T-LABS: A PRACTICAL GUIDE

Using Transformation Labs (T-Labs) for innovation in social-ecological systems

About the Pathways Network

Between 2016 and 2018, the Pathways Network aimed to investigate new approaches for transformations to sustainability across different disciplines, cultures and contexts. The network carried out comparative research in six countries to explore how to work with local people on social transformations in the context of environmental change.

In six sites (in Argentina, Mexico, Kenya, China, the UK and India) the project convened 'Transformation Labs' (T-Labs) to develop innovative responses to social-ecological problems. This document draws from the experiences across the network to provide a practical guide to those considering similar approaches in their own work, while recognising that researchers, civil society organisations or social innovators will need to design a process that is appropriate to their own context.

For more information, see
steps-centre.org/project/pathways-network

Partners

ESRC STEPS Centre, Institute of Development Studies and SPRU (Science Policy Research Unit) at the University of Sussex, UK

Steps América Latina / Centro de Investigaciones para la Transformacion (CENIT), Argentina

Africa Sustainability Hub / African Centre for Technology Studies (ACTS), Kenya

Beijing Normal University, China
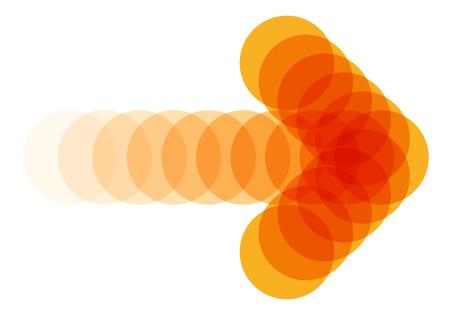
Jawaharlal Nehru University, India

Arizona State University, USA

Laboratorio Nacional de Ciencias de la Sostenibilidad (LANCIS), Instituto de Ecología, UNAM, Mexico

Stockholm Resilience Centre, Sweden

Acknowledgements

CONTENTS

1

What is a T-Lab? p6

2

Designing a T-Lab — step by step p12

T-LABS: A PRACTICAL GUIDE

3

Methods p20

4

Examples of T-Labs from the Pathways Network p22

5

Resources & references
p36

What is a T-Lab?

A T-Lab (Transformation Lab)[1] is a process involving research and transdisciplinary engagement to address a complex problem or challenge.

T-Labs are specifically designed to guide transformations in social-ecological systems towards sustainability, by supporting changes in the conditions that made these systems unsustainable in the first instance. They include a set of stakeholders who may have different roles and perspectives, but who have an interest in solving the problem and some ability to provoke change.

T-Labs aim to produce social-ecological innovations which help to create a more just and sustainable outcome for people and ot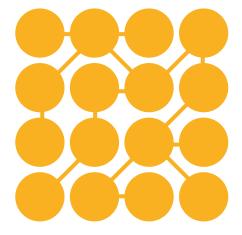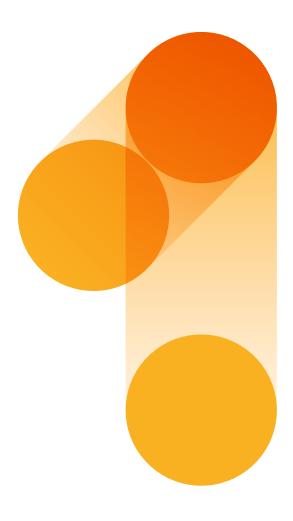her parts of nature[2]. As such, the T-Lab approach draws on the definitions, methods and approaches outlined in the Social Innovation Lab Guide (Westley, Laban et al 2015).

A T-Lab aims to:

- **Frame** the challenge, **find innovators** and **build their capacity** to more effectively address the challenge

- Develop a **change strategy** that tests **multiple solutions**, which could help to solve the challenge.

- Create early **prototypes** of interventions and **build momentum** for action.

Prototypes could be new business models, services, or kinds of governance that fundamentally change human-environmental interactions and contribute to changes for a better future.

What is a social-ecological system?

In a social-ecological system (SES), people and the way they live, as well as other parts of ecology (animals, plants, water, soils etc), are connected and interdependent. This means they are influencing each other in complex ways.

For example, a system around a lake could be affected by urbanisation, farming and fishing, and changes in the climate. Changes in the water quality, wildlife, pollution and availability of food affect the economy and culture of the people living nearby.

These systems are often changing, sometimes quickly, leading to new (or more intense) problems, uncertainties and conflicts. Problems in these systems can sometimes seem impossible to solve. In many cases, solutions have been tried and failed many times.

T-Labs aim to unlock these problems by creating a space to think about them in new ways and harness people's capacity to create different kinds of change together.

---

[1] This section draws significantly on a presentation prepared by Laura Pereira and Per Olsson of Stockholm Resilience Centre, delivered to the inception workshop of the Pathways Network in Buenos Aires, April 2016 www.slideshare.net/Stepscentre/what-is-a-transformation-lab-tlab

[2] See also Schäpke et al (2018), Jointly Experimenting for Transformation? Shaping Real-World Laboratories by Comparing Them, GAIA — Ecological Perspectives for Science and Society, Vol 27, Supplement 1: pp 85-96

When is a T-Lab appropriate?

When to use T-Labs	When not to use T-Labs
A transition or transformation is taking place in a social-ecological system	There is no interest in, or sense of ownership of, the problem
There is a complex problem related to this transformation	There is limited capacity or interest to invest significant time to the process
There are people with significant ownership over the problem and strong motivation to change it	There is no flexibility to explore or change the focal question / challenge
There is confusion and disagreement about what is going on and why	
There is a collective sense of urgency	

What does a T-Lab involve?

Defining the problem

The team convening the T-Lab should make sure they agree on the basic problem framing. This can then be explored in more detail through research and workshops.

Using research

The design of a T-Lab should include careful research to understand what's involved in the problem. This may involve reviewing the existing literature, and undertaking new research to fill in gaps where necessary. It also involves scoping and interviewing participants who will be included in the T-Lab about the challenge.

Workshops

In the Pathways Network, most of our cases used two main workshops to structure the T-Lab. These were interspersed with a number of other engagements.

These are highly facilitated events, held over 1 to 3 days, which aim to create a space to think about transformation in a new way.

Review and reflection
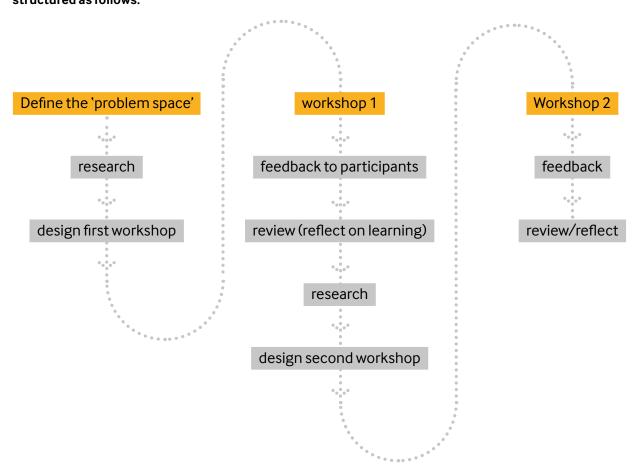
The T-Lab process includes time to review and reflect on what has been learned at each stage. This includes:

- Feedback to the participants of workshops on what was discussed and what happens next
- Reflection among the project team about what has been learned at each stage.

T-Lab workshop on land and agroecology in Brighton & Hove, UK. **Photo:** STEPS Centre

In the experience of the Pathways Network, this process was broadly structured as follows:

Define the 'problem space'	workshop 1	Workshop 2
research	feedback to participants	feedback
design first workshop	review (reflect on learning)	review/reflect
	research	
	design second workshop	

Depending on the nature of their defined problem space and the groups they convened, different teams in the Pathways network adopted some of the following approaches in their first T-Labs:

- create a collective sense of the need for change

- make visible alternative views about the problem and the possible solutions

- help to negotiate and create some kind of consensus across different views

- help to develop, or aim to develop some more specific social innovation

In the Pathways Network, there were important differences in the extent to which T-Labs were convened (or spontaneously emerged). Whilst this document assumes that project teams (of researchers) acted as convenors to steer the process, control was often shared with a range of groups and often explicitly 'handed over' as the T-Lab developed.

Why 'Labs'?[3]

The growing interest in 'labs' responds to a demand for places which allow creative, cross-sector and cross-disciplinary decision-making and innovation. The focus is on 'wicked problems' that seem insoluble, and reconciling seemingly antithetical elements such as the need to grow the economy and to maintain environmental services.

Expertise in psychology and group dynamics, complex adaptive systems theory, design thinking and computer modelling and visualisation tools has fed into ideas of change labs. These approaches rely on conditions such as broad-based research (across disciplines and methods), co-creation of solutions (across sectors and including citizens) a specialised physical environment (a 'safe space' where participants are more likely to be creative), clear process design and facilitation (including explaining how any particular workshop links to wider changes), rapid prototyping (of the social innovation e.g. testable model, software, plan or intervention to be designed) (see pp. 47-53 in the Social Innovation Lab Guide (Westley et al. 2015)), multi-disciplinary support staff (and facilitators) and continual learning (supporting the roll-out of the lab's outputs).

The main focus of these labs has been on achieving social change, and more specifically changes in relationships between people and between people and their social environment. However, they tend to miss human-environmental relationships and connectedness between nature and human society, which is particularly important for achieving sustainability transformations.

[3] This box draws from a blogpost by Per Olsson (2018): steps-centre.org/blog/transformation-labs-t-labs-approach-change/

Designing a T-Lab — step by step

Once you're satisfied that a T-Lab is appropriate for the problem you're facing, you'll need to design the process.

This means thinking in more depth about the system you're working in, what further research is needed, and who can be involved.

STEP 1

Defining the system and the problem

Define the system that you are focusing on.

- What are its geographical boundaries?

  Who are the actors involved? What function(s) of the system need to be sustained?

- What is your system level problem ('problem space')?

- What do you think is the system-level transformation required to overcome the problem?

Agency and power

An important aim in T-Labs is to create a change in agency. Agency refers to the capacity of a person or group to act. In a social-ecological system, agency is shaped by a number of important elements, which relate to their power relative to other actors'.

They include:

- how people see or frame the system

- the capacities and skills that they have to act

- their social networks (see box: Agency Network Analysis)

- their values and beliefs

- constraints such as poverty or inequality

T-Labs can help people to reflect on these elements and how they can be changed, individually or collectively. This might involve remaking the relationships between people, and between people and things, like nature or technology.

Initial research

This can include reviewing the following:

- existing evidence on the problem (including social and environmental aspects)

- what's been tried before to solve it

- what people's views of the problem are

- who's involved and what capacities and skills they have to create change

To inform the design of the T-Lab, you may need to talk in more detail with the people involved.

This might include:

- visits to sites affected by the problem (businesses, farms, nature reserves, villages or urban areas)

- group discussions

- semi-structured interviews with individuals

- Q Method[4]

- Agency Network Analysis

in order to understand who's involved, what they think about the problem and what's being done to address it.

Field visit to a farm in Xochimilco, Mexico. **Photo:** Rebecca Shelton

[4] See qmethod.org. For guidance on using Q Method in sustainability appraisal, see steps-centre.org/pathways-methods-vignettes/methods-vignettes-q-method

STEP 3

Agency Network Analysis

Agency Network Analysis (ANA) maps a given actor's **arena of social action** in the context of a problem space articulated by that actor. This mapping is done via a multi-part interview process that elicits that actor's social network map and cognitive map.

ANA was designed specifically for use in a T-Lab process. It combines social network mapping with cognitive mapping to better understand an actor's agency in a social-ecological system.

The ANA methodology is based on the articulation of three different tools: Ego-nets, Action-nets and Cognitive maps. It tracks who an actor collaborates with, what they do, and where collaborative actions have impacts on the system[5].

In the Pathways Network, this method was used by the team in Xochimilco (see the Mexico case in section 4: Examples of T-Labs).

[5] For more detail, see Methods Vignette: Agency Network Analysis, STEPS website: steps-centre.org/pathways-methods-vignettes/agency-network-analysis/

[6] See Chapter 5 in Leach, Scoones and Stirling (2010) Dynamic Sustainabilities, Earthscan/Routledge

[7] See Westley, Laban et al (2015), p.93 for more discussion of the 'Horns of the Dilemma' approach.

[8] See also Ely (2015), What kind of alliances are possible for transformative knowledge? steps-centre.org/blog/wssf-2015-what-kind-of-alliances-are-possible-for-transformative-knowledge/

The first workshop

Building on the initial research, the first workshop explores how participants 'see' the system and how it can be seen differently, and what consensus can be reached about the problem. This goes beyond a technical understanding of the system to appreciate different framings, perspectives and values. In this event, you may also begin to design potential ways to create a system-level change.

This section introduces some issues to consider in designing your first event, who to invite, and ideas on agency and group dynamics.

Who to involve

Decisions over who to involve in your T-Lab workshop follow directly from your definition of the system and the sustainability problem you are addressing.

Consider broadening out the kind of stakeholders who are involved, rather than convening the same group who may have met for similar discussions in the past.[6] As innovation often emerges from the margins and involves novel recombinations of existing ideas, bringing marginal actors together for the first time can be a powerful enabler of innovation.

Bringing together contrasting views can also help to reveal dilemmas which demand a creative response[7].

At the same time, T-Labs involve engaging with power, and there are trade-offs to consider over how the T-Lab might enrol dominant actors as allies or work to counter to that power (e.g. by convening alliances against interests driving unsustainable pathways)[8]. This leads on to considerations about whether you work with 'aligned' or 'non-aligned' stakeholders (see below).

Methods and agenda

For ideas on specific methods to use in designing your agenda, see p. 22 and 23.

'Aligned' and 'Non-aligned' stakeholders

A T-Lab is a participatory process that brings together people with different viewpoints. These may manifest in tensions or conflicts before, during or after the T-Lab workshop. Understanding the nature of any potential conflict, and facilitating the workshop accordingly, is an important consideration.

The Pathways Network has used two broad terms to help in thinking about who to involve in the T-Lab process, with a view to exploring how differing viewpoints can be used productively to foster positive social change:

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.

'Aligned' and 'non-aligned' should be seen as a spectrum, rather than a choice between two alternatives.

A more 'aligned' group of people may be quicker to form a collective view of the problem, and a common vision of what transformation should take place. But it may result in gaps in knowledge and viewpoints from other sources, and further challenges in building alliances, negotiating and compromising with those of different views.

Convening a more 'non-aligned' group can help to raise important challenges more quickly, and reveal where negotiation and compromise will be needed. But it is more challenging to establish at first, and requires trust to be built between the different people involved and the convenors of the T-Lab.[9]

You will need to use your knowledge of the setting and the dynamics involved to judge what is the best approach for your T-Lab.

[9] Marin, A., Ely, A. and van Zwanenberg, P. (2016) Co-design with aligned and non-aligned knowledge partners: implications for research and coproduction of sustainable food systems, *Current Opinion in Environmental Sustainability* Vol 20, p 93-98

Group dynamics

Innovation is not a neutral process. Ideas are shaped by politics and power relations in any group of people, including in 'Labs'. The content of a T-Lab — dealing with social and ecological issues — means that these dynamics are even more important. Environmental problems often have disproportionate effects on people who are marginalised — by power, poverty, age/generation, language, gender, sexuality, race, ethnicity, class, culture and so on.

Pay attention to these inequalities when designing your T-Lab.

- For example, some participants may have better language skills than others, or feel more comfortable speaking up. Using visual methods and physical materials can help to address this.

- Build an atmosphere of trust and agree rules about confidentiality, if necessary.

- In other groups, pay attention to gender balance and the influence of gender inequality, and who is actively participating.

- Consider if some participants may be intimidated by the venue(s) of interviews or workshops, or feel uncomfortable speaking up about sensitive issues.

- Providing a supportive platform for usually 'silent' voices, or using role play games, may enable people to speak up more than if they adopt traditional roles.

- Pay attention to customs around diets, religious observance and cultural differences among diverse groups.

Finally, researchers and convenors also have power and status. Try to assess the effects of your own position and status on the group dynamics. It may help you to spell out what you yourself are aiming to get out of this process, whilst avoiding an inappropriate level of control over the process. An external facilitator can also help with this and other aspects of group dynamics.

Workshop on Brighton & Hove's food system. **Photo:** Nathan Oxley

STEP 4

Review/reflection: first workshop

After your first workshop, review what happened.

- What changed?

Did your plans change in the run-up to the T-Lab workshop? How and why? What have you learned that will improve the facilitation the next time?

- How did research inform the design of the T-Lab?

What were the 'big ideas' underlying the particular design of the T-Lab? How was the process designed to explore meanings, surface different framings and associated tensions, to allow participants to engage emotionally and shift their commitments?

- What happened?

What methods did you use and why? What actually happened during the workshop? How did participants change their thinking about the problem? How could these changes lead to alternative pathways?

- What role did power play?

What was the effect of power and inequalities on the dynamics of the workshop? Did you deal with them effectively? How will they be addressed going forward?

STEP 5

Further research

During the first workshop, take careful note of any uncertainties that arise, or specific kinds of knowledge or evidence prioritised by participants.

After the workshop is completed, these can guide further research, which should focus on exploring the possible solutions raised in your first workshop in more detail.

STEP 6

The second workshop

The first workshop explored how participants 'see' the system and laid the foundations to designing potential ways to create a system-level change.

In the second workshop, you will ideally focus on designs for social and technical innovations in more detail. This may generate a prototype or specific initiatives that can be taken forward after the workshop ends. In a T-Lab, these will aim to create a transformation in the interactions and feedbacks taking place between people and the other parts of the natural world.

Experiences in the Pathways network pointed to two types of innovations that might emerge from T-Labs:[10]

- new innovations that can 'bridge' different (and to some extent conflicting) framings, offering the possibility of a route through an unsustainable impasse. We have previously referred to these as 'bridging innovations' (van Zwanenberg et al 2018)

- innovations that draw on the resources of different actors who have been brought together through the T-Lab process. These may be novel recombination between 'bottom-up' (or grassroots) efforts and top-down (government-led or high-tech-based) initiatives. We have previously described these as 'hybrid innovations' (Ely et al 2013).

[10] This draws from the blog by Adrian Ely, Patrick Van Zwanenberg, Elise Wach, Martin Obaya and Almendra Cremaschi - steps-centre.org/blog/seeding-ideas-knowledge-brokering-recombination-agricultural-transformations/

Who to involve

Similar questions around the selection of participants, their diversity, alignment and power exist as to those considered in the design of the first T-Lab.

There are trade-offs between maintaining continuity in the T-Lab participants or bringing in new actors, but the possibility exists to convene a strategically altered group. You may decide to further 'broaden out' participation in order to expose more groups to your T-Lab's thinking and test it against new perspectives.

You may also decide to convene a more 'aligned' group in order to focus on a specific issue, solution or prototype. Alternatively you may move towards a more 'non-aligned' group in order to surface tensions that may have been neglected in the earlier workshop.

You may also decide to involve more powerful actors at this stage, if they are to help bring the solution or prototype into being. And the participants at the first workshop may be unavailable or not want to continue in the process.

Methods and agenda

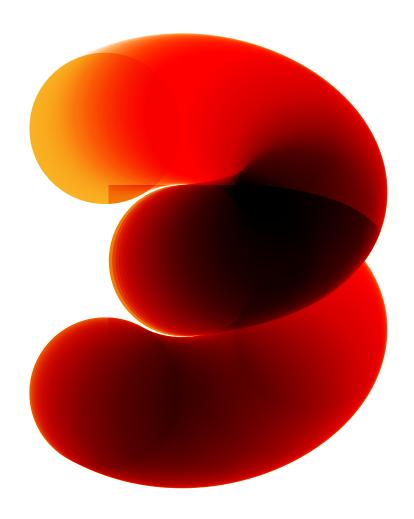Again, see the list on p. 22 and 23 for suggestions of methods to use, and ideas for further reading.

Review/reflection

After the second workshop, review what happened. The T-Lab process will be highly dependent on the system, the sustainability problem and the context in which the research and engagement is taking place. Alongside decisions around the design of the workshops and the intervening activities, it is impossible to predict the situation after the second workshop.

Whilst a T-Lab process is a deliberate attempt to support ongoing transformations, it is unpredictable and emergent. It is not intended to be driven indefinitely by the original convenors and ownership is often shared across a number of actors. This dynamic changes through the process and — at the first or second workshop — a conscious decision to share or hand over control may be taken.

Depending on the transformations under way, and the resources and momentum of the T-Lab, decisions may be taken to scale up the T-Lab so that the solutions that it has identified and prototypes tested may be experimented in other localities.

Methods

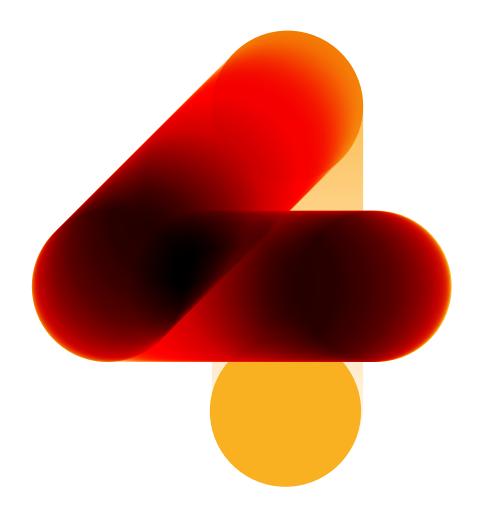The ideas in this section are based on experiences and insights from the Pathways Network. They are not an exhaustive list of methods that can be used in T-Labs. For more ideas on methods, see the Social Innovation Lab Guide[11], which gives detailed guidance on workshop design and the principles behind social innovation labs. More information on pathways research methods can be found on the STEPS website[12].

Method	Description	Purpose
Avatars	Each participant draws their avatar on a large sheet of paper and lists five 'powers' that their avatar has (eg the ability to listen well, ability to guide others, communication, and so on). Avatars are thought of as beings or archetypes that represent us in specific situations so we can make our participation in that group/situation more effective. The avatars are then hung on the wall and "watch over" the rest of the event. Participants are invited to imagine their avatars taking responsibility for different things, embodying different roles, and cooperating with other avatars in new ways.	Avatars show the variety and strength of capacities among the participants. By representing the participants without explicitly naming them, avatars creates a space to imagine building different kinds of relationships without immediately committing to them.
Mapping significant and valued elements	Participants identify the elements of the system that are most significant and valued by them. They start as individuals by listing 2 elements, then find symbols to represent these elements with materials (in small groups). They then discuss as a small group why they value these elements, what they provide and any associated emotions. Participants then construct a map of the system using physical objects (e.g. dough, colors, small modelling objects, pebbles, pictures, small branches, etc.) in their small group, then share the maps with the wider group.	This activity encourages participants to focus on specific parts of the system and think about how they are valued. By discussing them, differences in value and importance are revealed. The activity allows discussion of the deeper significance and cultural meaning of different parts of the system.
Evaluation H[13]	A significant question is written at the top of a wall, table, or large sheet of paper (the work surface). Participants place their responses along a horizontal line halfway down, which offers a continuum, for example: good to bad, easy to difficult, important to not important. Participants are also asked to write the factors which influence why their response was placed where it was on the line. The factors identified can be positive or negative, and are usually attached to vertical lines at either end of the continuum (hence the 'H' or rugby post name). The factors are then clustered. Discussion explores how to overcome negative factors or support positive ones.	This method treats different perspectives equally, and can identify diversity and marginal views. This method can be effective if participants represent different sectors, backgrounds, or types of involvement in the issue being explored, particularly if these different stakeholders do not interact often.
Role play	Volunteers play different roles in response to a situation introduced by a facilitator. The situation can either be the one under discussion, or another (fictional or real) situation where a similar problem is faced.	This method allows participants to imagine how different actors might respond to the problem. A fictional or similar setting can be used when the situation under discussion is sensitive, and participants may not feel completely free to express their opinions.
Simulation	Volunteers from the participants are assigned roles in a fictional setting. They all stand on a starting line, and the facilitator announces policies or projects which will be implemented. Based on their roles, the volunteers take either a step forward (if they are to benefit from the policy), backward (if it will have negative impact on them) or stay still (if it will have no impact). At the end, participants discuss the differences between the winners and losers, and how this exercise compares to their own experience.	This method encourages participants to see the varied effects of policies and interventions on different stakeholders in a given setting.

[11] Westley, F., Laban, S. et al (2014) *Social Innovation Lab Guide*, Waterloo Institute for Social Innovation and Resilience. Available online at uwaterloo.ca/waterloo-institute-for-social-innovation-and-resilience/projects/social-innovation-lab-guide

[12] STEPS Centre methods and methodologies guide: steps-centre.org/methods/

[13] Methods Vignette: Evaluation H. STEPS Centre methods and methodologies guide: steps-centre.org/pathways-methods-vignettes/methods-vignettes-evaluation-h/

Examples of T-Labs from the PATHWAYS Network

The following six examples have been compiled with the help of researchers from the Pathways Network, listed as 'Contributors' in the relevant example. For methods **highlighted in bold type**, see Methods (section 3) for more details.

Blog posts, video and other links, listed by case, can also be found on the Pathways Network website[14].

[14] steps-centre.org/ pathways-network- case-studies

1. Pathways Network colleagues from India and Kenya at a workshop in 2017. **Photo:** STEPS Centre

3. T-Lab workshop on land and agroecology in Brighton & Hove, UK. **Photo:** STEPS Centre

2. T-Lab about Xochimilco, Mexico. **Photo:** Beatriz Ruizpalacios

4. Participants at the Xochimilco T-Lab in Mexico play the 'Pathways Game' on decision-making and alternatives. **Photo:** Beatriz Ruizpalacios

5. Workshop on the social impacts of green transformations in Hebei Province. **Photo:** Jiang Chulin

6. T-Lab about Xochimilco, Mexico. **Photo:** Beatriz Ruizpalacios

Mexico: Harnessing agency for change

The ecosystem in the wetlands of Xochimilco, Mexico City faces competing pressures from rapid urban growth, tourism, farming and fishing. Urbanisation has driven much environmental degradation, and informal settlements are common. Farmers, government officials, local residents and researchers have different views and visions of the problems that Xochimilco faces, and what should happen to address the degradation in the environment. Despite a history of public policy attention and international recognition, interventions have so far failed to make headway.

The research team designed their T-Lab to open up dialogue between different types of stakeholders involved in the area, and to reveal what agency they have. This agency was defined related to how they see the system, the capacities that they have, the social networks within which they act, and their values. **Agency Network Analysis** was used during the initial research phase to identify different people's views and relationships, and how they collaborate with others.

The workshops built on this analysis using creative methods, including making **'avatars'** to represent participants' abilities and roles, and constructing symbolic maps with materials to represent **significant and valued elements** of the Xochimilco system. A private social media page was used to share notes and images from the T-Lab, and to provide an ongoing space for discussion.

Contributors: Hallie Eakin, Lakshmi Charli-Joseph, J. Mario Siqueiros-García, Rebecca Shelton, David Manuel Navarrete and Beatriz Ruizpalacios

T-Lab about Xochimilco, Mexico.
Photo: Beatriz Ruizpalacios

UK: Connecting a city with local sustainable food

Brighton & Hove, a city on the south coast of the UK, has a population of around 275,000. The UK team set out to discover how small agro-ecological farmers nearby, including on the council-owned Downland Estate, could be supported in supplying the city and creating a more sustainable food system.

Initial research found that these farmers were constrained in their ability to reach local markets, and could benefit from more support. Interviews were carried out with local policy makers, retailers, growers on small- to medium-sized farms, and attendees of a seed sharing event. This helped to show how different people viewed the city's food system, and reveal practices in food growing, buying and so on.

The first workshop, informed by this research, further explored the challenges faced by agro-ecological growers. It involved lo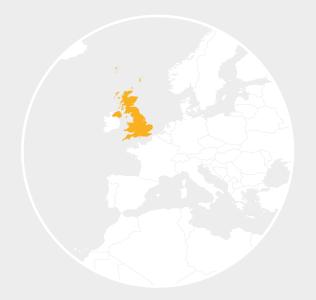cal growers and buyers, researchers and food activists. Through participatory methods, including an **Evaluation H** exercise, mapping positive and negative factors, and group discussions, the workshop helped to reveal key concerns, including access to land and coordination of

markets, and logistics/distribution systems between producers, retailers, and consumers. These areas — seen as priorities by the T-Lab participants — became the focal areas of the next round of research and engagement.

The second workshop focused on how nearby land might be used for agro-ecological production to feed the city. It brought together a larger and more diverse group, including larger-scale farmers, commercial land agents, and representatives from the Council and national statutory bodies — as well as smaller producers, NGOs and the local Food Partnership.

Outcomes included the suggestion of a policy review involving a democratic/ participatory process to identify the 'purpose' of the Downland Estate; and mapping the ecological potentials within the Estate, to identify opportunities for food production. A further idea was the establishment of a research and innovation hub involving local academic organisations, farmers and other bodies. A number of linked projects will continue to explore these and related ideas further.

Contributors: *Adrian Ely and Elise Wach*

Workshop on Brighton & Hove's food system. **Photo:** Nathan Oxley

Argentina: Opening up seed systems

Seed markets are increasingly controlled by a few large companies, and intellectual property regimes that affect seeds are becoming stricter. This has consequences for biodiversity, food production and social justice. The Argentina team set out to investigate how innovations in the seed system could meet the needs of farmers and seed producers.

Initial research revealed different highly conflicting views of the challenges facing the seed sector, broadly converging around two areas. One set of views emphasised the importance of large-scale agricultural productivity, supported by the country's private sector. Another set of views emphasised food sovereignty, social economic diversity and a key role for small- and medium-sized farms, supported by an active State. The Argentina research team decided to seek a 'bridging innovation' that could address the concerns expressed in both sets of views.

Although originally envisaged around two key events, the process for the T-Lab in Argentina evolved to include three 'co-design workshops', as well as a series of smaller, meaningful meetings with stakeholders. The outcome of this process was an 'open source' system for seeds — named Bioleft[15] — which would help to challenge restrictions on intellectual property in the seed sector in Argentina. The Bioleft initiative is developing an open licence and an online platform to record and trace the transfer of seed material, and share data about how seeds were performing.

The process involved participation from researchers, agronomists, extension workers, seed breeders from public and private institutions, policymakers, academics, economists, lawyers, filmmakers, IP specialists, consultants and people representing associations of farmers, peasants and indigenous communities. It helped to form a network linking public sector plant breeders and family farming organizations/rural extension workers. The first transfer of seed material under the Bioleft licence was made at a small ceremony in early August 2018[16].

Contributors: *Marcela Basch, Anabel Marin, Patrick van Zwanenberg*

[15] bioleft.org

[16] Patrick van Zwanenberg and Anabel Marin (2018), Argentina's 'Bioleft' project shares its first open source seeds, STEPS Centre blog steps-centre.org/blog/argentinas-bioleft-project-shares-its-first-open-source-seeds/

Workshop on the seed system in
Argentina. **Photo:** STEPS América Latina

India: Mobilising for better water in rapidly-changing Gurgaon

The Gurgaon region to the South-West of Delhi is undergoing a massive urban transformation under the influence of real estate driven processes of development of urban infrastructure and services. Planning, governance and practices for management of water supply do not take into account the growing inequities and unsustainable water management practices. The India research team set out to discover what kind of public engagement could help create a more just and sustainable water management. Background research focused on the impacts of migration, class differences in water access, demand and supply of water, health impacts of wastewater, pollution, drainage and the destruction of local natural water systems.

The first major workshop of the project explored the conflicts and contested views about the problems of water in Gurgaon. It also aimed to identify measures that could be taken immediately, and to create space for solidarity among the different citizens' groups involved.

The workshop involved representatives of the two existing federations of Resident Welfare Associations, some trade unions, women's groups, environmental groups, NGOs, ex ward Councillors, a municipal commissioner, academics, engineers, public-spirited individuals and some residents of the nearby villages and slums.

The direct outcome was the creation of the Gurgaon Water Forum (GWF), including a System Design Group, whose work included investigating the potential for rainwater harvesting in tackling flooding in the area, Technology Generators and Field Groups. Campaigning groups, a trade union and a local radio station promoted the work of the GWF.

Masons and plumbers have been trained in the construction, repair and maintenance of rainwater harvesting structures, and training courses in reedbed technology and solid waste management are planned. Volunteers have been trained to test water quality and a survey of close to twenty settlements has been carried out.

The GWF has established a series of programmes of mass communication through community radio, citizen journalists, citizen science and citizen alerts. Processes to redress grievances are also taking place. This involves the active cooperation of around fifty activists enrolled from among the women, students and workers associated with the members of mobilized public groups.

The long-term objective is to enable the sharing of knowledge and ideas among stakeholders from different parts of society. It is also designed to allow real-world experiments in areas like increasing water access, rationalization of water use, treatment of grey water and the prevention of urban flooding.

Contributors: *Dinesh Abrol, Pravin Kushwaha, Bikramditya Choudhary*

Workshop on Gurgaon's water system.
Photo: South Asia Sustainability Hub &
Knowledge Network

China: What future for workers when factories close?

The T-Lab in Hebei Province focused on the social impacts of China's long-term ambitious policy plan to become more environmentally sustainable.

China's 13th Five Year Plan, which runs from 2016 – 2020, promotes low carbon industries, green finance, environmental monitoring and CO_2 emission permit systems. It also sets out a number of initiatives to reduce smog and air pollution and carbon dioxide emissions. In 2012, the government began a crack-down on air pollution in Jingjinji area, where two important cities, Beijing and Tianjin, and one province, Hebei, are located. The researchers focused on Luquan, a district in Hebei, where 24 factories had closed since 2013 with a loss of 2,500 jobs.

The T-Lab process included interviews with workers, factory owners, government officials and researchers, as well as two day-long workshops with representatives of the different groups involved. The workshops involved creative methods to allow participants to explore the issues, including **simulation**, **role plays** and **storytelling**. Participants were encouraged to share their own experiences and perspectives, and suggest concrete ideas for change. The second workshop also focused particularly on gender analysis, including more female laid-off workers and their needs and daily experience.

The second workshop also involved a journalist and workers from environmental NGOs. In particular, the District Air Pollution Prevention and Control Office participated — a team which plays a key role in coordinating environmental protection work in Luquan district.

The T-Lab created a space for stakeholders in the system — government officials, NGO workers and factory workers — to meet face to face and listen to each other's stories and concerns, often for the first time. Government officials appeared to recognise a need to redesign the training programmes aimed at the workers who had lost their jobs, to take more account of their needs.

Contributors: *Jiang Chulin and Yang Lichao*

Workshop on the social impacts of green transformations in Hebei Province. **Photo:** Jiang Chulin

Kenya: Bringing solar power to the people

Solar power is gaining popularity as an off-grid source of energy for poor households and small businesses in Kenya. To help with the costs, people can now use a mobile phone-based payment system to access credits and pay for solar home systems over time. The Kenya team set out to investigate how mobile-enabled payments can be part of transformations in low-carbon energy systems that can benefit poor people.

Many non-state actors, including community organisations and some private sector and civil society groups, have seen solar home systems as a promising way to allow energy access for poor people. The Kenyan government has ambitious targets for renewables (100% access to clean and sustainable energy by 2022, of which 80% from renewable sources). But the state prefers to focus on the economic case presented by larger scale energy projects, including geothermal and hydroelectric power, in achieving these goals.

To address these conflicts, the T-Lab process brought together stakeholders with different views and interests (NGOs, the government, civil society groups, private sector development partners, and researchers). The scoping research and first workshop revealed a complex policy landscape, but with a leading role for the state and a continued focus on grid-based energy options. They identified multiple perspectives on what transformation should happen, and various barriers — including costs of setting up solar home systems, the tax regime, e-waste, and the dominance of grid-based solutions in policy and culture.

The use of World Cafés[17] and an interactive, learning-centred approach helped diverse views to be expressed. The process yielded some concrete pathways for action, including using the Kenya Private Sector Alliance to lobby for policies to support solar home systems; a new County Energy Access platform to be established by the Africa Sustainability Hub and its partners; and a new database on the benefits, governance and innovations around mobile-enabled solar energy.
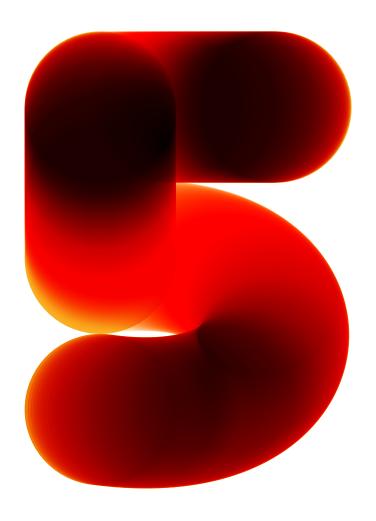
Contributors: *Victoria Chengo and Kennedy Liti Mbeva*

[17] theworldcafe.com

T-Lab workshop in Kenya on mobile
payments for solar home systems.
Photo: Africa Sustainability Hub

Resources & references

Social Innovation Lab Guide

Westley, F., Laban, S., Rose, C., McGowan, K., Robinson, K., Tjornbo, O. and Tovey, M. (2015) Social Innovation Lab Guide, Waterloo Institute for Social Innovation and Resilience

The guide is described as 'a resource to peers, colleagues, practitioners, leaders from all sectors, and concerned citizens — all who have and/or will participate in change-making processes.' It introduces the thinking behind 'lab'-based approaches and social innovation, and provides step-by-step guidance to designing social innovation labs, including methods and key concepts.

uwaterloo.ca/waterloo-institute-for-social-innovation-and-resilience/projects/social-innovation-lab-guide

SDG Labs

A series of prototype projects supported by Future Earth, Stockholm Resilience Centre and The University of Tokyo Integrated Research System for Sustainability Science in 2017. The call for labs aimed to encourage ideas with potential to make major breakthroughs on the Sustainable Development Goals (SDGs).

See www2.ir3s.u-tokyo.ac.jp/icss2017/sdg-labs/selected-projects/

Transformations to Sustainability

A website showcasing projects supported by the International Science Council (ISC) under its 'Transformations to Sustainability' programme. The programme pioneers an innovative, solution-oriented approach to sustainability research that is framed and led by social scientists and involves natural scientists and societal stakeholders from beginning to end of the research process. The research teams and sites span the globe, including low- and middle-income countries.

The Pathways Network, which produced this guide, is one of the first three 'Transformative Knowledge Networks' supported by the programme.

transformationstosustainability.org

Pathways Network

The Pathways Network's website features blog posts, literature, video and methods guide from the project. It includes details of the six cases where T-Labs were carried out (in Mexico, UK, China, India, Kenya and Argentina), with resources from each T-Lab.

steps-centre.org/project/pathways-network/

References

- Charli-Joseph, L., Siqueiros-Garcia, J., Eakin, H., Manuel-Navarrete, D. and Shelton, R. (2018) Promoting agency for social-ecological transformation: a transformation-lab in the Xochimilco social-ecological system, *Ecology and Society* 23(2):46 doi.org/10.5751/ES-10214-230246

- Ely, A. and Marin, A. (2017) Learning about 'Engaged Excellence' across a Transformative Knowledge Network, *IDS Bulletin* 47(6):73-86

- Ely, A., Smith, A. and Stirling, A. (2013) Innovation politics post-Rio+20: hybrid pathways to sustainability? *Environment and Planning C: Government and Policy* 31:1063-1081

- Marin, A., Ely, A. and van Zwanenberg, P. (2016) Co-design with aligned and non-aligned knowledge partners: implications for research and coproduction of sustainable food systems, *Current Opinion in Environmental Sustainability* 20:93-98

- Van Zwanenberg, P., Cremaschi, A., Obaya, M., Marin, A. and Lowenstein, V. (2018) Seeking unconventional alliances and bridging innovations in spaces for transformative change: the seed sector and agricultural sustainability in Argentina, *Ecology and Society* 23(3):11

T-LABS: A PRACTICAL GUIDE

ABOUT THIS GUIDE

Between 2016 and 2018, the Pathways Network aimed to investigate new approaches for transformations to sustainability across different disciplines, cultures and contexts. The network carried out comparative research in six countries to explore how to work with local people on social transformations in the context of environmental change.

In six sites (in Argentina, Mexico, Kenya, China, the UK and India) the project convened 'Transformation Labs' (T-Labs) to develop innovative responses to social-ecological problems. This document draws from the experiences across the network to provide a practical guide to those considering similar approaches in their own work, while recognising that researchers, civil society organisations or social innovators will need to design a process that is appropriate to their own context.