1347	0.9
Le Kef	2192	27 different proposals (68 in total)	1,2% (3,1%)	234	10.7%	475	270	8.1
Kairouan	4416	30 different proposals (289 in total)	0,7% (6,5%)	1033	23.4%	1620	2164	2.0
Siliana	1705	24 different proposals (70 in total)	1,4% (4,1%)	642	37.7%	852	1358	1.3
El Ayoun	1444	9 different proposals (36 in total)	0,62% (2,5%)	617	42.7%	394	633	2.3
Rihana	602	16 different proposals (33 in total)	2,6% (5,5%)	252	41.9%	287	925	0.7
TOTAL	**11583**	**162 different proposals (583 in total)**	**1,4% (5%)**	**3640**	**31.4%**	**4288**	**6697**	**1.7**

NOTES:
* These figures are given as an indication only, since, as indicated above, the total number of action proponents is unknown.
** These figures are given as an indication only, since some households did not propose actions at all, and others proposed several.

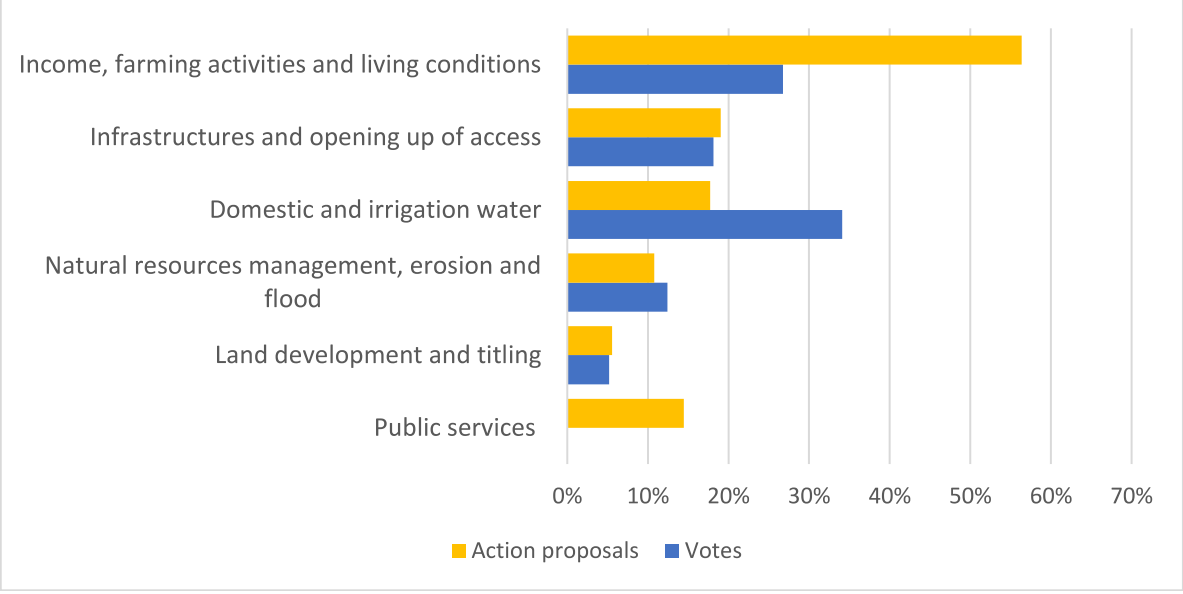


Fig. 4. Main development issues in Bizerte as prioritized during votes (% of total votes) and as referred to in action proposals (% of proposals).

services' (e.g., public transportation services primarily) in many action proposals.

4.2. Innovative actions

Although most innovative actions proposed are related to income generation, basic infrastructure and services, the three intervention areas display contrasted results. In El Ayoun, relatively few innovations have been proposed (2.5% of all proposals, see Table 2). They concern e.g., women capacity building in poultry farming or prickly pear processing, the remaining focusing mainly on issues that require hardware, infrastructural investments and do not give much leeway for innovation (i.e. access to water and transportation infrastructure). A greater proportion of innovative proposals were made in Kairouan (6.5% of all proposals), yet with a fairly low diversity of actions – most proposals being focused on milk collection units, prickly pear processing units, sewing workshops, irrigated perimeters and three-phase electricity. An even greater proportion of innovative proposals were made in Bizerte (7.1% of all proposals) with a remarkable diversity of actions related to handicrafts, agricultural product processing, improvement or development of new agricultural value chains, access to information on land market and flooding, leisure and tourism activities, waste and wastewater management, and renewable energies.

Again, it is likely that the heterogeneity of contexts that characterizes Bizerte has led to a wider range of innovative actions being proposed. The organisation of focus groups and the intervention of facilitators has probably also played a role in fostering 'creative competition' around innovations and assisting participants to better formulate, discuss and refine their ideas. In the two other intervention areas, limited facilitation and collective work, a more homogeneous local context and, especially in El Ayoun, a critical dearth of basic infrastructure and services have resulted in lower innovation levels.

4.3. Collective actions

Bizerte clearly stands out with almost three quarter of all proposals being targeted at a collective. In contrast, only 40% and 23% of all proposals aim at benefitting collectives in El Ayoun and Kairouan

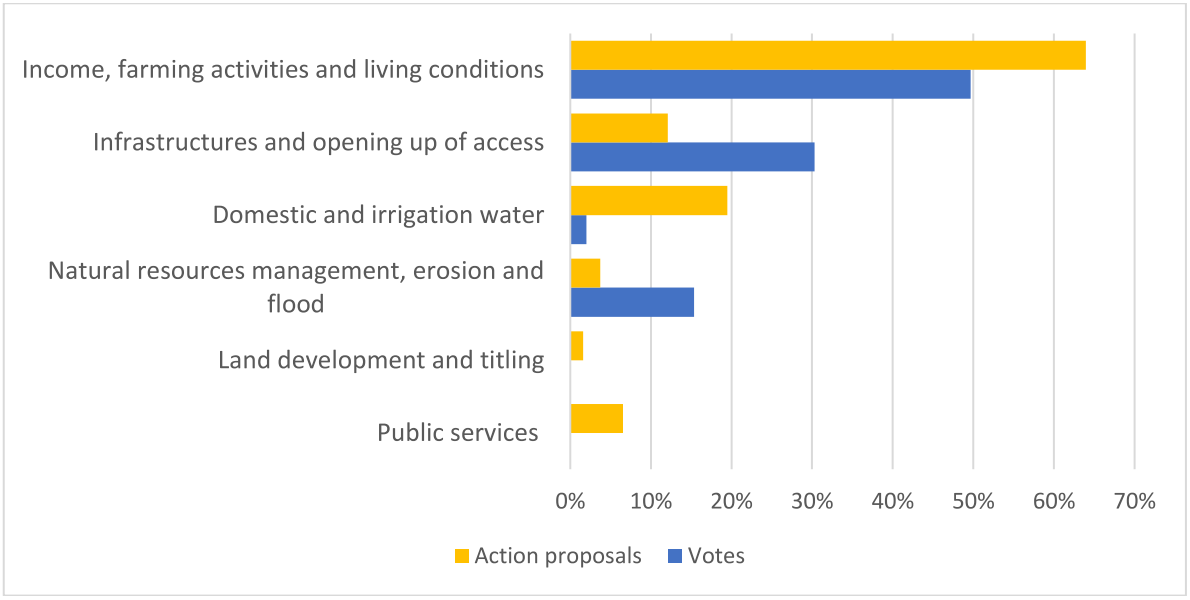


Fig. 5. Main development issues in Kairouan as prioritized during votes (% of total votes) and as referred to in action proposals (% of proposals).

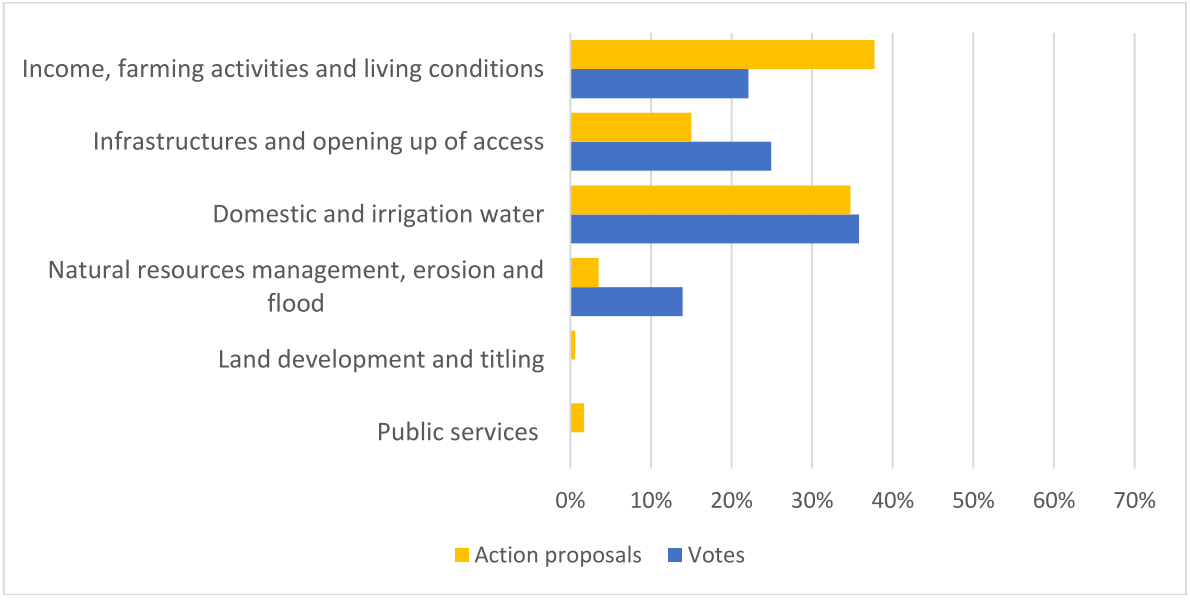


Fig. 6. Main development issues in El Ayoun as prioritized during votes (% of total votes) and as referred to in action proposals (% of proposals).

respectively. Once again, key explanations for these variations involve both the local context of the intervention areas and the fact that the policy design stage was made individually or in groups. In Bizerte, facilitated collective work and the relative importance of 'collective issues' such as water, infrastructure and natural resources have resulted in a significant focus on collective actions. Although no facilitated focus groups were organized in El Ayoun, the predominance of more 'collective issues' such as water and infrastructure has also led to a significant number of collective actions being proposed. In contrast, with income generation, farming activities and living conditions (i.e., three dimensions that are generally managed at the individual or household level) being considered a priority in Kairouan, less proposals for collective actions were made. We are not implying here that for income-generating activities, individual policy design is preferable. We simply note that in the absence of collective reflection, as in El Ayoun and Kairouan, the inhabitants propose income-generating activities that they already know, and such activities are not very collective in these two areas. In addition, the preferences of the inhabitants for individual actions in these two areas seem to be marked by socio-political factors, notably a logic of distribution of state rent often used for short-term personal gain and a history of agricultural development policies in Tunisia where collective action was not encouraged, or even discouraged. As a result, the populations have little experience of collective action.

5. Discussion

Our results corroborate the elements put forward in the literature on several aspects. Regarding the adequacy with the issues at stake, we see that the action proposals made by the inhabitants correspond well to the issues prioritized in two of the three intervention areas (Bizerte and El Ayoun). In the third area (Kairouan), certain issues emerged from the action proposals that did not appear so clearly in the issues previously prioritized. This was partly due to the issue formulation and proposal categorization process: for example, during the issues priori-

tization phase, “access to water” was merged with the issue of “infrastructure and opening-up of access” and therefore was downplayed by the aggregate analysis. Yet, the action proposal phase clearly shows that this is an essential aspect for the population. Furthermore, the collective definition and prioritization of issues also appears to ‘minimize’ issues in relation with individually-managed dimensions such as incomes and livelihood activities. Yet, the latter dimensions emerge as key priorities when populations are asked to make individual proposals for action. Individual proposals may also highlight local issues that are not considered or not explicitly discussed while working collectively. Below, we draw some analytical and procedural lessons from this.

Nonetheless, the fact that the participants had the opportunity to propose actions without specific restrictions on the subject, and that the proposals made corresponded broadly to the issues that had been prioritized for each territory beforehand encourages us to value the participation of local actors in both the issue identification and the policy design stages. From the point of view of innovation, our results corroborate the elements put forward in the literature by showing that without a dedicated approach, the proposed actions are not very innovative. Finally, from the point of view of collective actions, our results clearly show that collective workshops bring out more issues or collective actions and therefore that whether policy design is made individually or in group clearly influences the outcomes of each phase. Furthermore, our results highlight the influence of the local circumstances on innovation and the interest towards collective actions. Where populations were confronted with critical issues such as water scarcity and major seclusion, innovation was fairly limited. Where populations were facing issues generating incomes from their farming activities, their interests and propositions were centered on the individual or household levels. These results corroborate the conclusions of Butler et al. (2016) and Sutiyo et al. (2020).

From a procedural perspective, our results also suggest that appropriate facilitation can help fostering more creativity and innovation and maintaining a focus on innovative and collective options during the policy design stage. These elements lead us to favor collective workshops for future policy design stages in low-tech and low-literate contexts such as Tunisian rural areas. These workshops can be supported by several dedicated facilitators and by people equipped with digital tablets who can fill in action proposals numerically for small groups. If the groups are well structured (for example, by alternating groups by gender, age, thematic interest, etc.), they should allow a large number of participants to express themselves, in the same way as the individual action sheets did. They should also allow having more complete, less repetitive sheets, therefore limiting the time dedicated to computer data entry. Facilitators and resource persons can thus play a key role in encouraging participants to propose more collective and innovative actions and in helping to write down oral proposals made by illiterate participants. From this point of view, certain approaches from the literature in agricultural innovation research and policy science could be relevant, provided that they are adapted to a large audience with low literacy skills and do not require digital support. Finally, such procedural point of view also points toward the need for a careful and critical examination of the process itself. Beyond the consistency of the actions with the priority issues at stake, and the innovativeness and collectiveness of the action proposed by participants, the legitimacy, transparency, credibility and equity of the process itself, and of its outcomes, constitute key criteria for assessing the effectiveness of the overall approach.

From an analytical perspective, we can also draw several conclusions. First, our results emphasize the added value of analyzing the raw proposals resulting from the policy design stage, which is relatively rarely done in the literature. Moreover, we insist on the importance of analyzing these proposals through the prism of several criteria, and not only innovation. We argue that the transformative effect of the policies that emerge from these proposals is certainly achieved through innovation, but also through the adaptation to the priorities of vulnerable populations and through collective action. The second point is that rather than considering the phases of issue identification and action proposal as two successive phases and comparing their results in order to analyze their consistency, it is better to analyze them jointly since the policy design stage brings out issues that did not emerge so clearly in the issue formulation stage (e.g. access to water in Kairouan). Finally, our analysis highlights the importance of identifying the drivers and rationalities behind peoples’ action proposals. In our case, we did not conduct any further investigation on this point, but our observations of the process lead us to hypothesize that the action proposals are strongly influenced by two elements. The first element is participants’ perception of what the program will fund and their level of confidence in the process and the people and organizations who initiated it. This is illustrated by the fact that, on the one hand, participants filled in as many action sheets as possible, while at the same time they constantly questioned whether these actions would really be implemented. The second element that seemed to influence participant’s proposals is the way in which they are usually solicited to express themselves on public policies. In Tunisia, the fact that the inhabitants had few opportunities to express themselves in the past and that they are used to receiving donations from the state or development projects have led to the fact that almost all of the action sheets collected are requests vis-à-vis the state. These elements are only hypotheses and they would need to be tested with further data. The suggestion to use group workshops to collect action proposals for instance may ease data collection and analysis regarding the underlying reasoning of the proponents.

6. Conclusion

Three main arguments are often put forward to advocate for the involvement of the public in policy design: a “user-centered” argument (i.e. for the policy to better meet people’s priorities), an innovation argument (i.e. to conceive new solutions) and a collective argument (i.e. to identify collective actions and better tackle environmental problems). Our paper sought to challenge these arguments by analyzing 11,583 action proposals made by 4,300 direct participants during a large-scale participatory process for land use and rural development policy design in six regions of Tunisia. Our results highlight that the involvement of stakeholders in policy design effectively allowed them to propose actions that meet their priorities. It also highlighted the need to involve stakeholders in both the issue identification and the policy design stages, and not only in the latter. From an analytical point of view, it pinpointed the need to analyze the outcomes of these two stages jointly since the policy design stage brings out issues that did not emerge so clearly in the issue formulation stage. Overall, actions proposed by stakeholders were not very innovative. Our results suggest that appropriate facilitation and a dedicated approach can help fostering more creativity and innovation, but perhaps to a lesser extent in places where populations are confronted with critical issues such as water scarcity and major seclusion. In these places the needs for basic services take precedence over the need for innovation. From the point of view of collective actions, our results clearly show that collective workshops bring out more collective actions.

Finally, our analysis highlights the importance of identifying the drivers and rationalities behind peoples’ action proposals. For future research, we therefore plan to integrate methods that would allow us to better understand these components. Several analytical frameworks and tools seem relevant for this purpose. Coral (2018) for example, proposes a framework to better understand the drivers behind decision-making in land-use systems. Her framework aims at underlining what influences landowner choices or decisions and the values that they assign to different outcomes (e.g. social constructions, values, personal history of each decision-maker and the relationship between these elements). Darbon et al. (2020) propose a tool, called the Integrated Policy Monitoring Strategy, allowing for an analysis of the context of public policy development as well as the room for maneuver, interests and worldviews of the various stakeholders involved. Guinjoan et al. (2016) propose to use the “rural web” (van der Ploeg and Marsden 2008) as a tool to un-

derstand the varied factors that affect the planning of rural development policies, notably the constellation of individuals, resources, activities and processes that encounter each other and interact in a territory. We suggest that, when it comes to large-scale participation in policy design in rural and low-tech contexts, the policy design research field would benefit from hybridizing methods with such approaches from political and agricultural sciences.

Submission declaration and verification

The authors declare that the work described has not been published previously, that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyrightholder.

Declaration of Competing Interest

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