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Co-design with aligned and non-aligned knowledge partners: implications for research and coproduction of sustainable food systems

COSUST Special Issue: "Co-Designing Research on Social Transformations to Sustainability"

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Abstract

We discuss two different strategies to initiate a process of identifying a focused sustainability challenge, and co-defining and co-designing alternative pathways to more sustainable food systems.. One strategy was based on working with a relatively closely aligned network of private sector, civil society and academic organisations, whilst the other involved working with a more plural, non-aligned group, ranging from representatives of agricultural social movements, through to the domestic seed industry and government officials, to academic agronomists. This paper reflects on the distinct benefits and challenges involved in each strategy

Highlights

- The literature on co-design in transdisciplinary food systems research emphasises the need to take account of diverse actors' priorities, circumstances and understandings to create robust knowledge
- We describe two strategies (one based on actors with shared normative values, interests and problem definitions and one based on competing views) for co-design
- We reflect on the trade-offs between appreciation of complexity and ease of managing the collaborative process involved in each strategy

Introduction

This paper focusses on efforts to understand and support transformations to sustainable food systems, and in particular on two 'co-design' workshops conducted in Brighton, United Kingdom (21st January 2015) and Buenos Aires, Argentina (25th November 2014).¹ Those workshops, hosted by the STEPS Centre (Social, Technological and Environmental Pathways to Sustainability) and CENIT (Centro de Investigaciones para la Transformación) respectively, convened diverse groups of knowledge partners to define and prioritise sustainability challenges in their local contexts, and to initiate a process of designing transdisciplinary research that aims to foster 'green transformations'², (although researchers played a key interpretative role in those activities). We first outline the rationale for coproduction and co-design processes, and explain their particular relevance in transforming food systems. We then provide information on the two co-design events and, lastly, draw lessons from these experiences to provide insights for future co-design and coproduction processes in this area.

Co-production and Co-design processes

The emphasis on collaborative creation of knowledge and action by academic researchers and non-academic knowledge partners that is evident in recent social science work regarding environmental change (ISSC/UNESCO 2013) has a long history. In Latin America, for example, debates in the 1970s and early 1980s about what would now be termed 'sustainable development' emphasised the importance of developing forms of knowledge and novel trajectories of socio-technical change in the region that better responded to local priorities, problems and circumstances, and whose construction would require broader participation in research and policy processes^{3,4,5,6}. In Europe and North America, a recognition of the role of societal actors in the (new) production of knowledge⁷, and enhanced understanding of the social and political dimensions of science and technology^{8,9} have led to an explicit inclusion of non-scientific actors (knowledge partners) in the research process in the search for more robust knowledge. More recently, the need to produce knowledge that is transformative; i.e. that enables and fosters social change, is leading to calls to involve different kinds of stakeholders and different kinds of knowledge in the research process. This has been termed 'coproduction'¹⁰. Such a view calls for a new, transdisciplinary approach to social science¹¹, able to recognise, and engage productively, with diverse perspectives on what needs to be sustained, by whom, for whom, and how¹².

In the two cases discussed in this paper, the research teams adopted two different strategies to engagement with knowledge partners in the co-design process:

- Aligned – involving a group of people with shared norms and interests, and relatively close agreement on the nature of 'the problem' and how it might be addressed;
- Non-aligned – involving knowledge partners with a broader set of norms and interests (often in tension with each other) and little agreement on the nature of 'the problem' to be addressed.

The different strategies reflect, in part the different contexts for the two cases. The UK case focused at city level (Brighton and Hove in the UK, which has about 300,000 inhabitants) whilst the Argentinean case had a national focus.

Transformations to sustainability in food and agriculture

Food and agriculture (agri-food) systems pose huge challenges to sustainability, in all their environmental, human wellbeing and social equity dimensions¹³. As a vital component of human societies, they have been subject to research and scholarship across many disciplines for hundreds of years. The last decade has produced a new wave of insights with regard to the challenge of achieving sustainable agri-food systems at interconnected local-global levels. This section provides a brief overview of some of these studies.

Like other green transformations¹⁴ the need for change towards sustainable agri-food systems is urgent, but also particularly challenging for a number of reasons. Firstly, they are complex, involving interactions at multiple scales with dynamic processes of technological, socio-economic and political change as well as with complex and imperfectly understood environmental (including hydrological, atmospheric, soil and other earth) systems¹⁵. Whilst certain measures of sustainability such as carbon emissions can guide policy, policy interventions targeted at, say carbon reduction, often lead to adverse or unanticipated impacts on other environmental or social dimensions.¹⁶ Given such trade-offs and the impossibility of optimisation, simple 'sustainability' metrics are absent, and – especially when comparing the sustainability of agri-food systems at different scales – scholars have recently advocated a mix of hard and soft methodologies and reflexive governance.¹⁷

Secondly, like other large social-technological-ecological systems¹⁸, the highly interrelated, systemic nature of agri-food systems means that they are subject to powerful processes of path dependency and lock-in¹⁹. Consequently, attempts to introduce more sustainable practices in one part of an agri-food system are frequently incompatible with, or are undermined by, other incumbent components of the system as a whole.²⁰ This means that sustainable transformations to agri-food systems are likely to require strategic, multi-actor, multi-process interventions at different scales. Adding to this complexity, agri-food systems are also highly diverse and are subject to different practices, priorities and politics across the world. Whilst recent scholarship in richer countries in Europe has focussed, for example, on reducing/ redistributing food waste²¹ or changing diets^{22,23}, studies in sub-Saharan Africa have often remained centred around yield increases and food security²⁴. Changing food system dynamics are increasingly of interest in emerging economies such as China²⁵ and within a globally-interconnected system, trade also finds a central role in academic debates.^{26,27}

Thirdly, due to the cross-cutting nature of food and the multifunctionality of agriculture (as a source of subsistence, livelihoods²⁸ and biocultural value for individuals, households and communities, but also profit for private sector enterprises)^{29,30} agri-food systems are interpreted on the basis of multiple understandings (or framings)³¹ of sustainability.³² As a result, they are often subject to highly conflictual politics³³ as different actors attempt to engage with the system based on their own framings or worldviews.

Lastly and relatedly, agri-food systems are subject not only to a 'top-down' politics of sustainability, but significant and disparate attempts at system transformation from below³⁴ as a result of food and grassroots innovation-focussed social movements³⁵. Alongside systemic worldviews and rationalities, agri-food research requires careful attention to knowledge and perspectives derived from lived experience and social practices³⁶, including concerns around (re-)colonisation³⁷ and food sovereignty.³⁸

For all these reasons, the rationale for co-design and co-production in transdisciplinary research on agri-food systems is particularly compelling. There is a long history of collaboration with farmers in agricultural research, innovation and policy processes³⁹, but co-design and co-production involving wider groups of actors is a more novel endeavour. Other actors, such as business, breeders, and NGOs, play key roles in shaping (and resisting) change in what are complex food systems. Our work is novel in so far as it attempts to explore and negotiate change amongst all relevant stakeholders.

Towards a Sustainable Food System in Brighton and Hove

The co-design workshop built on established relationships between local stakeholders and researchers who had been working on food and agriculture⁴⁰. The event brought together some of those who had conducted this research and others from their national and international academic networks (STEPS Centre, University of Sussex and Stockholm Resilience Centre), representatives of local firms (local horticultural producers), growers (community scale volunteers) and civil society organisations (a city-wide food partnership, a permaculture organisation and a national family-farm advocacy group). Whilst the scale at which these groups worked differed, their interests largely coincided around the desirability of more environmentally benign agriculture and more localised production and consumption.

The event began with a discussion of the broader activities of stakeholders present, and of their roles in Brighton and Hove's food system. A clear outcome of the discussions was that, due to the interconnectedness and dependence of the city on food imports (domestic and international), a discrete system was difficult to define. At the same time, the dominant pathway of supermarket-

based mass retail of food produced outside the city was viewed as unsustainable (or at least undesirable) for environmental, economic, health and food security reasons.

Due to the relatively high degree of alignment of the stakeholders present, the group shared a common vision of a transformation that would involve supporting more locally-organised sustainable agriculture and food supply chains. The contribution of community growers was emphasised – not only to food production, but also health and employment. Beyond that, medium-sized (family) farmers were seen as bridging some of the benefits of this micro-scale with the ability to supply the city's demand for food. This also raised questions about access and ownership of resources (e.g. land, seed) to enable food production of sufficient scale.

The alignment of interests and norms also facilitated the identification of commonly-perceived knowledge gaps to be addressed in the proposed research. These focussed not only on collecting data on growing patterns (especially innovative approaches to green agriculture) but also new business models that were enabling smaller-scale growers to compete (such as farmdrop or box schemes, as well as specialist retailers). Coproducing this knowledge could provide evidence to policy makers at local and national levels, but also facilitate engagement with growers and other actors in order to build legitimacy and momentum for the envisaged transformation. The outputs of the co-design workshop were written up in a concept note that scoped out possible strategies for research and coproduction.⁴¹

The Future of Agriculture and Seeds in Argentina

The co-design workshop focused on the future of seeds in a complex context. Argentina is currently in the middle of highly contentious and currently stalled debates about the reform of intellectual property law for seeds.⁴² That issue is particularly heated because seeds are a key input for large scale agricultural production, which is the most important export good. As such, we expected, and obtained, participation in the workshop from a range of busy people in the seed industry, government, civil society and the public sector research system. The idea was to use the contentious topic of seeds as a lens through which we could begin to explore future agricultural visions and pathways amongst a varied group of actors, and to obtain interest and commitment from those actors for future work.

Around thirty people took part in this workshop, including academic researchers, representatives of commercial and family farming, government officials, representatives of civil society organizations, national seed firms and other institutions related to seeds. All the main national stakeholders in seed production and use were represented, with the exception of representatives of foreign multinational seed firms.

The workshop consisted of a structured discussion and 'World Café' debate on four possible scenarios related to changes to the seed law.⁴³ The participants discussed what might happen in 2030 under each of these scenarios as regards four different functions played by seeds. These were those of providing a source of: (i) food supply, and social and economic diversity, (ii) technological services for industrial farmers, (iii) resources for biological research, and (iv) biodiversity.

The workshop starkly illustrated what were highly divergent views, not only regarding the effects that potential changes (or lack of them) to the seed law will have on the future of seeds, but also as regards, inter alia, the economic and social roles that the agricultural system ought to play, the types of seeds necessary for those roles to be fulfilled, who should develop seeds and produce food, and in which way, the innovations necessary for the agricultural system to work, and the areas where public policies are necessary. Amongst the diversity, two distinct views were apparent.

One, a macro, nationalistic, market perspective, was concerned primarily with enhancing the productivity of large scale agricultural production, but by ensuring adequate incentives for ensuring the development of local production and technological capabilities, as opposed to reliance on multinational corporations. A second, a local, alternative, State-centred perspective, was concerned primarily with promoting food sovereignty and security, and enhancing the social and economic diversity of farming. Decentralized measures taken by small- and medium-size independent farmers, producing food for local populations were emphasized as key to a sustainable farming system in the long term, as was an active State providing the public goods necessary for supporting agricultural activity.

Despite these very different positions, it is interesting to note that there was considerable sympathy for the social and environmental ambitions of the second perspective on the part of adherents of the first, but a view that proposals typical of this group were overly naïve, for example because they ignored the key structural role of agriculture in the national economy. This implies that there may be scope, in future work, for negotiating novel strategies that satisfy at least some of the key concerns within both groups. Furthermore, some areas of consensus were striking. They included the need to support domestic capabilities in seed development as a precondition for support for any kind of desired agricultural futures. Workshop participants also agreed that strict intellectual property rules were problematic in terms of preserving domestic capabilities. Finally, all agreed on the importance (and current absence) of public policy to establish a long-term strategy and a framework

The mapping of different perspectives in this first co-design workshop, as detailed in a concept note produced following the event⁴⁴ provides the basis for future work. Amongst other things it highlights the difficulties involved in identifying shared understandings of sustainability challenges, but also the need to negotiate novel pathways of change that draw on areas of consensus and processes of coalition building.

Implications for social science research and co-production

Both cases illustrate the importance of design methodologies to identify issues, problems, restrictions and new possibilities that we as researchers would not be able to identify alone. For example, in Argentina we appreciated the potential for unusual alliances between domestic seed firms and social movements in favour of preserving free access of seed for breeders and thus the possibility of innovating with an open source license system. In Brighton, it became clearer how researchers could best contribute to ongoing processes of change, and what the key knowledge gaps were, as perceived by the partners present.

The co-design workshop in Brighton provided a brief opportunity to develop a shared research agenda that responded to some of the questions and issues identified jointly by researchers and stakeholders present. The strategy of ‘aligned’ co-design allowed these ideas to be taken forward and integrated with other emerging themes (e.g. the centrality of seeds – a focus of the Argentinean work and a subject of ongoing regulatory debates⁴⁵).

At the same time, constructing alternative pathways – involving growers and other actors in the supply chain, all the way to consumers – will require broader knowledge inputs, and wider processes of seeking legitimation, alliance building, negotiation and compromise than the relatively narrow ‘aligned’ group allowed. In further stages of coproduction we will need to broaden the diversity of participants.

The non-aligned process in Buenos Aires provided a greater appreciation of the complexity, multiple understandings and conflicts on issues of agriculture and sustainability in Argentina, and the trade-offs likely to be involved with any programme of change. It helped us, as researchers, to think about which kinds of potential pathways of change are more or less likely to be politically contested, which can and cannot capture the concerns of different groups, and where the scope for negotiation and compromise is likely to exist. In particular it forces both researchers and other knowledge partners to think about innovative ideas, institutions, and policies that can better accommodate different interests and concerns.

However, the organisation of this kind of co-design methodology is more challenging, given the difficulties involved in getting people to talk together constructively on highly contested and diversely understood issues. Success here rested on substantial previous work by the lead researcher in this area and trust in her commitment to respect all perspectives and to work constructively with different actors. The more open ended nature of the process, whilst useful for mapping understandings of sustainability in this area, and enrolling people, makes it more difficult to identify what might constitute more sustainable and politically feasible pathways of change. This has to be negotiated, prior to co-design of research and co-production.

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¹ The co-design processes documented in this paper formed part of a project undertaken by the 'Pathways' transformative knowledge network. For more information see <http://steps-centre.org/project/tnk/>.

² **Scoones, I., Newell, P. & Leach, M. (eds)(2015) *The Politics of Green Transformations*, Routledge
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³ Herrera, Amílcar O, (1973). 'La creación de tecnología como expresión cultural', *Nueva Sociedad*, Vol., No. 8-9. 58-70.

⁴ Herrera, Amílcar O, (1979). 'Desarrollo, medio ambiente y generación de tecnologías apropiadas', ECLAC

⁵ Sunkel (1980) *La interacción entre los estilos de desarrollo y el medio ambiente en América Latina*, *Revista de la Cepal* 12

⁶ Sunkel, Osvaldo y Nicolo Gligo (comps.) (1981), *Estilos de desarrollo y medio ambiente en la América Latina*, Mexico, D.F., Fondo de Cultura Económica

⁷ Gibbons, M., C. Limoges, H. Nowotny, S. Schwartzman, P. Scott & M. Trow (1994) *The new production of knowledge: the dynamics of science and research in contemporary societies*, London: Sage

⁸ Jasanoff, S., G. E. Markle, J. C. Peterson & T. J. Pinch (Eds)(1995) *Handbook of Science and Technology Studies*. London, Sage

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- ¹⁰ Hackmann, H. and A. L. St Clair (2012) 'Transformative Cornerstones of Social Science Research for Global Change', Paris: ISSC
- ¹¹ Mauser, W., G. Klepper, M. Rice, B. S. Schmalzbauer, H. Hackmann, R. Leemans and Howard Moore (2013) "Transdisciplinary global change research: the co-creation of knowledge for sustainability" *Current Opinion in Environmental Sustainability* 5(3–4): 420-431
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- ¹³ IAASTD (2009) 'Towards Multifunctional Agriculture for Social, Environmental and Economic Sustainability', International Assessment of Agricultural Knowledge, Science and Technology for Development
- *Steffen, W., K. Richardson, J. Rockström, S. E. Cornell, I. Fetzer, E. M. Bennett, R. Biggs, S. R. Carpenter, W. de Vries, C. A. de Wit, C. Folke, D. Gerten, J. Heinke, G. M. Mace, L. M. Persson, V. Ramanathan, B. Reyers and S. Sörlin (2015) "Planetary boundaries: Guiding human development on a changing planet" *Science* 347 (6223) Published online 15 January 2015
- This paper builds upon the seminal Rockström et al (2009) article to bring new evidence and further clarity to the planetary boundaries framework and its implications.
- ¹⁴ Schmitz, H. (2015) Is there a fast track? in Scoones, I., Newell, P. & Leach, M. (eds) *The Politics of Green Transformations*, Routledge
- ¹⁵ Olsson, P., C. Folke, V. Galaz, T. Hahn, and L. Schultz (2007) Enhancing the fit through adaptive co-management: creating and maintaining bridging functions for matching scales in the Kristianstads Vattenrike Biosphere Reserve Sweden. *Ecology and Society* 12(1): 28
- ¹⁶ Garnett, T. (2011) Where are the best opportunities for reducing greenhouse gas emissions in the food system (including the food chain)? *Food Policy*, 36, Supplement 1, S23-S32
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- ¹⁹ Vanloqueren, G. and P. V. Baret (2009) "How agricultural research systems shape a technological regime that develops genetic engineering but locks out agroecological innovations" *Research Policy* 38: 971–983
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- ²² Lang, T. (2015) Sustainable Diets: another hurdle or a better food future?., *Development*, 57(2), 240-256
- ²³ Strassner, C., Cavoski, I., Di Cagno, R., Kahl, J., Kesse-Guyot, E., Lairon, D., Lampkin, N., Løes, A.-K., Matt, D., Niggli, U., Paoletti, F., Pehme, S., Rembialkowska, E., Schader, C. & Stolze, M. (2015) How the organic food system supports sustainable diets and translates these into practice. *Frontiers in Nutrition*, 2:19
- ²⁴ Conceição, P., Levine, S., Lipton, M. & Warren-Rodríguez, A. (2016) Toward a food secure future: Ensuring food security for sustainable human development in Sub-Saharan Africa. *Food Policy*, 60, 1-9
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- This paper explores different 'systemic rationalities' and 'lifeworld rationalities' as they shape two potential pathways of change in China's agri-food system.

²⁶ Potter, C. A. and Tilzey, M. (2005) Agricultural Policy discourses in the European Post-Fordism transition: Neoliberalism, neomercantilism and multifunctionality. *Progress in Human Geography* 20, 1-20

²⁷ Farsund, A.A., Daugbjerg, C. & Langhelle, O. (2015) Food security and trade: reconciling discourses in the Food and Agriculture Organization and the World Trade Organization. *Food Security*, 7 (2), 383-391

²⁸ Scoones, I. (2015) *Sustainable Livelihoods and Rural Development*, Toronto: Fernwood Books Ltd

²⁹ IAASTD (2009) 'Towards Multifunctional Agriculture for Social, Environmental and Economic Sustainability', International Assessment of Agricultural Knowledge, Science and Technology for Development

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³¹ Whitfield, S. (2016) *Adapting to Climate Uncertainty in African Agriculture: Narratives and Knowledge Politics*, Abingdon: Routledge

³² *Ely, A., P. Van Zwanenberg & A. C. Stirling (2014) 'Broadening out and opening up technology assessment: Approaches to enhance international development, co-ordination and democratisation' *Research Policy* 43: 505-518

- The paper is relevant to the role of science, technology and innovation in addressing/ responding to the Sustainable Development Goals. By analysing three examples of 'open' technology assessment (including in food and agriculture), the authors put forward recommendations for future international efforts in this area.

³³ *Marin, A., Stubrin, L. and Van Zwanenberg, P. (2014). Developing capabilities in the seed industry: which direction to follow? SPRU Working Paper Series, SWPS 2014-12, Junio 2014. Available at: <https://www.sussex.ac.uk/webteam/gateway/file.php?name=developing-capabilities-in-the-seed-industry.pdf&site=25>

The paper explores alternative trajectories for innovation in seeds and their implications for agricultural systems based on the case of Argentina. The main argument is that dominant views have attributed the success of the agricultural sector in Argentina during the last two decades to the introduction of genetically modified seeds and have ignored other kinds of innovations.

³⁴ Smith, A. and A. Ely (2015) "Green Transformations from Below? The Politics of Grassroots Innovation", Chapter 7 in Scoones, Newell and Leach (Eds) *The Politics of Green Transformations*, Abingdon, Routledge

³⁵ Lang, T. and Heasman, M. (2004) *Food Wars: The Global Battle for Mouths, Minds and Markets*. Earthscan, London, UK.

³⁶ Spaargaren, G., Oosterveer, P. and Loeber, A. (Eds)(2012) *Food practices in transition: changing food consumption, retail and production in an age of reflexive modernity*, Abingdon: Routledge

³⁷ Campbell, H. (2005) The rise and rise of Eurep-GAP: European (re) invention of colonial food relations?, *International Journal of Sociology of Agriculture and Food* 13, 1-19

³⁸ Edelman, M. Weis, T., Baviskar, A., Borrás Jr, S. M., Holt-Giménez, E., Kandiyoti, D. & W. Wolford (2014) Introduction: critical perspectives on food sovereignty, *The Journal of Peasant Studies*, 41:6, 911-931

³⁹ Chambers, R., Thrupp, L-A. and Pacey, A., eds (1989) *Farmer First: Farmer Innovation and Agricultural Research*, London: Intermediate Technology Publications.

Scoones, I. and Thompson, J., eds (1994) *Beyond Farmer First: Rural People's Knowledge*, Agricultural Research and Extension Practice, London: IT Publications

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⁴⁰ White, R. and A. Stirling (2013) "Sustaining trajectories towards Sustainability: Dynamics and diversity in UK communal growing activities" *Global Environmental Change* 23(5): 838–846

⁴¹ STEPS Centre (2015) 'ISSC Transformations to Sustainability Programme Concept Note Transformations to Sustainable Food Systems in Brighton and Hove: Towards a Shared Research Agenda', Brighton, STEPS Centre

⁴² Marin, A. (2015). El futuro de las semillas y la agricultura en América Latina. *Ciencia e investigación*, 65 (3). <http://aargentinapciencias.org/2/images/RevistasCel/tomo65-3/6-Marin-cei65-3-8.pdf>

⁴³ These were (i) preserve the status quo, based on UPOV 1978; (ii) restrict the rights of farmers to save seed but retain breeders rights to use seeds as a basis for further breeding; (iii) retain farmers rights, but restrict ability of breeders exemption; and (iv) restrict both actors rights as in UPOV 1991)

⁴⁴ CENIT (2015) ISSC 'Transformations to Sustainability' Programme Concept Note: The future of seeds (and agriculture) in Argentina, Buenos Aires: Centro de Investigaciones para la Transformacion (CENIT), http://steps-centre.org/wp-content/uploads/ISSC-concept-note_Argentina.pdf, accessed 18/7/2016

⁴⁵ Ely, A., A. Marin and S. Geall (2015) Seed Laws. Government Advocacy and Grassroots Action, <http://steps-centre.org/2015/blog/seedlaws/>