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Comment on egusphere-2022-307

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Community comment on "Transforming living labs into lighthouses: a promising policy to achieve land-related sustainable development" by Johan Bouma, EGUsphere, https://doi.org/10.5194/egusphere-2022-307-CC3, 2022

This paper proposes the Living Labs as sites which can help European societies achieve Sustainable Development Goals. Bouma suggests that LL can address the issue of a 'lack of clarity' around SDGs, and that this can be done by 1. developing locally specific measurements of environmental thresholds, specifically ecosystem services, and 2. developing locally specific practices for staying within those thresholds. This is underpinned by the LL process of bringing land owners, scientists, and the broader public together in a learning process. The LLs thus present a key site in which to develop best-practice examples of practices which would enable societies to meet the 'lofty goals' (Bouma's term) expressed by the SDGs.

LLs are thus imagined as places in which practices are developed to fit land use activities (e.g. agriculture) within 'threshold values', and which on achieving such practices are transformed into a site of education and communication – a Lighthouse (LH).

I am very supportive of the importance granted in this paper to LLs a key sites for shared learning between different societal groups, including between scientists, land owners, local inhabitants, agri-food system actors, and policymakers at different levels. However, I urge the author, and indeed the wider LL literature. to expand their thinking about the ambition of the LLs to the composition of issues themselves, not only to their resolution. Wicked problems, such as soil health, can only be addressed through collaboration on the problem framing. This is well established in social science literature.

LLs: who determines the framing?

The contribution of the scientific community imagined in the paper is focused on the interdisciplinary modelling of ecosystem services in specific LLs. It is hoped that by defining ecosystem services the research community can 'tame the wicked problems' (231-235) related to land use change. In other words, it seems that Bouma is proposing that the solution to resolving the conflicts around land use change is ensuring that (trusted) scientists define the nature and extent of the problem, and so set a frame within which solutions can be found.

This assumption is problematic in that it does not address the foundation of wicked problems – i.e. the conflict around the nature of the issue. Bouma seems to suggest that it is groups of scientists should who should be assigned the authority to define the nature

of the problem across different LLs (the performance of a given site in relation to SDGs as assessed through environmental services modelling), and that this definition should then be accepted by the land owners and indeed the wider community gathered around a specific Living Lab. In other words, Bouma seems to argue that scientists somehow have the power and authority to cut the Gordian knot of wicked problems to the satisfaction of all parties.

However, the nature of wicked problems is precisely that the scientific framing of issues is only one the competing problem definitions. There is no reason to believe that a scientific definition of a LL as a set of ecosystem services to be satisfied within the thresholds linked to SDGs will be seen as a legitimate framing of the issue by land owners or other LL-related groups. Indeed, experience suggests that scientists will not have the authority to impose such a framing on the situation, and that their attempts to do so will be contested.

While the section 4 on engaging the public stresses the importance of joint learning to the proposed LL process, it is not clear what the extent of this joint learning is, and most importantly whether this joint learning is focused on the framing of the situation (what is the nature of the problem), or only on its resolution (how to solve the problem) – it seems to me to be the latter.

Refocusing LLs on finding shared problem frames

In line with much of the existing literature on public participation in science, I instead draw attention to the importance of focusing on the problem definition itself as a the key space of knowledge co-production around environmental or land use controversies (see e.g. Turnhout et al 2019, Tsouvalis and Waterton 2012). For a wicked problem to be 'tamed', the co-creation of innovation process must start at the problem definition itself.

I appreciate that my comment goes to the very heart of the issue of the design of a Living Lab, and specifically the question of framing or problem definition. Living Labs were originally created within the industrial sector in order to bring users into contact with innovations in a pre-market space. These original LLs therefore had a very strong ownership of the issue at hand – the scope of the LL was determined by the LL creators (e.g. a company) (see Puerari et al 2018). A pre-existing shared definition of the problem between different groups in the LL seems to be a persistent element of the LL design, as suggested by this definition from 2011: Living Labs are "multi-stakeholder platform as a (voluntary or statutory) body, comprising different stakeholders, who perceive the same problem, realize their own respective interdependencies, and come together to agree on the best action strategies for solving it" (Molinari et al 2011: 133). Indeed, in keeping with this pre-determined framing approach, the LL process proposed by Bouma can be seen to fall into the 'trial' typology of LLs discussed in Bulkley et al's (2019) study of Urban Living Labs, in that it 'seeks to limit the indeterminate conditions that it encounters, often confining the ULL in both space and time. It is at heart a form of disciplinary power. (…) this is a form of laboratory that is concerned with securing particular outcomes'.

However, more authors are now calling for a widening of the LL remit to the co-creation of values and issue frames themselves (e.g. Puerari et al 2018), for example by starting the co-creation process by exploring potential desirable futures (Hajer and Vertsteeg 2019), and by recognising the importance of rooting the LL process in a shared narrative of place and a sense of belonging (Frantzeskaki et al 2019). In a paper which will be especially relevant to Bouma, Zivkovic (2018) indeed argues that LLs are better at addressing complex rather than wicked problems, which require a system perspective and focus on creating a shared framing.

Towards an ecosystem of LL as experiments in problem framing

What would collaboration on problem framings look like in practice? The model proposed by Bouma in this paper would ideally be only one of many approaches trialled within the LL landscape on how to successfully achieve SDGs (or other objectives). The success of such a model should not be presumed, but rather the uptake, use and varied implementation of such a framework as a way of organising a LL should be studied.

The example cited in section 6 case study can be used to illustrate this. In Bouma's proposal, one of the environmental services modelled is 'yield', for which the acceptable threshold is set to be 80%. This presupposes that there is an agreement between different members of the LL on what kind of crop should be grown, and what constitutes a desirable yield level. However, as academic and public debates on the futures of agri-food systems show, what crops are desirable for the future of eating and land use, and what a desirable yield looks like, are highly contested, and open to change.

Instead of pre-framing achieving 80% of yield of an existing crop as the conditions of success for this LL, a more participatory approach is needed. This approach would try to resolve the 'wickedness' of the problem of land use by creating a conversation between the LL stakeholders (including eaters) about what kind of land use and crop type would be desirable and feasible in the LL. This should include a conversation about what kind of market structures would be needed to support land use change (in contrast to Bouma's assumption that market structures are outside the scope of the LL, lines 185-189). Once a desirable land use and crop change has been identified which responds to the needs and ambitions of the LL stakeholders, the LL experiments with the new land use, farming, and market model. The success of the model is similarly evaluated by the LL stakeholders (including scientists and researchers), and the potential passing to a Lightouse stage is similarly decided by the LL group. Existing social-ecological groups, such as agroecological community supported agriculture initiatives, can be seen as examples of such a process – the LL model enriches them through a greater collaboration with the sciences.

In this way, LL move from being experiments in the solution of pre-defined problems, to experiments in the joint understanding of and resolution of issues. In my view, and in line with the public participation scholarship in the social sciences, the definition of the LLs proposed should recognise both the frameworks for the definition of problems, and the practices for their resolution, as objects of LL experimentation

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