# Scoping transdisciplinary collaborations:

*A principled approach to meaningfully fund and support unusual transdisciplinary encounters, engagements, and collaborations*

**A report to the Board of the Centre for Unusual Collaborations.**

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*Commissioned by* CENTRE FOR UNUSUAL COLLABORATIONS

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# Executive Summary

Transdisciplinary research, where researchers and societal actors work together, is gaining prominence to address the complex questions society and science face. However, transdisciplinary research is traditionally framed in a way that overemphasises research and problem-solving in formal projects as the primary activity, potentially downplaying other objectives or ways of working more relevant for societal actors (§2). The Centre for Unusual Collaborations (CUCo) wants to explore how it can support unusual collaborations in a transdisciplinary context. This scoping report suggests expanding the frame that characterises transdisciplinarity to encompass diverse transdisciplinary collaborations and consider their entire lifecycle (§2.1)

Transdisciplinary collaborations require distinct and increased efforts to traditional forms of research. The main barriers relate to defining the focal question or problem, determining who, how and why people are involved, and how the collaborative process should develop to account for the distinct backgrounds and needs of the people involved (§2.2). Transdisciplinary collaborations require particular skills, sensitivity and attitudes (e.g., humility, tolerance to difference, empathy, power awareness). Dedicated time and support are essential to address these issues and develop genuine and effective collaborations. Based on the challenges identified barriers and the needs, four principles are identified for fostering meaningful collaborations (§3):

- Address (context-specific) societally relevant issues while maintaining scientific relevance
- Embrace complexity, ambiguity, and uncertainty.
- Value and harness plural ways of knowing via co-creating and co-learning.
- Involve diverse relevant actors in inclusive, fair, and equitable ways.

The report explores what is required to foster these four principles, what competencies are needed, how CUCo can support transdisciplinary teams in reaching these principles, and what considerations should inform the funding of these collaborations (§4). Regarding competencies, for instance, it is possible to discern precursors for transdisciplinary collaborations (openness to new perspectives, ideas, and approaches) while others can be trained (reflectivity, conflict management, systems thinking).

The study synthesis of these findings (§5) leads to recommendations encouraging CUCo to focus its activities on collaborations that normally ‘fly under the radar’ of traditional funders, including in matters of impact. This includes dedicated efforts to have societal actors more central and (co-) leading in the collaboration, with particular attention to those that might not currently be reached and those ‘most affected, least heard’ on the issues at play (§5.1).

These principles are associated with cross-cutting issues and multiple tensions (§5.2). For instance, transdisciplinary collaborations demand substantial reflection on the positionality of different actors, which may sometimes lead to them transcending initial expectations or their traditional roles. Significant tensions exist between the aspirations associated with transdisciplinary collaborations and the practical reality of funding, time availability, institutional requirements, and established practices. Furthermore, transdisciplinary collaborations realised without the appropriate support can threaten the well-being of researchers and societal partners, e.g., due to work pressures, extractive practices, and competing responsibilities.

This scoping study forms a base that CUCo can explore and develop, training for competencies, support for the collaborative process, and funding that nurture these collaborations (§5.3-5.5). The study

provides recommendations on how CUCo can support different phases of the transdisciplinary collaboration lifecycle (§5.6). To further develop a better understanding of how to navigate expectations and facilitate transdisciplinary collaborations, we recommend continued exploration and documentation experiences around the principles and tensions that we identified:

1. Incorporating, applying reflexively, and communicating clear principles (like the four principles we developed in this scoping study) to help develop a more cohesive, inclusive, and progressive approach to transdisciplinarity among the alliance members.
2. Revising current support for (unusual) collaborations considering the specificities of transdisciplinarity outlined in this report.
3. Raising awareness and advocacy with other institutions to address structural barriers, reimagine new ways of working and create a more enabling environment for inclusive, fair, and equitable transdisciplinary collaborations.
    - Revisiting the approaches for monitoring and evaluation of research collaborations which would otherwise hinder more exploratory or open-ended forms of collaboration
    - Harnessing plurality and being inclusive while recognising the limitations of funding periods, time availability, and other practical realities.
    - Designing support structures and practices that can embody this' report's principles whilst striving to support inclusion, equity, and fairness.
    - Acknowledging the differentiated effect that policies and funding criteria have on different subgroups involved (e.g., early career researchers, activists, and non-profit organisations), which often operate with limited resources.
4. In partnership with the members of the alliance, continuing to experiment and develop a diverse portfolio of transdisciplinary encounters, engagements, and collaborations, and actively study its development to further develop the insights of this scoping study.

# 1. Introduction

The Centre for Unusual Collaborations (CUCo) has been embarking on a new phase where it is likely to expand its scope: after successfully supporting unusual interdisciplinary research collaborations in the EWUU (alliance between Eindhoven University of Technology, Wageningen University & Research, Utrecht University and University Medical Centre Utrecht), CUCo is now also considering how it may support transdisciplinary collaborations.

This document is the result of a scoping exercise by a team drawn from EWUU institutions and an external expert with the main objective of increasing CUCo's understanding and practice of the benefits and barriers related to transdisciplinary research and collaborations to increase the potential contribution of CUCo funded research to inclusive, fair, and equitable academic/societal objectives.

To that end, we define the following sub-objectives:

1. Gather written data, practices, and experiences of (funding) transdisciplinary research and collaborations and document lessons to enhance CUCo's knowledge base.
2. Formulate principles for funding inclusive, fair, and equitable transdisciplinary research and recommendations on translating these into practice to guide CUCo's funding schemes.
3. Propose a set of competencies required for inclusive, fair, and equitable transdisciplinary research to expand CUCo's training journey.
4. Propose approaches for supporting Spark and UCo teams that enable them to conduct transdisciplinary research in inclusive, fair, and equitable manners.

Between September 2022 and March 2023, the scoping team has undertaken a scoping study consisting of the following activities:

1. Identifying the defining characteristics of transdisciplinary research and collaborations, positioning it vis-à-vis other approaches such as interdisciplinary and action research (elaborated in §2).
2. Establishing an in-depth understanding of how these differences imply specific barriers and opportunities for transdisciplinary research and collaborations (§3 and operationalised in §4).
3. Discussing among the team and with external stakeholders how CUCo could address these barriers and leverage opportunities and which principles should inform funding, competencies, and approaches for supporting Spark and UCo teams (integrated throughout the text and in the Annex).
4. Distilling key recommendations for integrating these insights into CUCo's practice (synthesis in §5).

This document is mainly intended for the CUCo board. Elements of this document could be taken and translated to make them fit other audiences, such as transdisciplinary research teams, university management, or other funding agencies (e.g., NWO).

The team consists of four researchers with extensive experience in engaging in transdisciplinary research and one practitioner with expertise in equity and social inclusion. The four researchers work for one of the four EWUU alliance universities, predominantly in sustainability science and food systems transformation (with a geographic focus on the Global South). Although familiar with academia, the fifth expert has mostly been involved in transdisciplinary and action research from the point of departure of civil society and global social justice organising. We acknowledge our team's bias towards sustainability sciences, international development, and academia. We tried to address this

limitation by organising two stakeholder workshops to invite societal perspectives and experts from other domains to share their recommendations.

In the following text, we seek to develop a shared basis for CUCo's enacting of transdisciplinarity. We start by discussing the most common understanding of transdisciplinary research and its limitations before proposing a reframe suitable for CUCo's way of working (§2.1). We then propose a set of principles and practices for fostering successful transdisciplinary collaboration (§3-4) and end with key conclusions and recommendations (§5).

# 2. Definitions, current practices, and challenges with engaging in transdisciplinary collaborations

The most prevalent understanding of transdisciplinary research (TDR) in contemporary academic literature foregrounds different academic disciplines working jointly with practitioners to solve a real-world problem (Klein et al., 2001). TDR is thus positioned as an additional mode of research which complements disciplinary, multidisciplinary, participatory, and interdisciplinary approaches to research (Figure 1). Compared to multi-disciplinary approaches, inter- and transdisciplinary research requires further integration of knowledge. Both participatory and transdisciplinary research incorporates societal actors' (lay, conventional or professional) knowledge. In this view, TDR combines elements of interdisciplinary and participatory modes of research, working towards a shared goal and centring on knowledge integration to tackle real-world problems.

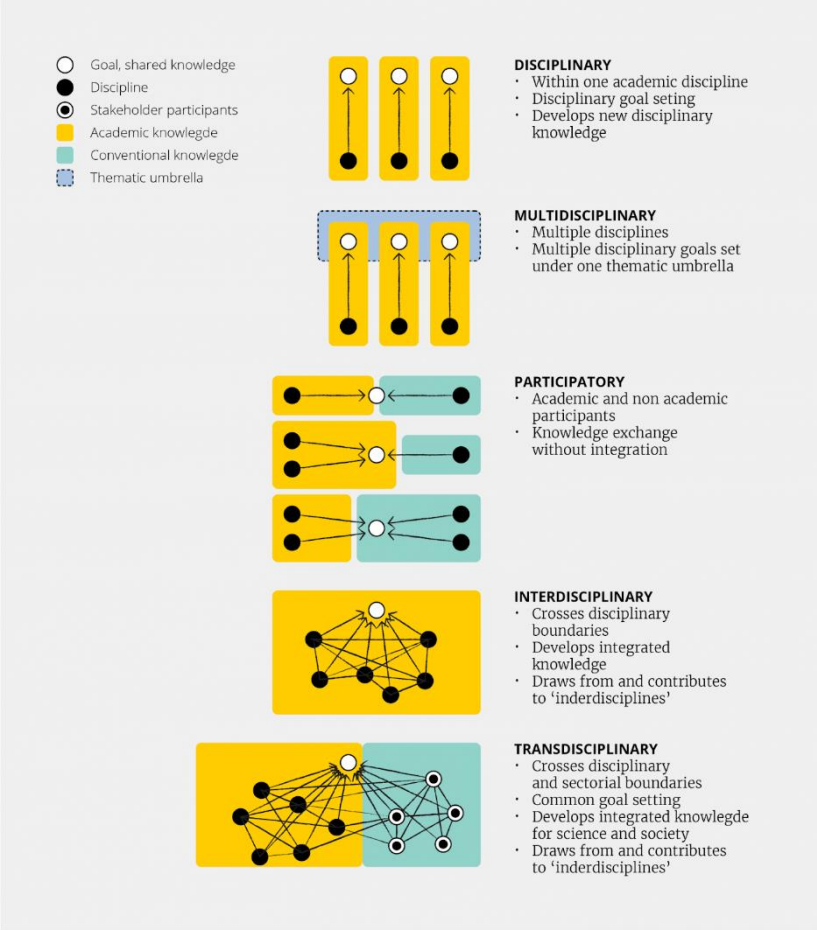


*Figure 1: Schematic representation of transdisciplinary research. Adapted from Morton et al. (2015), originally from Tress et al. (2005), as presented in Utrecht University's Transdisciplinary Field Guide.*

Different disciplinary backgrounds have slightly different formulations for discussing the kind of work that combines the knowledge of academics with that of societal actors. For instance, in medicine, notions of 'translational medical sciences' that seek to bring scientific insights closer to their application in the treatment of patients are often associated with the search for integrative responses that bridge the knowledge of scientists and practitioners (Ciesielski et al. 2017, Stokols et al., 2013). However, this report will focus on the theoretical formulations most commonly used in sustainability

sciences and international development. In these fields, transdisciplinarity has been developed since the early 2000s and applied extensively in various contexts, geographies and collaborations with diverse stakeholders.

**The benefits of transdisciplinary work**

Engaging in transdisciplinary collaborations is increasingly proposed as a promising pathway to address wicked problems, particularly in the domain of sustainability sciences (Francis et al. 2008; Horcea-Milcu et al. 2022; Lang et al. 2012; Roux et al. 2010), natural resource management (Brouwer et al. 2018; Bulten et al. 2021; Kloet et al. 2013), health (Kalinauskaite et al. 2021), and food systems (den Boer et al. 2021; Posthumus et al. 2018). For academics, there are several benefits, including the prospect of engagement to deal with real issues, increase social relevance and impact, build partnerships, generate fresh ideas, learn new skills, and explore career possibilities. Meanwhile, for societal actors, transdisciplinary collaborations would improve decision-making, provide avenues for reflection and improvement, build capacity, and build valuable networking. Due to the participatory nature of transdisciplinary work, it is also argued to generate better-defined problem definitions and more acceptable solutions. Different actors define distinct benefits to collaborating in TD settings; figure2 illustrates the benefits identified by academics and practitioners working in inequality from various disciplines and approaches in the Atlantic Fellowship Community at the London School of Economics.

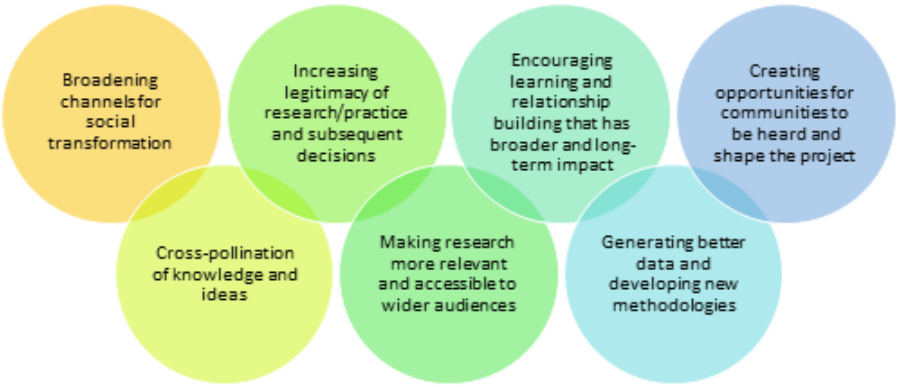


*Figure 2: Benefits of Academic-Practitioner collaborations (Ooms et al., 2022).*

**Contemporary debates**

We see three points of contestation in the contemporary debate around transdisciplinarity. First, Transdisciplinary research has overemphasised research in formal projects as the primary activity, potentially downplaying other objectives from societal actors. It implicitly puts researchers in the driver's seat as the most qualified actors to design and conduct studies, while societal partners are expected to assume a more passive role. And assuming that transdisciplinarity occurs in formalised projects only risks ignoring other transdisciplinary collaborations that can be key for addressing wicked problems. Hence, in this scoping study, we use 'transdisciplinary collaborations' instead of transdisciplinary research, with transdisciplinary research as a subset of transdisciplinary collaborations.

A second point of contention concerns the way most accounts of transdisciplinarity are oriented towards *problem-solving*, or in some cases, 'optimising the existing'. This tendency suggests that participants always work towards shared goals and integration of knowledge, to the detriment of more critical perspectives that can help challenge ingrained assumptions and biases of social structures (Barry and Born, 2013, Klenk and Meehan, 2017). More critical forms of transdisciplinary collaborations

could be understood as having a *transgressive orientation*, seeking to provoke dialogue around new avenues for conceptualising or acting around entrenched issues. The latter is evident, for instance, in art-science collaborations and creative practices (e.g., Vervoort et al., 2023) but also in more critical forms of transdisciplinary research that centre on challenging unequal power relations.

## 2.1 An alternative way to think about transdisciplinary collaborations

We see transdisciplinary collaborations as an umbrella term that encompasses problem-solving and transgressive orientations. Inspired by Koskinen and Mäki (2016, p.423), the following list of attributes can be used to describe transdisciplinary collaborations:

1. Transcending scientific disciplines and/or approaches within academia.
2. Integrating academic disciplines and/or approaches with one another.
3. Addressing and attempting to solve social and practically relevant issues.
4. Involving societal partners in various roles (this implies being inclusive).
5. Involving societal partners' knowledge(s) (this also implies being inclusive).
6. Involving societal partners' values and interests.
7. Integrating the knowledges and values from different sources.
8. Serving the common good (or some idea of a normative goal).

The points mentioned above imply that transdisciplinary collaborations need to be inclusive of those actors and voices from academia and society that are relevant or being affected by the issue at stake. A first step towards building inclusive and just transdisciplinary collaborations is recognising the potentially exclusionary ways the discourses around transdisciplinary research have been framed so far. For transdisciplinarity to be most significant, a shift in perspective is needed from some of the earliest formulations. Table 1 summarises such shifts.

Most traditional accounts of transdisciplinary research present it as a way of bridging a chasm between the research and societal domains. That gap is often overstated, given that both domains are heterogeneous and intimately connected. For instance, researchers often have profound connections to ‘the world academia’. At the same time, practitioners, activists, and policymakers are sometimes well-versed in academic debates and often hold ‘double identities’ or extensive research experience. It is important not to reinforce this dichotomy and the prejudices it implies: one should not assume a priori that researchers and societal partners are (predictably) distinct but instead develop curiosity about whether and how differences manifest themselves in collaborations. For instance, the differences between academics from distinct disciplines are often more cumbersome for transdisciplinarity than between researchers and practitioners (in the same domain).

*Table 1: Problematising the assumptions that generally underpin literature on transdisciplinarity.*

| | Assumed situation in earlier formulations of TD | Setting in actual TD collaborations | Reflexive questions |
|---|---|---|---|
| Participants | There are two relevant groups: the researchers and the societal actors.<br>Identifying who should be involved is primarily determined by the kind of problem and who is affected by it. | There are several relevant groups: researchers from different disciplines, fields, or schools and diverse groups of societal actors.<br>Differences between academic researchers and societal groups may be less prominent than some other divisions.<br>Identifying who should be involved shapes how the problems come to be understood and solutions developed. Reflexivity is essential to examine this dynamic. | How are relevant groups identified, how are they expected to participate, and who ultimately decides on their participation?<br>How does the framing of the issue/solution marginalise certain groups or actors?<br>How would their participation shift the conversation?<br>How are non-human agents enrolled and considered? |
| Status of knowledge producers | Researchers have a socially established role and a clear institutional status as producers of knowledge, whereas societal actors do not. | Typically, only some relevant groups have socially established (but diverse) roles and institutional statuses as knowledge producers.<br>Collaborations actively seek to value subaltern or marginalised perspectives. | How are the roles concerning knowledge generation defined, and how are institutional imbalances addressed? |
| Power asymmetries | In case there is an acknowledged power asymmetry, the researchers are in a (social, though not necessarily financial) position of power in relation to the societal actors. | There may be complex power asymmetries between the different groups, e.g., some of the societal actors may be in social and/or financial positions of power in relation to the researchers and/or to other societal actors. | What processes are in place to navigate and address these power imbalances? |
| Phases | Attention is given to existing projects, not how such projects come into being and what happens after they finish. | More attention to the phases and activities that precede or follow an established research project, such as unusual encounters and engagements. | How to support encounters, engagements, and collaborations in meaningful ways? |
| Epistemic conflict | There may be unresolvable epistemic conflicts between the different groups and subgroups, but such conflicts are not central in the literature discussing societal actors' collaboration and participation. | There may be unresolvable or hard-to-resolve epistemic conflicts between the groups.<br>Convergence is not necessarily possible or desirable. | What processes are in place to navigate possible conflicts regarding the validity and relevance of different ways of knowing? |
| Value conflict | Potentially unresolvable value conflicts between the involved actors are not central in the literature.<br>Facilitation is centred on identifying common ground and achieving convergence. | Potentially value conflicts between involved actors are made explicit.<br>Facilitation is attentive to identifying the sources of conflicts and creating opportunities for agonistic dialogues. | What processes are in place to navigate possible conflicts regarding distinct values and interests?<br>What can we learn from these places of friction? |

Columns 1-3 adapted by combining tables 1 and 2 from Koskinen and Mäki (2016), with our emphasis. Column 4 is from our elaboration.

***Box 1: An example of long-term TD engagement: The Atlantic Fellowship on Social and Economic Equity Programme***

The Atlantic Fellows for Social and Economic Equity (AFSEE) programme is based at the International Inequalities Institute at the London School of Economics and Political Science (LSE). The programme believes that a more equitable world is possible and can be achieved through bold, imaginative responses that are forged through collective action and aligned to values of fairness, commitment, curiosity, kindness, and courage. AFSEE supports Fellows who are actively working to bring these alternatives to life and brings together a range of different stakeholders, including activists, academics, practitioners, and policymakers. The programme provides training, spaces and funding, such as the Atlantic Equity Challenge, in which academics and practitioners engage in joint projects, drawing on multiple forms of experience from different disciplines and sectors and producing academic and non-academic outputs aimed at different audiences. It provides time and space to reflect on joint objectives and incentives while keeping in mind the communities they are trying to serve by collaborating. Interviews show how it led to innovative thinking, creating methodologies that serve academia, practice, and communities, which in combination can unlock transformative change. In the words of an academic partner: "I wanted our methodologies to become transformative, that the very act of doing research is also an act of transformative act for the community or the people who are working with us, the research participants". The experiences and lessons from the AFSEE community over the past five years are being captured in exploring the potential of Academic-Practitioner collaboration.

To address these perspective shifts better, we propose that CUCo consider transdisciplinary collaborations as a wider 'lifecycle' of transdisciplinarity (Figure 3). We build on an analogy to the mushroom lifecycle and the distinction between encounters and engagements from Klenk and Meehan (2017).

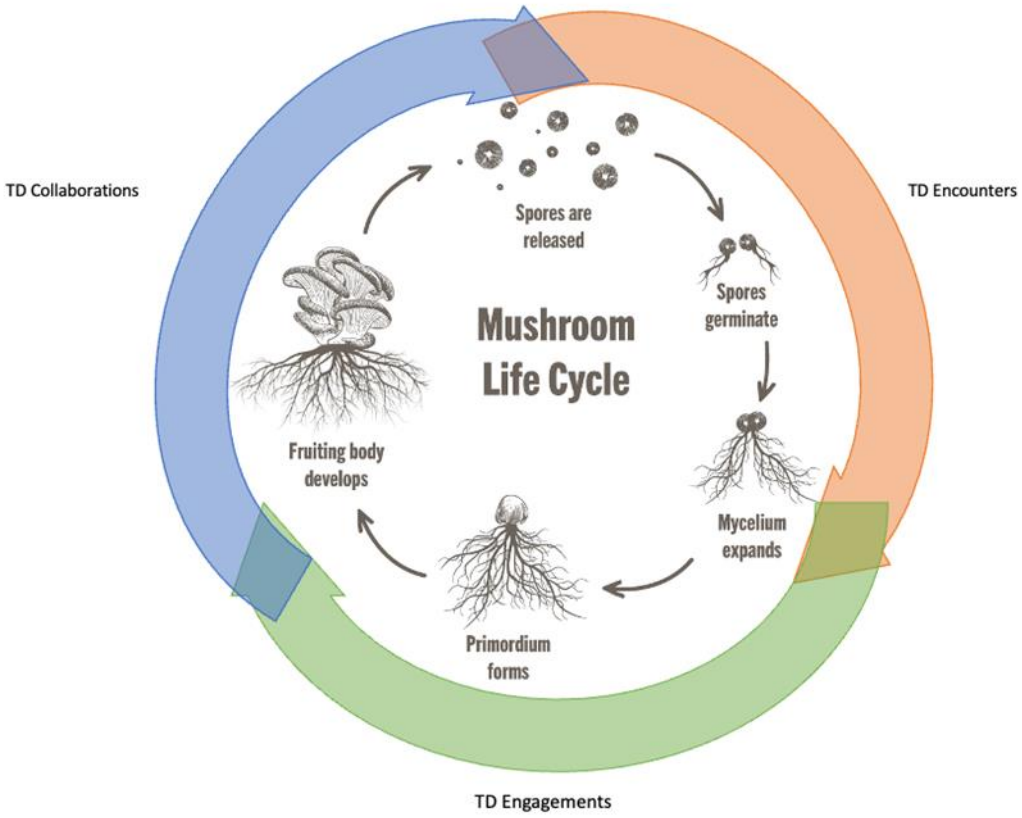

*Figure 3: Transdisciplinary collaborations have a lifecycle analogous to mushrooms, with a somewhat unpredictable start, a long gestation period underground, and briefly visible fruition.*

Encounters, engagements and finally, collaborations are all interdependent on and connected to the broader ecosystem around them.

- To **encounter** someone or something 'is to be open to learning about them: what relations are they composed of? Hence, to encounter requires being attuned to difference in all its manifestations—each subject embodies a unique pattern of relations and modes of relevance' (Klenk and Meehan, 2017).
- 'The term **engagement** refers to an agreement to do something or go somewhere at a fixed time or during a fixed period. Although transdisciplinary research seeks such engagement, it begins with encounters'. (ibid, p.29)
- In this perspective, transdisciplinary **collaborations** refer to the matured cycle stage, when the engagement evolves into a formalised initiative or project with specific goals, approaches and intended outcomes.

This analogy helps to highlight the following points about transdisciplinary collaborations:

- There is considerable serendipity and uncertainty in how encounters start and develop. It is unclear from the onset if or how a full collaboration will emerge from those encounters.
- Transdisciplinary encounters depend on finding appropriate settings that are favourable for supporting relationships between different parties.
- All phases draw from and build forth the richness of the environments in which they emerge. Without a supportive environment, they are unlikely to flourish. Acting to create a supportive environment is crucial.
- Much of the work on transdisciplinarity happens 'underground', i.e., before or after a formal project. For instance, finding the right partners, developing trust, building relationships between academics and societal actors, and developing familiarity with other perspectives.
- Visible TD collaborations often emerge late in this lifecycle, are relatively short-lived, and are dependent on bringing to fruition prior encounters and engagements.
- An important outcome of TD collaborations is the formation of new encounters that would not happen otherwise.
- Research-focused collaborations are among many possible manifestations of work between academics and societal actors.
- Many of the impacts of these collaborations can be relatively hard to trace or specify in the earlier stages. Building those relationships requires time and space before more traditional impact indicators can be used to measure advancement.

**Implications for monitoring, evaluation, and impact**

In particular, this model highlights how there are no self-evident or universally applicable definitions of what is 'relevant' in transdisciplinary collaborations. Rather, it emphasises the notion that these collaborations are best understood as 'adventures in relevance' (Klenk and Meehan, 2017). After all, "encounters with stakeholders can reveal patterns of contrasts that generate new research questions(...)" (p.33). The objective is not to eradicate friction between different ways of understanding an issue but "to be open to new viewpoints (…)." (p.33). In many transdisciplinary collaborations, the most visible or measurable results are not necessarily the most significant and sometimes represent just the 'tip of the iceberg' (Het Groene Brein, 2023). Hence, facilitating

processes through which participants can describe and negotiate the key outcomes is central to achieving meaningful collaborations.

Such frictions are particularly important when collaborations concern societal actors or communities that are underprivileged, excluded or whose perspectives have been disregarded. In those situations, (unreflexively) imposing the traditional notions of impact and excellency that motivate many researchers is detrimental and can aggravate existing injustices. Considering whether harm could ensue from these encounters, engagements, and collaborations, it is essential that funders encourage participants to prevent or mitigate them.

At the same time, this quest for co-creating notions of relevance is not an appeal for academics to uncritically take on tasks from society or abandon other motivators to engage in research - such as scientific curiosity. Instead, notions of scientific independence, autonomy, integrity, and responsibility remain in transdisciplinary collaborations. The point is that these notions will sometimes be challenged and that engaging in dialogue around those challenges is part and parcel of the collaboration process. It also means that the participants of such 'adventures in relevance' must be able to disengage, i.e., when processes become unviable for the different parties.

Finally, encounters, engagements and collaborations should not be monitored and evaluated in the same way since the earlier stages are much less definitive in their ambitions and goals, and small teams would easily be encumbered with excessive monitoring requirements. For instance, using 'developmental evaluation' approaches can help newly-formed teams formulate joint goals and hypotheses about their potential process (Patton 2010, Patton et al. 2015) while preparing the kinds of monitoring and evaluation that would demonstrate impact in more mature collaborations. Teams should be encouraged to use domain-specific approaches to M&E, e.g. concerning creative practices, see Figure 4, Vervoort et al. 2023) or for projects with transformative outcomes (Ghosh et al. 2021) that are most suitable to their ways of working.

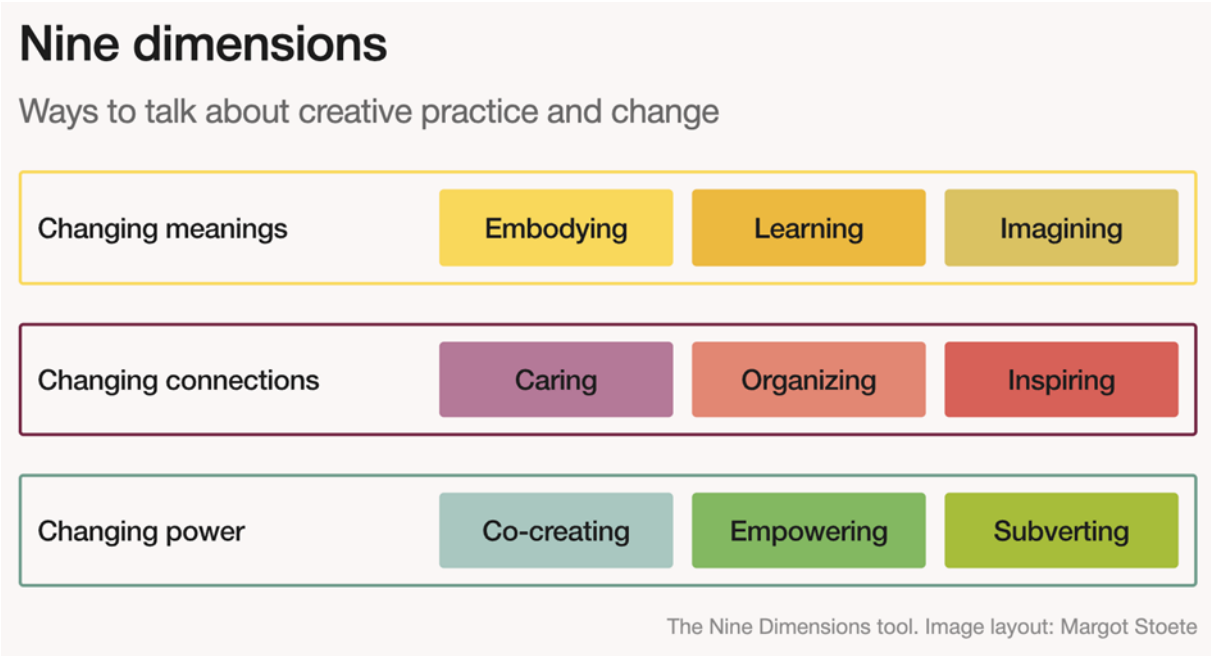


*Figure 4: 'Nine dimensions Tool' (Vervoort et al. 2023)*

Participants of transdisciplinary collaborations can use approaches such as the nine dimensions tool to elaborate their intended and realised outcomes or design specific monitoring strategies.

In summary, framing this scoping exercise around transdisciplinary collaborations helps to: (a) recognise multiple forms and objectives that can be pursued in transdisciplinary collaborations, (b) create space for more reflexive conversations about the appropriate relationships between academic and societal stakeholders and types of outcomes pursued, (c) value forms of transdisciplinary work that go beyond problem-solving and are more transgressive in nature.

## 2.2 Barriers and challenges of those engaging in TD

Those engaging in transdisciplinary collaborations can face three main types of barriers and challenges related to (a) defining what the question is (the problem), (b) who is involved (the people), and (c) how the collaboration develops (the process). These barriers can exist at different scales, i.e., they can be personal, institutional, or sectoral/ systemic. These three types of barriers and challenges motivate the four principles described in the following section.

**Problem**

The real-life situations that are the object of research in transdisciplinary collaborations are often fast-changing, non-linear, and unpredictable, complicating the activity of doing research and knowing whether one is doing the right thing. In complex systems, cause and effect can be difficult to distinguish, making it more difficult to draw robust conclusions from findings, thus also creating credibility of the findings beyond the people directly involved.

Moreover, understanding, scoping, and defining the topic of study is often ambiguous and inherently political. Value frameworks, (vested) interests, relative power positions, and knowledge systems influence the entry point for inquiry and how and by whom the topic or problem will be defined (Montana, 2019; Scholz and Steiner, 2015). The challenge is that it is not straightforward how to navigate decision-making: who is legitimised to decide what (set of) problem(s) to focus on, who is considered a relevant actor, how to balance goals and interests, and what type(s) of new knowledge is relevant or needed? At the same time, deciding to zoom in on particular elements of the problem (and thus leaving out others) has major consequences for who is included and excluded from the collaboration. A major challenge in this regard is balancing being inclusive and moving forward in different process phases.

**People**

Another set of barriers and challenges relates to working with diverse (groups of) actors who bring in different languages, cultures, time horizons, values, and incentives and have different access levels and formal or informal power. These factors affect individuals' positionalities—how individuals see their role, problem, process, and knowledge of others. Getting to a shared understanding of values, goals, and approaches, ensuring different incentives are met, and how power might play out in the collaboration is not easy. Nor is it easy for individual parties to find each other to start with, as natural meeting spaces are limited—whether it is academic actors trying to identify other disciplines and societal actors to work with or vice versa. Some societal actors—especially those living or working in challenging circumstances—might not have time or direct interest in engaging in research or academic collaboration, or in ‘all-encompassing complexity studies’, or simply do not know about it. This, in turn, affects inclusion and joint decision-making, from agenda setting (identifying issues and questions that

are both socially and academically relevant) to knowledge integration. For researchers, especially early in their careers, focusing on transdisciplinary collaboration involves risk-taking as scientific identities and quality criteria are often defined by individual disciplines and focus on individualistic ways of working. In addition, funding practices and promotion are often defined linearly, assuming predictability and causality. Thus, the value of researchers and their work in transdisciplinary collaborations can be difficult to demonstrate within established research domains.

***Box 2: "Parachute science" and other forms of extractive practice***

Parachute science refers to academic researchers coming in with their own agenda and questions without having had or taken the time to explore what is already present in terms of knowledge (including lived experiences) and what it is that the affected stakeholders need and would like to get out of the engagement. The lack of transparency and feeding back findings is often cited in this context as well. There is often not sufficient time and space to navigate these barriers and build trust and relationships due to restrictive funding and institutional pressures - e.g., incentives geared towards publications in the case of academia and delivering measurable and quick results in the case of societal actors (Ooms, T. and B. van Paassen, AFSEE 2022). For societal partners, it is often hard to get their knowledge and contributions recognised (e.g., as co-author), and there is competition for the ownership of the products (e.g., science products are traditionally published in scientific journals).

**Process**

The current science system is at odds with the ways of working needed to address complex societal challenges. Figure 5 illustrates some barriers found along the way based on the Atlantic Fellows community experiences. Time and incentives for building long-term collaborations are often lacking. Another challenge related to the process is finding ways so that all involved feel safe to contribute to the process while not causing harm to those not involved in the collaboration. In a research context, early- and mid-career researchers are often pressured to focus on measurable and strategic outcomes in order to stay in academia. The uncertainty and the initial time investment without results, make many departments weary of supporting researchers engaging in new, unusual, or novel transdisciplinary collaborations. These challenges occur even when universities aim to have science create a societal impact. Thus, balancing being inclusive and considering the people involved while moving forward in different phases of a process is a critical challenge for transdisciplinary collaborations.

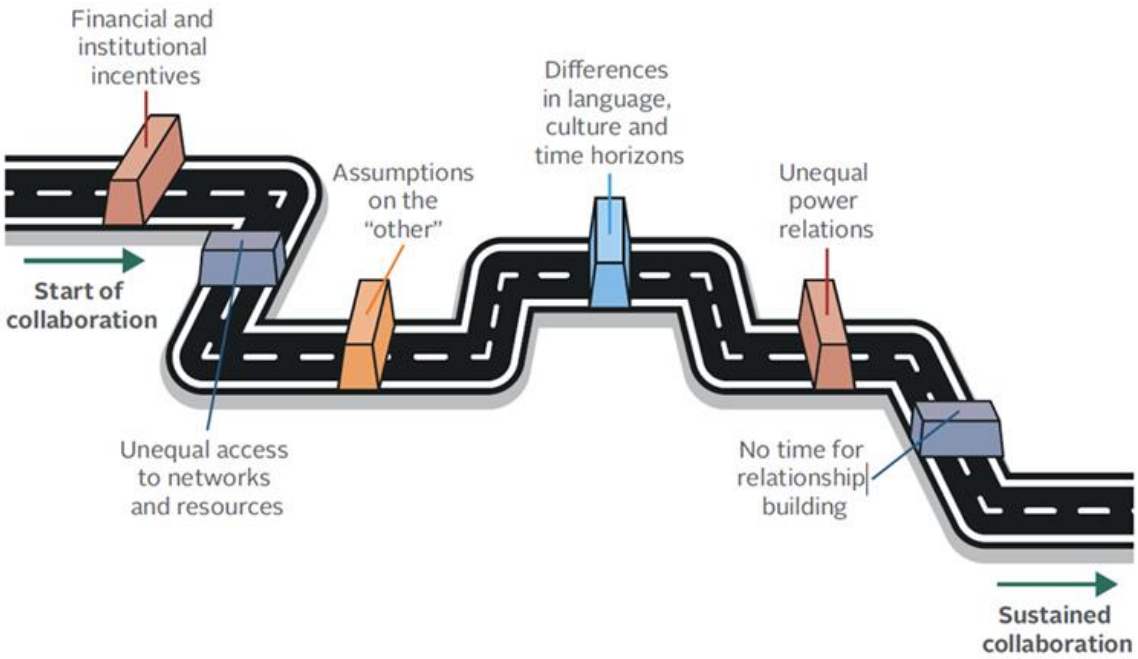


*Figure 5: A snapshot of institutional and systemic barriers for Academic-Practitioner collaborations identified in a research project of the Atlantic Fellows for Social and Economic Equity Programme at the London School of Economics (Ooms et al. 2022).*

***Box 3:* Barriers and solutions identified in the stakeholder workshops for this study.**

Two virtual stakeholder workshops were held with 14 participants from different types of organisations (mostly civil society and consultancy and three research institutions – one of which is on public policy and the others directly linked to universities). They also represented diverse sectors and areas of expertise, mainly in the social-economic sphere (health, inequality/ economics, sustainability, urban development, human rights, and inclusion, e.g., working with migrants and children, humanitarian support, and agriculture). Most stakeholders were based in the Netherlands and others in Zimbabwe, Indonesia, Portugal, and Slovenia.

The workshops provided insights into the wealth of inspiring TD examples across sectors and the perceived value and benefits of collaboration (see also the Annex), from challenging one's assumptions and being able to see and rethink the bigger system to co-creating approaches and solutions to address specific challenges. Generally, stakeholders found a good level of agreement with the findings, principles, and framing presented by the group whilst adding relevant perspectives and nuances. They emphasised the following barriers and ideas on how to overcome these in transdisciplinary collaborations:

- The barriers that are most often mentioned align with our own experiences and the literature:
  - The fact that TD requires building trust, co-creation and overcoming differences, which is time-consuming and requires dedicated support and resources.
  - Flexible long-term funding options for the different stakeholders are lacking.
  - The emphasis on specific results and outputs, how and by whom these are defined and evaluated, and the power dynamics hamper reflection and co-creation.
- They also emphasise the language barriers and the need for translation between different fields and actors. The different ways of working and methodological preferences; and the need for unlearning and learning ways of doing research that recognises and include different ways of knowing and articulating that knowledge to others – e.g., through arts.
- Being invited into academic spaces and working with written text can create discomfort for some, even among well-qualified and experienced professionals.
- There were concerns about researchers asking too much from underpaid or vulnerable communities and the need to ensure bidirectional, genuine collaboration from one human to another. They highlighted the need for sensitivity from researchers concerning the different priorities and approaches.
- This was linked to the recognition of how steeped in colonial forms of education many of us are and the need to decolonise mindsets and ways of working, including an appreciation for local and lay-man knowledge and an intersectional approach to make sure those unseen and unheard are appreciated and valued equally).
- Those working to overcome these barriers show strong personal and professional commitment, which is a key driver of success but can also come at a personal or professional cost. Addressing this requires institutions and funding that recognise, value and resource this work.
- Finally, the stakeholders stressed that overcoming these challenges is at the core of TD collaborations and a significant result in itself. A change in paradigm is suggested, seeing TD not as something on the side but at the core of science and social change and with great added value for all actors.

# 3. Four principles for TD collaboration relevant for CUCo

Learning from the barriers and challenges discussed in §2, we propose four principles of transdisciplinary collaboration (see Figure 6):

1. Address (context-specific) societally relevant issues while maintaining scientific relevance.
2. Embrace complexity, ambiguity, and uncertainty.
3. Value and harness plural ways of knowing via co-creating and co-learning.
4. Involve relevant actors in inclusive, fair, and equitable ways.

These four principles are inter-connected and not mutually exclusive. There may be some overlaps, especially in terms of the implications in practice, which will be discussed later in §4.

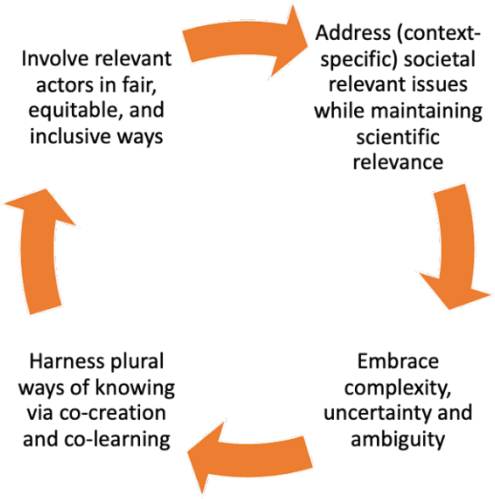


*Figure 6: Four principles for TD collaborations*

## 3.1 Address (context-specific) societally relevant issues while maintaining scientific relevance

Transdisciplinary research proposes the involvement of science in addressing societal questions and/or the involvement of society in scientific exploration. Both forms note a shared question and the intention of integrating societal and scientific knowledge through collaboration. This need for transdisciplinary collaboration stems from the realisation that, individually, knowledge and perspectives from society and science alone are insufficient to address wicked problems.

While there can be a shared goal in addressing a societal-relevant issue, the motivation for doing so can be different. Researchers - even if keen to make a societal impact and reach wider audiences- are trained to search for innovation and edge of knowledge. Societal actors' motivation can range from specific problem-solving, better understanding and addressing structural barriers to social change, resource and expertise requirements to legitimising the problem or solution, to creating opportunities for communities to be heard, to evidence-based decision-making.

The tension between the shared goals and (possibly) distinct motivations needs to be recognised in order to promote transdisciplinary collaboration. On the other hand, transdisciplinary collaborations

can be considered a journey of finding relevance for both society and science. This journey is about finding mutual interests and relevance, which might not always be clear upfront.

Although the initial intention to integrate knowledge may be strong, the barriers discussed in § 2.2 (time, ambiguity, balance between inclusiveness and effectiveness, and complexity) can impede boundary-crossing collaborations. Key to ongoing collaboration is maintaining the relevance of the parties involved and not "just collaborating for collaboration's sake". Moreover, with the principles of inclusivity, fairness, and equity in mind, it is important to avoid processes and outcomes where society is used for science (i.e., societal partner only seen as having instrumental or procedural value) or vice versa (e.g., science being used for commercial gain of companies).

Currently, CUCo's programmes do not specifically apply to people outside of academia, and there is no training focusing on (intercultural) societal partners working with researchers. While CUCo does bring in different experts working with scientists, specifically from an art-based context, networking opportunities between societal actors and scientists are not a focus. CUCo's name within the EWUU alliance is growing as a place where researchers can engage in cross-boundary and unusual collaborations. Outside of the alliance and academia, it is unclear whether societal actors see CUCo as a place where they could potentially engage with researchers.

## 3.2 Embrace complexity, ambiguity, and uncertainty

The world today faces a number of interrelated challenges, including (the effects of) climate change, biodiversity losses, persisting poverty and inequality, and food insecurity. These challenges can be considered wicked problems (Rittel and Webber 1973). Wicked problems are characterised by unpredictable and non-linear dynamics and are often surrounded by conflicting knowledge claims and value frameworks. Moreover, wicked problems are mostly ill-defined and relate to multiple stakeholders in an intertwined and dynamic network that may change over time, and that affects multiple aggregation levels of society" (DeTombe, 2015). Different actors tend to disagree about the nature and scope of the problem and the time dimension (when did it start). Such uncertainty and ambiguity make it difficult to identify relevant knowledge or possible directions for solutions which are both effective and acceptable to all stakeholders.

For transdisciplinary collaborations to work, we argue that complexity, uncertainty, and ambiguity need to be put forward and embraced (see Hummel et al., 2013; McGregor, 2018; Lambe et al., 2020).

Complexity, especially from a transdisciplinary point of view, refers to dependencies and interconnectedness, and "nothing is separate'' (see Nicolescu, 2014). It relates to the notion of wicked problems, as mentioned earlier. Uncertainty refers not only to the lack of knowledge of the current state and future societal problems but also the high levels of uncertainty of the available knowledge. This can result from a lack of information or disagreement about what is known or knowable (see Pörtner et al., 2019). For instance, the anticipated rise of the global temperature and the potential consequences this will have for certain areas are based on predictive models with high uncertainties and assumptions. With ambiguity, we particularly refer to disagreements among scientists but also among societal actors about the validity of knowledge claims. For instance, the claims that climate change is not a problem, is not caused by humans, and cannot be solved with individual behavioural change (see Jessani and Harris, 2018).

Embracing complexity, ambiguity, and uncertainty, especially in transdisciplinary settings, requires a deliberate process. There should be sufficient knowledge, both tacit (implicit knowledge from human

experience) and explicit knowledge (knowledge from data/science in general) incorporated (see Della Chiesa et al., 2009; Worosz, 2022). More time, skills and resources are needed to generate and combine this knowledge.

## 3.3 Value and harness plural ways of knowing via co-creating and co-learning

Both the nature of societal challenges and the complexity of the settings where transdisciplinary collaborations occur demand active engagement with different ways of knowing, values, and interests. As a result of the complexity and active engagement of different participants, no one way of doing or a universal optimal solution is self-evident. Thus, embracing plurality in problem definition, approach, and analysis, is necessary to move beyond the status quo or the solutions that would be individually determined. The attention to plural ways of knowing here refers to the effort to diversify the inputs necessary for doing transdisciplinary research and the outputs of this process (Stirling 2008, 2022). Rather than seeking to develop integrative answers that are universally applicable, transdisciplinary collaborations can be seen as a source of 'conditional and plural' knowledge claims, "if condition X holds, then action A is favoured; but if condition Y holds, then action B s favoured" (Stirling, 2015, p.36).

More than a methodological commitment to doing a project together, attempts to value and harness multiple ways of knowing highlight a commitment to pluralism:

"Pluralism requires an ethic of tolerance for interests, values or knowledges that are not only different, but directly contending with those of a particular individual, organisation, or discipline. It means a capability to express and respond to scepticism without interpreting this as existential denial. By encouraging (rather than suppressing) critical discourse, this helps foster more robust knowledge" (Stirling, 2015, p.37).

This commitment must then be put into practice in particular ways of working together and balanced to achieve integrative responses to societal challenges (Koskinen and Mäki, 2016). Co-creation, co-design, co-production, and co-learning evoke the direct involvement of societal actors vis-à-vis different aspects of collaborations. The extent to which such processes lead to convergent outcomes cannot be established *a priori* but results from collaboration processes. Establishing collaborations with high degrees of co-creation requires particular capacities and attitudes that could be supported by research funders. These include sensibility to different ways of knowing and (intellectual) humility, awareness of the common issues hindering collaboration, and expertise in facilitating knowledge integration efforts. The outputs of such processes can also be plural, extending beyond peer-reviewed articles to other forms of outputs accessible and relevant for societal actors.

## 3.4 Involve diverse relevant actors in inclusive, fair, and equitable ways

It is widely acknowledged that to address complex societal problems and harness plural ways of knowing, a wider range of actors, perspectives and types of knowledge is needed than is traditionally the case in other forms of knowledge creation (Chambers et al., 2022; Hirsch Hadorn et al. 2008; Tengö et al. 2014). Therefore, reflecting on which actors' voices should be considered relevant and which could be included is critical.

Below, we first briefly describe what we mean by inclusion, fairness, and equity. This is followed by a note on who needs to be included. We conclude this section by discussing how to include people fairly and equitably.

**Inclusion, equity, and fairness**

What do we mean by inclusion, equity, and fairness? Acknowledging different definitions and approaches to these and related concepts, we define:

- **Inclusion** is ensuring the contribution and participation of all people who wish to do so, focusing on access for—and meaningful participation of— "people who might otherwise be excluded or marginalised" (Oxford dictionary). We do not define inclusion as a binary end goal but rather as a process whereby actors with relevant knowledge and/or those affected by the issue are involved in the transdisciplinary collaboration from the start and in all subsequent phases.
- **Equity**: "creating an environment in which all people are treated fairly, accounting for their needs and positionality, to enable them to reach equal outcomes" (Gladstone et al., 2023, p. 2). This includes actively identifying the barriers and needs of different stakeholders and participants and finding ways to address them to enhance their full, equal, and fair participation.
- **Fairness** refers to "the quality of treating people equally or in a way that is reasonable" (Oxford dictionary). While equity refers to the enabling social environment, fairness refers to people's actions within the setting.

A word on language: In this scoping process, we have noticed the differences in language across disciplines and actors and how some wording (e.g., marginalised people') does not resonate with all. Some disciplines are also more naturally engaged with issues of inclusion. It can be helpful to discuss and find a common language (e.g., we found 'most affected, least heard' to work across). Inclusive and accessible language is also a factor in itself, and we refer to a recent guide by Oxfam (2023) that can facilitate reflection on help in this.

***Box 4: Epistemic (in)justice***

Excluding relevant voices, or not including them in meaningful ways, is often linked to epistemic (in)justice. Essentially, this means "a wrong done to someone in their capacity as a knower." Epistemic injustice manifests as excluding marginalised and oppressed people from 1) being heard and understood by others in interpersonal communications and 2) contributing to broader and deeper social understandings of the human experience (Fricker, 2007, p1). Table 1 on assumptions in traditional TD also highlighted some of the challenges and questions about these issues.

**Whom to include? Identifying relevant and diverse actors**

We speak of relevant actors as those who are affected and/or have particular knowledge (whether academic or lived experience or other) on the issues being researched or addressed. Ideally, this group would include those "most affected and least heard" and from a diversity of backgrounds and perspectives. More than a strict rule, this is an intention that helps feasibility with existing practice. In practice, whom to include and what this means may differ for different contexts, types, and stages of collaboration—see, for example, the spectrum in Figure 7. Moreover, there are questions on who initiates or decides on this process, i.e., 'who includes whom'. In an ideal scenario, diverse stakeholders find each other and jointly set the agenda/ answer these questions. In practice, there is often an initiating party.

In addition to identifying relevant actors, it is essential to recognise heterogeneity among the different actors and subsequent challenges of representativity. Individual actors do not represent all of the knowledge or perspectives of groups they belong to. Furthermore, different (groups of) actors have different access to resources, knowledge, and power. These differences require different considerations for developing inclusive, fair, and equitable practices.

One consideration is recognising intersectionality (Crenshaw 1991) by paying attention to the interplay of how different social identities—e.g., gender, skin colour, ethnicity, class, disability, age, and migration status—produce different experiences of inequality, i.e., those who do not exhibit the traits of the majority experience barriers for collaboration. The term was originally coined by scholar Kimberlé Crenshaw to describe the particular experiences of discrimination faced by African American women based on their race and their gender. She describes it as a lens through which you can see how interlocking systems of power affect those who are most marginalised in society. There is a growing practice of adopting intersectional approaches to ensure inclusion, equity and fairness in research and funding.

**The process of including relevant actors**

Including diverse, relevant actors is more than people having a seat at the table. Space needs to be created to recognise and enable a diversity of voices to participate in TD collaboration research practices that are inclusive, equitable and fair. Therefore, we want to put forward the idea of meaningful participation in the process. Meaningful contributions refer to the agency to influence on the problem identification, process, analysis and/or outputs. Meaningful participation implies that:

- Different perspectives and expertise (both from science and society) are not only listened to but also taken seriously as sources of knowledge and expertise.
- Actors have access to information and knowledge. Access in a broad sense: physical, language, timings of meetings, methodologies used. Access both during the process of collaboration as well as to products/outputs (beyond academic papers). See, for instance, Innes and Booher (2003), an inspiring example of how indigenous peoples were involved in deliberation on natural resource management in Canada.
- Ensuring meaningful participation requires attention for power dynamics among the collaborators and awareness of the different forms power can take (Gaventa 2006). Dominating power—whether visible, invisible, or hidden—tends to reinforce the status quo, whilst inclusion and building positive and transformational power is a recognised approach to social change (Miller et al. 2006). It is also key to establishing equitable collaboration policies and practices. There is a growing body of literature and tools supporting this (see §4 for good practices).
- Avoid extractivism. Excluding relevant voices in the process not only limits the richness of diverse perspectives and social robustness of the produced knowledge but it also risks doing harm to people that are affected by the issue at stake. The Terms of Reference for this study also refer to risks “such as lack of representation of affected parties and their knowledge amongst stakeholders, the dominance of particular (technical, Western, scientific) types of knowledge, lack of compensation for time of stakeholders and lack of clear benefits for involved parties.”
- There are clear agreements about decision-making throughout the transdisciplinary collaboration in ways that are transparent, fair, and democratic.

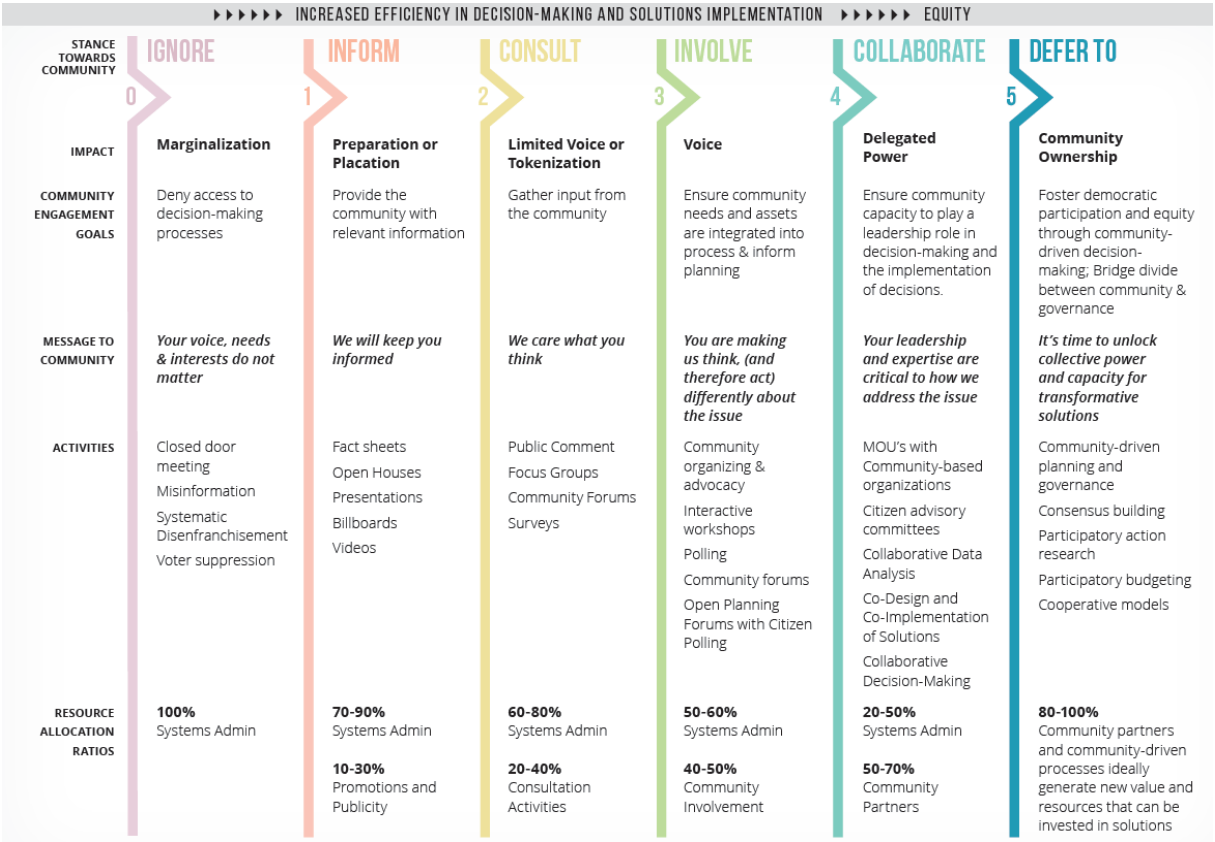


*Figure 7: Spectrum of community engagement to ownership. For TD, levels 3-6 are most relevant. Source: Facilitating Power (2023)*

***Box 5: Stakeholder feedback on the principles***

The stakeholders consulted in the workshops generally supported the four principles but expressed concern about the following:

- Presenting transdisciplinarity in ways that overemphasise a dichotomy between science and society (and academics and societal actors) instead of recognising overlap and complex relationships between the two.
- The risk of defining scientific relevance too narrowly and having an imbalance between scientific and societal interests.

Most participants highlight principles 3 (plurality) and 4 (inclusion) as the most important starting point for TD. To uphold these principles, it is suggested to co-create the process of collaboration itself with actors one wants to include and to explore together what it would mean for them to do this well and create 'house rules' together (please see the Annex for an example of questions). This includes:

- Being mindful of language and metaphors that imply researchers have agency, but stakeholders are largely passive, such as 'involving'.
- Accepting discomfort and having difficult conversations and support for that (e.g., safety facilitator, toolkit)
- Dedicated efforts for bridge building with the support of brokers and skilled facilitators
- Working with more participatory methodologies, e.g., participatory action research
- Co-creating physical spaces that feel comfortable and safe to all those involved.
- Creating funds that operate or are co-managed between academia and practice; and agreements on an allocation that recognise time, responsibilities and ownership.
- Understanding different motivations and ensuring joint problem definition and objectives

# 4. Operationalising the four principles for TD collaboration relevant for CUCO

In Table 2 below, we present the four principles and their operationalisation regarding requirements, competencies, support, and funding for each principle. The four principles are all equally important and interdependent. The descriptions under § 4.1-4.4 explain some key good practices and operationalisation.

*Table 2: Detailed list of operationalisations of principles according to requirements, competencies, support, and funding*

| Principle | Requirements | Competencies | Support | Funding |
|---|---|---|---|---|
| **Address (context-specific) societally relevant issues while maintaining scientific relevance** | • shared understanding the root cause of the problems.<br>• understanding the role of difference voices in defining the problem<br>• a shared sense of ownership (equity, mutually reinforcing)<br>• a balance between scientific innovation and societal need<br>• a common ground for novelty<br>• skills/knowledge needed by different actors.<br>• clear incentives for engagement<br>• commitment in terms of time and resources<br>• translating process and outputs across science/societal boundaries<br>• awareness of open communication and different expectations | • skills to manage expectation and interests.<br>• skills in terms of process analysis (related to positionality in and outside of research)<br>• explicit knowledge and understanding of how others define objectives, needs and incentives.<br>• capacity to have conversation that express own and others' needs.<br>• cross-boundary communication, being transparent about different needs.<br>• reflectivity of own and others' positionality and different knowledge paradigms<br>• conflict management | • organizing foreground sessions with societal actors and researchers, discussing common ground and problem definition<br>• facilitating trust building process (open conversation about objectives, needs incentives, learning journey; recognition of different values (e.g., practitioner comfort level))<br>• addressing the issue of lack of access understanding what allows certain actor to fully participate.<br>• facilitating time and process for reflections on methods (how to define the questions)<br>• establishing pre-emptive learning goals discussed with team members and funding institutions and the follow up throughout the activities.<br>• showing good practices/results engaging with different users and targets | • funding to support and facilitate the unique processes TD collaborations to improve accessibility of collaborations.<br>• funding mechanisms that can facilitate different way to evaluate activities based on the desirable unusual collaborations, outputs, and impact (breadth, diversity of team profiles and targets) |
| **Embrace complexity, uncertainty, and ambiguity** | • be transparent about boundaries according to relevance.<br>• ensure that those initiating/in the lead are perceived as credible and legitimised players.<br>• pay attention to roles and positions of actors involved from the start of the activity. | • adaptiveness and responsiveness, dealing with iterations (flexibility)<br>• openness for the unknown<br>• awareness, mindset, and capacity for systems thinking and complexity.<br>• ability to zoom in and zoom out.<br>• ability to learn new methodologies in complex systems analysis. | • creating space during transdisciplinary engagements to experiment, safe fail, to be inefficient, and for things to emerge<br>• supporting stakeholder analysis to identify key resource persons but also influential players who can help build credibility for the research engagement (e.g., media, whistle-blowers, charismatic movement leaders) | • flexible funding, allowing for non-linearity, emergence, and feedback loops.<br>• making funding more longitudinal (more time for team building, co-design, and co-creation process)<br>• establishing funding mechanisms that appreciating |

| Principle | Requirements | Competencies | Support | Funding |
|---|---|---|---|---|
| | • be aware of the fact that politics are omnipresent, accepting that conflicts are part of the process that can be productive and constructive.<br>• find a way to accept what wants to emerge, apply iterations, and small step approaches.<br>• be open minded on who to involve, avoiding being fixated on a fixed group of people, actors may come and go along the way.<br>• ensure credibility of the new knowledge<br>• continuously defining and redefining 'the system' | • conflict management | • exposing researchers to a range of research methodologies which are appropriate in understanding and navigating complexity | results-based management to reflexive process monitoring<br>• establishing funding mechanisms that facilitate reflection, and post-project evaluation to learn from failures |
| **Value and harness plural ways of knowing via co-creating and co-learning** | • recognise that complex systems can be known from multiple perspectives, framings, and solutions.<br>• valuing different situated ways of knowing, with particular assumptions, biases, interests, values, and worldviews.<br>• a shared understanding of what is or not relevant, what are appropriate means for acquiring knowledge.<br>• co-learning as a precondition and central outcome of TD collaborations<br>• efforts for integrating or contrasting perspectives, that address potential epistemic and value conflicts | • reflexivity (on own position, positionality, power dynamics)<br>• curiosity for other ways of knowing, to explore differences and suspend the judgement.<br>• humility concerning the possibility other perspectives.<br>• tolerance to ambiguity, seeing it as potentially generative.<br>• respect for differences in values and interests, not just as impediments for research, but as necessary for the process | • training of trainers (ToT) or general training that helps participants develop a pluralist sensibility.<br>• process facilitation to create Iterative and interactive processes, address conflicts, and structure co-learning and co-creation journeys.<br>• helping teams develop the mutual trust and processes to embark in 'adventures in relevance'.<br>• facilitating unusual "encounters" and their maturation into engagements and collaborations. | • funding mechanisms that can facilitate different levels of maturity for building and facilitating pluralistic encounters, engagements, and collaborations.<br>• funding that accommodating the need for iterative processes where the goals and relevance of collaborations are developed overtime |
| **Involve diverse relevant actors in inclusive, fair, and equitable ways** | • stakeholder mapping (understanding field to identify and engage diverse and relevant actors, including those 'most affected, least heard')<br>• valuing different types of skills and knowledge (including indigenous knowledge) | • reflexivity (on own position, positionality, power dynamics)<br>• open, listening, curious, being humble and able to let go of fixed positions, challenging own assumptions and building dialogue and collaboration based on mutual respect. | • time and well facilitated spaces for power analysis, trust building, etc for project teams, with dedicated and skilled coordination (e.g., safety facilitators)<br>• Co-creating spaces that different people feel safe or comfortable in (e.g., beyond university setting) | • long-term, flexible funding that allows for collective ownership and diverse, bottom-up collaborations with sufficient time and resources for building relationships and addressing power. |

| Principle | Requirements | Competencies | Support | Funding |
|---|---|---|---|---|
| | • awareness of power dynamics, positionality and the needs and barriers of different relevant actors to engage.<br>• enable full and meaningful participation (addressing barriers, working with different media) and uphold diversity (multiple voices and viewpoints)<br>• prevent extractive practices and harm to participating and affected stakeholders.<br>• strive for 'genuine' co-creation in all stages, and clear agreements on how all contributors are compensated and have access to the knowledge and benefits that derive from the collaboration.<br>• collective leadership, early agreement, and regular check-in on how decisions are made in ways that are democratic, transparent and accountable.<br>• safe spaces, trust and relationship building, including open conversations about personal drivers and needs, and conflicts.<br>• accepting that being inclusive can be challenging and is a learning process that takes time | • a 'genuine' intention to co-create and share power, with a sincere curiosity to the different stakeholders in all stages.<br>• understanding of how power, inequality and its intersectionalities can affect knowledge integration and social change processes.<br>• valuing and navigating tensions and conflict as places of learning in ways that help enhance rather than damage trust.<br>• capacities and tools such as stakeholder and power analysis to explore what stakeholders and perspectives might be underrepresented and how they are relevant to the issues, what interests, needs and relative power they have (see also §4 for good practices) | • capacity strengthening, skillshares, exchanges of good practices/cases based on identified needs (for full and meaningful participation) and questions in the team - with differentiated approaches to academics, intermediaries, and societal partners.<br>• awareness raising, outreach, networking opportunities and matchmaking around key themes/ societal questions, including for those that might not otherwise know TD/ CUCo or feel daunted by academia.<br>• provide accessible digital and physical infrastructure and support based on (self)identified needs.<br>• explore ways to address institutional and other barriers that different parties face in entering and sustaining TD collaboration, including the narratives / assumptions on the value of practice-based knowledge, the importance of inclusion and value ascribed to those trying to bridge these worlds, and the pressure for (quick) results. Awareness raising, advocacy and inviting leadership to experience this first hand can be strategies for this.<br>• equity based approach on what relevant groups need to join a collaboration; and/or to contribute effectively | • moving away from fixed pre-defined objectives, products, and outputs, encouraging more open approaches and diverse ways of integrating and displaying knowledge.<br>• explore ways to generate incentives for applicants to align with principles without becoming overly rigid, with fair compensation.<br>• funding that centres the societal partners and relevant groups, starting with their needs and questions and allowing them to (co-) lead throughout the process.<br>• in the longer term: explore principles and practices of participatory grantmaking that allow for more sharing of power between funder and grantees. |

**Requirements:** What is generally required of the research system and individuals to apply this principle? (Basic minimum and elements that are important during the process)
**Competences:** What competencies are helpful for researchers (and others)? (Ideal and minimum requirement)
**Support:** Support that CUCo could offer
**Funding:** What does all this imply for good funding practices for CUCO? (To encourage the principle to be applied by those working on or willing to work on TD engagements)

## 4.1 Address (context-specific) societally relevant issues while maintaining scientific relevance

**Good practices**

- Bonaire 2050, a nature-inclusive vision, the research process of this project was completely changed after the first engagement with societal actors during a workshop. The new approach more carefully considered the variety of voices and the needs of the islanders in a joint exploration of including nature-based solutions in approaching environmental challenges faced on the island. The freedom the donor provided and the open research objective enabled the lead researchers to change the focus, the composition of the team, the modes of engaging with local actors, the communication means used (e.g. infographics, brochures, living room sessions), and the goal of the process (article on process forthcoming led by Peter Verweij; WUR-project page)
- Huub Rijnaarts and his research teams have a long-term vision for collaboration beyond an individual project. They foster long-term collaboration with multiple societal actors and plan how one project can lead to another. As many researchers and societal actors become familiar with each other over time and projects, they understand the mutual value of collaboration, which makes it possible to bring more types of collaborators on board. AquaConnect is a project currently running in 2023.
- Het Groene Breina collaboration among researchers and practitioners working together towards a sustainable, green economy. They have developed an interactive guide with practical tools and tips for co-creative transdisciplinary approaches Pratijkgids Transdisciplinair Werken (interactive pdf in Dutch expected in May 2023).
- The Netherlands Land Academy (LANDac) is a longstanding partnership between Dutch organisations and their Southern partners working on land governance for equitable and sustainable development. The LANDac network brings together actors, conducts research (both academic and peer-reviewed, as well as more practice-oriented), and distributes information, focusing on new pressures and competing claims on land and natural resources. One example from LANDac is participatory action research involving Utrecht University, ActionAid, and women's farmer associations in Mozambique. The research and learning process was geared towards community action and addressing gaps between policy and practices on land governance, inclusive business, and food security in Mozambique while generating academic insights. Women farmers and local organisations' needs and ideas were an important starting point and centred throughout the process (For lessons, see here). LANDac also hosts annual summer schools and network dialogues where practitioners and academics come together.

**Requirements**

Balancing the needs of societal actors and researchers requires investment from both parties at the onset of *and* throughout the collaborative process. In the first phases, bringing together people requires extensive efforts to find common ground, shared problems, and questions (especially the root cause of the problems) in a balanced manner. This further requires recognising the power balance among the involved parties and which questions and needs of different stakeholders can be addressed. While novel ideas, approaches, and solutions may come out of transdisciplinary collaborations, expectation management of the process, time and resource investments, and outcomes are key to checking the balance of interests in the project and keeping people engaged. Trust and commitment through a sense of shared ownership of the project are essential to kicking off a project but also need to be maintained throughout the collaborative process.

**Competencies**

To address context-specific, societal relevance issues, the competencies needed are skills to manage expectations and interests. As each actor would have their own goals and expectations. The process of understanding and respecting becomes crucial in communicating and addressing different needs. Finally, it is important to assess collaboration risks from the initiative's start and have competencies in managing conflict.

**Support**

*Problem definition*
To balance scientific and societal interests in the problem, facilitated time and space for discussion of the problem. Facilitated foregrounding sessions can help teams explore the following questions: How can the research be framed to reflect the needs of the societal partners and the researchers involved? How do we recognise and give space to the different needs of values in the project?

*Training*
CUCo and funding schemes supporting transdisciplinary collaborations can offer training to help initiate engagements and deepen collaborative processes. Training in perspective-taking activities (e.g., embodied learning, positionality, power balance reflection), activities to help the team identify moments when they need to come together to proceed (bottleneck moments), determine barriers to participate, discuss what constitutes a “failure”, “success”, “innovative”, or “inefficiency” (relates to expectation management, project design, outcome/process evaluation).

*Accessibility*
Support of research projects often considers the needs and timeline of researchers. However, societal actors may not receive compensation for their time from their organisations nor have access to funding to facilitate their involvement and commitment to the project. CUCo can help identify gaps in transdisciplinary teams and, where possible, suggest or provide support to facilitate active participation in the project. Moreover, engaging in this type of collaboration means all participants are taking risks. These processes and outputs may be valued as an “add-on” rather than part of their core contributions. This can further constrain participation and commitment from both societal actors and researchers. After all, researchers continued participation in academia depends heavily on their credibility among their peers, built over many cycles of research and publication (see ‘credibility cycle’, e.g., in Hessels et al. 2019).

*Process assistance*
Coordinating collaborations among universities is already a challenging and time-consuming process. Adding societal partners requires more attention to collaborators' different rhythms and capacities. Having a standard point of contact to help facilitate the process's logistics will help teams focus more of their energies on trust-building and content and to explore possible methodologies.

**Funding**

The process and results of transdisciplinary projects are distinct from those of projects that take place in a university context or within the integration of societal actors in the process (e.g., traditionally, studies of society instead of with society). Thus, funding transdisciplinary collaborations has different

needs during the different stages of the process. Moreover, evaluating what a potentially impactful study is for funding and what is evaluated as a successful project requires different criteria.

## 4.2 Embrace complexity, ambiguity, and uncertainty

**Good practices**

- Examples of research methodologies which are appropriate in understanding and navigating complexity: Sensemaker, (Van der Merwe et al. 2019), Cynefin framework, see https://thecynefin.co/about-us/about-cynefin-framework/, soft systems methodology, see for instance (Brouwer et al. 2015), MSP guide, foresight thinking tools, for instance https://medium.com/disruptive-design/tools-for-systems-thinkers-the-6-fundamental-concepts-of-systems-thinking-379cdac3dc6a), and causal loop diagram (see for instance the recently published article by Dentoni et al. on this website).
- Perspectivity is a consultancy who helps to facilitate systems change by embracing complexity. They developed a complexity navigator, available here.
- Wageningen's Multi-Stakeholder Partnership Guide (p.27-33): embrace systems change and complexity provides useful insights, examples and tools for actors who have embarked or are planning to engage in transdisciplinary engagements (in complex settings). Available here.
- This K4Dev guide on Systems Thinking and Practice, developed by Jim Woodhill and Juliet Millican, provides useful background information and practical tools on working with complexity.
- A practical guide on co-productive agility. Building on the paper "Co-productive agility and four collaborative pathways to sustainability" (Chambers et al. 202) this guide "provides exercises to be used to enhance collaboration in any setting by fostering reflection over the roles that we often step into, and how this can potentially hinder or enable our role in fostering transformations. By "transformations", we refer to fundamental shifts at different levels - from individual narratives and practices to broader policies and institutional structure".

***Box 6: Adaptive planning in seed sector development in Ethiopia***
The seed sector in Ethiopia is complex; it involves many different stakeholders, each with their own specific role in the seed value chain. The sector is facing many challenges in ensuring that farmers have access to quality seeds. Together, core groups of regional seed sector stakeholders, with knowledge institutes as facilitators, designed a process to tackle key bottlenecks in the seed sector. The process is part of Ethiopia's Integrated Seed Sector Development (ISSD) programme. Trying to put principles of adaptive management into practice, the ISSD programme chose to focus on creating space to promote partnerships and innovation, rather than focusing on predefined bottlenecks and solutions. This was important both for the learning process and for identifying key bottlenecks, common goals, joint interests, and mutual benefits—as well as creating new partnerships. The focus on innovation led to a routine of experimentation; studies and pilots were used to find out what worked and what didn't work in improving farmers' access to quality seed. By choosing to focus on partnerships and innovation, ISSD was able to create a space for stakeholders to start working together—even though there was no predefined result yet. In the beginning, no one knew which innovations would stand out as being effective and scalable, and have the potential to be included in national policies. One of the successful innovations was direct seed marketing: an institutional change that allows farmer cooperatives to sell their quality seed directly to local markets. This was only possible through adaptive management. (See MSP guide, p.33)

**Requirements**

Embracing complexity in TD collaboration infers being transparent, showing an understanding of the problem space, including the interconnectedness of problems, and how problems are perceived and dealt with differently among different actors (scientific and societal). In practice, managing complexity would require credible and legitimate actors to initiate and lead. The roles and positions of each actor

should also be reflected upon and discussed regularly throughout the process. Together, these factors necessitate iterative processes.

**Competencies**

Embracing complexity, ambiguity, and uncertainty requires openness to perspectives and approaches beyond one's own knowledge domain. This includes the ability to zoom in and out on different levels and time scales to understand the issue at stake. Zooming in and out entails the willingness to reflect on the different roles of the people involved and the part of the system under study. As understanding of the problem evolves, this often requires collaborators to adapt and be iterative in their approaches to find and use appropriate research methodologies and tools for understanding the complex system.

**Support**

To be more reflective, TD collaboration should be supported by space (physical and non-physical space) to experiment, a safe environment to fail and to be inefficient, and permission for new insights to emerge. In practice, this would mean to be given support for stakeholder mapping and identifying key resource persons, but also influential players who can help build credibility for the research engagement (e.g., media, whistle-blowers, charismatic movement leaders). TD collaboration actors would also need a range of research methodologies that are appropriate in understanding and navigating complexity.

**Funding**

Based on the above-mentioned considerations (good practices, requirements, and support), funding should be developed on the basis of providing more room to manoeuvre. This implies that a portion of the budget could facilitate more time and space for reflecting and addressing complexity. An example is to provide funding for a longitudinal collaboration, which target long-term processes and outcomes beyond delivering certain outcomes at the end of the project duration. In terms of monitoring, a step-wise, guided, and reflective monitoring that occupies a theory of change or impact plan would be beneficial.

## 4.3 Value and harness plural ways of knowing via co-creating and co-learning

**Good practices**

- In relation to sustainability and socio-environmental-technological issues and international development work, the Pathways approach for Sustainability, developed by the STEPS Centre at the university of Sussex encompasses an array of best practices, methodologies, and theoretical stances that are helpful. This approach has been developed most extensively to facilitate participatory appraisal of distinct 'pathways', and uses specific methods such as the Multi-criteria mapping, and the Q-Method to interrogate and make space for distinct perspectives.
- International development researchers and practitioners have also developed nuanced approaches for facilitating plural accounts of systemic issues, with very specific attention to the voices of groups that are underprivileged or exploited. These are often referred to as

'participatory research and inquiry'. Action research capable of navigating the challenge of harnessing plural perspectives can also be found in civil society. For instance, the NGO Democratic Society has developed an extensive model of facilitating plural transdisciplinary collaborations around Climate Democracy, including bespoke approaches for mapping users/perspectives, facilitating integration. In another example, the Auckland Co-design lab has created accessible resources covering all phases of the co-design process.

- The IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) process was a genuine attempt to identify and integrate different knowledge systems in the science-policy platform on Biodiversity and ecosystem management. The attempt was well documented by Tengö et al (2014) and can be found here.

**Requirements**

To address complexity, it is important to integrate different layers of realities and perspectives. Therefore, plural ways of knowing are essential in transdisciplinary collaboration. It involves the development of the participants capacity for 'perspective taking', a point that is already incorporated in the CUCo Spark Training, but which in the transdisciplinary context needs to be expanded to incorporate other societal actors' perspectives. Reflections on assumptions, biases, interests, values, and worldviews based on the different positionalities of both academic and societal actors are needed. In addition, the discussion on "what is relevant and not relevant" should be brought forward from the start of the collaboration processes, as part of the continuous learning process in transdisciplinary collaborations.

**Competencies**

In terms of competencies, harnessing plural ways of knowing would require reflexivity on the positionality, process, and the internal and external power dynamic. The co-creation and co-learning processes would also require diverse input and perspectives and ability to respect and value these different perspectives and interests.

**Support**

Different approaches have been proposed which support this process, that emphasise the required reflexivity, curiosity, humility, and tolerance to ambiguity. These approaches are often developed for and by particular research/practitioner communities and use concepts and terms relevant for those groups (see §4.3 under good practices).

Developing capacities is necessary for the collaboration leaders and potentially also for the participants. It is unrealistic to expect all participants to be equally versed in this principle. For that reason, it is particularly important to involve appropriate facilitation that embraces unusual encounters. Untrained participants from all backgrounds may be unable to notice their own perspective and assumptions, to notice when normal conflicts escalate, or when certain voices are being suppressed.

Developing a tailor-made Training of Trainers (ToT) or general training focusing on how to incorporate plural ways of knowing could be beneficial. Well trained facilitators are uniquely positioned to a) create inviting spaces in which participants from different walks of life feel respected and engaged, b) recognise seemingly intractable disagreements and navigate potential conflicts of interests, values, and knowledge, c) avoid rapid closure, convergence, or herd mentality that suppress these differences.

Facilitation that is explicitly pluralist can be hard to find and is most developed in the fields such as international development and conflict resolution.

**Funding**

The requirements imposed by funding can be critical in enabling this principle. A key aspect of this principle is the possibility of different actors, with incongruent perspectives of what is relevant or necessary to collaborate, in an iterative way. Transdisciplinary collaborations that embrace pluralism can be best understood as 'adventures in relevance' (Klenk and Meehan, 2017). These authors propose to understand "transdisciplinary practices in situated contexts" as a performative process. The relevance of a given problem or issue is not taken for granted but instead understood as constructed through the research. In this perspective, the process of collaboration is less one where relevance is pre-agreed and definitive, but understood as more serendipitous, fraught, and often surprising.

Funding that assumes the destination of the collaboration is known, or which imposes too many requirements concerning the planning of activities is likely to overly restrict what can be achieved, or de-prioritise the involvement of actors whose perspectives are less aligned with the project goals. If the funding imposes the requirement for academic outputs only, it shapes collaborations accordingly. Time and space for exploring different perspectives, resources for facilitation, are all necessary.

## 4.4 Involve diverse relevant actors in inclusive, fair, and equitable ways

**Good practices**

There are several good practices and relevant tools both within TD /research and outside that can be built on for more inclusive, fair, and equitable TD collaboration, including at CUCo.

- CUCo is aware of the importance of this principle and especially the risks of not upholding this and defines the following principles for inclusion, fairness and equity: 1) research teams are open to various parties and their various sorts of knowledge, that relate to the problem that is addressed in research; 2) parties that could or wish to play a role in a research project are *enabled* to do so, are *compensated* (when their organisation or position does not support their time) and have *access to the knowledge and benefits* that derive from the research project; 3) research teams know a division of work, credits and resources, that upholds diversity (multiple voices and viewpoints) and inclusion (everyone can be part of the decision making process). The practice of providing remuneration for stakeholder's time in this and other processes of CUCo is a positive example in this regard. Challenges exist for those not registered with the chamber of commerce and this practice is not common outside of CUCo yet.
- There are useful resources power analysis from both research and practice. This includes the Power Cube (Gaventa and others), which distinguishes between different forms of power (power to, with, within as opposed to 'over'; and visible, hidden and invisible), different levels of power (local-global) and different spaces, including closed, invited and claimed spaces. Just Associates has an interesting analysis and approach working with similar concepts from a feminist perspective based on the premise "*Creating change requires power – which means understanding it, navigating it, challenging it, transforming it.*" NGO umbrella Partos developed a power awareness tool for partnerships (not research-oriented but still relevant).
- Stakeholder and actor mapping is often done by identifying those 'that have a stake' in the issue and plotting them according to level of interest (or being affected), position and/or power. This can be further broken down as a group of researchers describes in this article on stakeholder mapping for co-creating nature-based solutions. A good practice in this process is

paying particular interest to how gender, racial, (dis)ability and other characteristics may play into these, e.g., with a gender analysis.

- There is a growing practice of adopting intersectional approaches to ensure inclusion, equity and fairness in philanthropy that can be interesting to learn from. The Robert Bosch Foundation developed these principles for working and funding with an intersectionality lens (available in six languages). Ford Foundation has some useful tools and principles e.g.: "We proactively seek out and engage with a variety of perspectives because we believe we can only advance justice when we affirm our similarities and understand and find value in our differences".

***Box 7:* Questions to ask for inclusive and equitable engagement**

- What is the problem we aim to address, and why should we collaborate to do that?
- Who would benefit from solving this problem?
- Who are the key stakeholders and who should be involved in the collaboration?
- What roles can they play in the different stages of the project?
- What does each collaborator need from, and bring to, the partnership?
- Whose voice do we want to amplify?
- What type of collaboration fits these needs best (e.g., long- or short-term)?
- What values do we want to uphold and how?
- How are decisions made in the collaboration?
- What resources do we have and how do we allocate resource to accommodate the above considerations?

(Source: Ooms et al., 2022)

**Requirements**

Involving relevant actors in an inclusive, fair, and equitable way can mean different things to different groups and will be different in each type and stage of collaboration. It is, therefore, important to start with a conversation on what this principle means for those already part of the collaboration and what it means for those who might want to engage. In the table, we have highlighted what we see as key requirements and steps (most of which are ongoing) to identify relevant actors, value their different contributions, enable full and meaningful participation, prevent harmful practices, and value and navigate conflict whilst jointly building trust, a collective leadership and shared recognition and benefits of the collaboration. Awareness and analysis of the stakeholder field, different interests, needs, (access) barriers and power dynamics is an important starting point and part of the learning process. This is preferably done by or with stakeholders themselves ("nothing about us, without us" is an important slogan from the disability rights movement). It also helps strengthen the analysis, build trust and collective leadership.

Trust is a key prerequisite in literature and consultations, taking time and space—including physical meeting spaces—to build and sustain, which is often not there. The same goes for practising collective leadership, which can be done in different ways, but is generally defined as a group of people working towards a shared goal, recognizing the different contributions, sharing responsibility and decision-making. It is a response to classical management structures/ hierarchies and a way to—at a minimum—avoid suppression of relevant voices or creating a situation where people can't be bothered (or are too intimidated) to share their opinions. Whilst neither trust building nor collective leadership are easy,

with the right type of funding and support, it can be done, however, as we see in the good practices above.

Operating in unequal and complex systems, inclusion processes will never be perfect or linear, instead requiring intentionality, reflexivity, open and learning mindsets, transparency, and agreements on how to navigate this best. The questions in box 7 are a helpful tool for reflection. As many of these skills and mindsets have received limited attention in most (work) places, it can be useful to complement 'learning by doing' with dedicated investments in capacity strengthening, reflection and relationships building.

Enabling full and meaningful participation requires specific attention to accessibility, which is a prerequisite to inclusion. It relates to any barrier people or groups might experience, from digital and physical access, to language, time, and (opportunity) cost. It is important to identify these barriers and related needs early on and check in and adapt throughout the process. This includes being mindful of using people's time and timings of meetings, e.g., considering the fact that women are more likely to have caretaking duties making it more difficult to join at certain times. Accommodating needs by, e.g., joining in on their existing activities or meeting moments. Practising awareness of biases, one comes with particular barriers that people might face due to racism, ableism, and sexism, is part of this process too.

**Competencies**

Building more inclusive, fair, and equitable collaborations requires serious investments to overcome the barriers at personal, institutional, sectors and society more widely. Competencies include reflexivity and deep listening, mindsets characterised by genuine commitment, openness and curiosity, awareness and capacities to analyse and address power imbalances and inequalities. Many requirements and competencies are not standard practice in research and TD environments. They will need long-term dedicated investments and learning, and commitment and leadership at higher levels in institutions to make that happen.

**Support**

CUCo can play a key role in supporting those already keen to engage in TD with flexible long-term funding that allows for and encourages bottom-up co-creation and the time and space needed to build trust and inclusivity. Exploring new approaches that centre societal actors and share power - such as participatory grantmaking - can be helpful. Beyond direct funding there is a need for support in creating and facilitating these spaces, strengthening capacities such as power analysis, providing accessible infrastructure, skill and experience sharing (e.g. on good practices), bridge building and networking opportunities for these groups; and for engaging in outreach, awareness raising and influencing institutions and the ecosystem to reach others and create more space, understanding, institutional arrangements and funding for inclusivity, fairness and equity in TD more broadly. In addition, coaching in how to make engaging in long-term collaborations part of researchers' careers can enable early and mid-career researchers to carve out time to engage in the skills and the networks of transdisciplinary collaborations. Attention to setting boundaries, care needs and well-being is recommended to help make inclusive collaboration sustainable for all.

Existing guides on building equitable collaboration between academics and practitioners include:

- Atlantic Fellows for Social and Economic Equity Practical guide for Academic-Practitioner collaboration (see earlier boxes and below)
- Building partnerships of equals is a guide developed by Dr Jennie Dodson of the UK Collaborative on Development Science, focusing on international collaborations.
- How to have difficult conversations in academic-practitioner collaborations by Liposvek and Zomer (2019) was published by the MIT governance lab and includes a section on power and equity.
- The Rethinking Research Collaborative is an informal international network of academics, civil society organisations, international NGOs, and research support providers committed to encouraging more inclusive, responsive collaborations to produce useful and accessible development research. They developed an analysis of barriers, what works and principles and practices relevant to international collaborations that want to address inequitable Global North-South and academic-practitioner dynamics.

**Funding**

The lack of accessibility and the funding requirements for TD collaborations are among the biggest barriers to inclusion and equity. More flexible, long-term funding that allows for shared leadership, different types of engagement and outputs, and time for proper analysis, engagement, and trust building, is recommended. Moving away from the centrality of research(ers), now often primary applicants, and allowing more ways for societal actors to (co-)lead and have long-term funding for their work and organisations would help overcome some of the key inequities. This could include looking at other funding sources beyond academia and exploring participatory forms of grantmaking becoming increasingly common in other fields - e.g., philanthropy. This requires that research institutions also accept and give space to researchers in projects not funded for a specific scientific output *a priori.*

# 5. Synthesis

CUCo has a unique mandate in the EWUU Alliance of becoming a competency centre for interdisciplinary (high impact) unusual collaborations and has built a track record in this area. As this document suggests, engaging with transdisciplinary collaborations presents opportunities for researchers and societal actors. We reason that supporting unusual collaborations with societal actors in the form of transdisciplinary collaborations instead of projects can help people create shared processes that are inclusive, fair, and equitable. The four principles identified form the base of the analysis for meaningful collaborations: address (context-specific) societally relevant issues while maintaining scientific relevance; embrace complexity, ambiguity, and uncertainty; value and harness plural ways of knowing via co-creating and co-learning; and involve diverse relevant actors in inclusive, fair, and equitable ways.

This section describes the general suggestions for framing and supporting transdisciplinary collaboration by exploring these principles. Then, we highlight three-cross cutting issues that we came across in our analysis of the four principles: reflection on roles and positionality, the tension between aspirations and practical realities, and well-being and care. This is followed by overarching recommendations for competencies, support, and funding that were identified. We end this report with considerations for CUCo in supporting the different phases of the transdisciplinary collaboration lifecycle.

## 5.1 Framing and approach of transdisciplinary collaborations

Based on the aspirations of the four principles, the following recommendations stand out from our analysis for how CUCo should frame transdisciplinary collaborations and centre its effort focal point for CUCo's transdisciplinary efforts:

1. Foster a 'wide' framing of transdisciplinary collaboration, encompassing both problem-solving and critical or transgressive orientations and different ways of working together.
2. Incorporate, apply reflexively, and communicate clear principles (like the four principles we developed in this scoping study) to help develop a more cohesive, inclusive, and progressive approach to transdisciplinarity among the alliance members.
3. CUCo should, in partnership with the members of the alliance, continue to experiment and develop a diverse portfolio of transdisciplinary encounters, engagements and collaborations and actively study its development to further develop the insights of this scoping study.
4. CUCo should continue to emphasise in its activities the kinds of collaborations that 'fly under the radar' of traditional funders, including in matters of impact. This includes dedicated efforts to have societal actors more central and (co-) leading in the collaboration, with particular attention to those that might not currently be reached and those 'most affected, least heard' on the issues at play.
5. Beyond direct support and funding, CUCo's work raising awareness and advocating with other institutions is essential to address structural barriers, reimagine new ways of working, and foster enabling environment for inclusive, fair, and equitable transdisciplinary collaborations.

6. To develop a better understanding of how to navigate expectations and governance of transdisciplinary collaborations, we recommend documenting experiences around the tensions that we identified:
    - Harnessing plurality and being inclusive while having a short time span.
    - Appreciating timelines and interests of academic researchers and societal actors.
    - Designing and implementing principles of inclusion, equity, and fairness with limited resources.

## 5.2 Cross-cutting issues

### *Reflection on roles and on positionality*

Reflection on positionality was mentioned as an important competency in multiple principles. It can thus be considered a cross-cutting competency and key for those willing to engage in transdisciplinary collaborations. Doing transdisciplinary work, in co-creation between researchers and societal actors, implies a distinction of roles and responsibilities that come with each role. Not all roles can or should be undertaken by all parties involved. As boundary crossing is common and necessary, roles may become blurred. It may also imply taking up new or different roles, such as process facilitation or knowledge brokering. From the stakeholder workshops, it became clear that it is important that not only scientists take up the role of knowledge brokering, as scientists may not always be able to express or understand the (diverse) perspectives of all societal actors. Sufficient time should be built into the process to discuss and agree on roles and possibly transcending preestablished roles and the implications that this may have for both equity and the quality of the work. 'Het groene brein' (2023) provides a useful overview of the different roles in transdisciplinary collaborations.

### *Tensions between aspirations and practical reality*

The four principles and subsequent recommendations for transdisciplinary recommendations are sometimes difficult to implement. In reality, time and resources are often limited. For instance, most of CUCo's spark grants are 1-year projects worth approximately 9.000 euros. In reality, transdisciplinary collaborations are faced with difficult decisions. Some tensions that we've identified so far are:

- Harnessing plurality and being inclusive while having a short time span.
- Appreciating timelines and interests of academic researchers and societal actors.
- Designing and implementing principles of inclusion, equity, and fairness with limited resources

Given the context-specificity of each situation, it is impossible to design a recipe for success for navigating these tensions. We emphasise how essential it is to identify such tensions, reflecting on the options and their (intended and unintended) implications, and taking decisions about them. These tensions also show the need to address structural barriers in the system and institutions, addressing underlying paradigms and thinking on impact, results and process, and reimagining what an enabling environment and different ways of working for successful TD could look like.

### *Well-being and care*

Transdisciplinary collaborations are not without risks to their participants. In our assessment, the requirements discussed in each of the principles above should, to the extent possible, be dealt with via an organisational and institutional response, or else they may prove too burdensome to the participants of these collaborations.

First, it is important to realise that many of the processes needed to make collaborations work require time and effort, which can easily prove overwhelming for participants if they do not have the necessary funding and organisational space to do so. This is particularly acute for participants with other barriers and responsibilities, e.g., early career researchers or activists working voluntarily. The extra burden placed on early career researchers is particularly well documented (see the supplemental information of Sellberg et al. 2021 for an annotated bibliography). Setting boundaries is an important skill for those engaging based on high personal motivation and can be supported by the right environment, as well as direct coaching and capacity support.

Second, as the principles highlight, transdisciplinary collaborations require particular sensitivity and attitudes (e.g., humility, tolerance to difference, and empathy). Collaborations can quickly turn sour without dedicated time and support for attending to these requirements, creating untenable situations for participants. While, to some extent, this is always the case for projects, it is particularly important in collaborations that involve heterogeneous actors from different walks of life with different abilities to respond.

Finally, the idea that transdisciplinary research contributes to the 'common good' is widespread but requires critical and reflective approaches to navigate moments where this is not self-evident or even possible. Instead, research by Sellberg et al. (2021) suggests the present status of transdisciplinary collaborations exacerbates the tensions and trade-offs between attempts to promote societal impact, scientific rigor, and (participants) self-care (Figure 8). Their research highlights the potential for 'navigating' this space differently, recognising the need for addressing the assumptions underpinning the funding practices, working towards creating enabling conditions that support this 'triple-s' heuristic, changing incentive structures and the award and recognition systems as to promote a healthier work-life balance', and adapting the training structures. Different 'role-players' must be engaged in these efforts - from funders, senior researchers, grading committees, and supervisors.

## 5.3 Recommendations for competencies

Some competencies for transdisciplinary collaborations are precursors for initiating these processes, while others can be learned during the collaborations. Different participants will have different levels and familiarities with the competencies related to the four principles. It is important to consider the differentiated needs of different team members, as societal actors may have different training needs than researchers. Also, not all participants need to excel in all competencies. While specific competencies for each of the four principles were outlined in Table 2, we mention here the cross-cutting competencies that are important for transdisciplinary collaborations.

- One competency that is a precursor for transdisciplinary collaborations by all participants is openness and a basic attitude of curiosity to new ways of thinking, doing, and learning. This is essential for participants to recognise the limits of their knowledge, persevere through misunderstanding, show a willingness to learn, and appreciate the perspectives and knowledge of others.

- Another key competency, being reflective about one's role, position, privileges, and perspectives, is not unique to transdisciplinarity. It is, however, a key competency for effective collaborations involving diverse actors and perspectives. This competency is important for all actors involved in transdisciplinary collaborations.
- Other competencies, such as conflict management (including navigating epistemic conflicts in power-laden settings), can be acquired or strengthened through training and practice. Conflict management is particularly key for the ones in leading positions during transdisciplinary collaborations.
- Finally, the ability to understand complexity, systems thinking, and power relations is also key. This includes the ability to zoom in and out on different levels and time scales to understand the issue at stake and find and use appropriate research methodologies and tools for understanding complex systems and power dimensions (see Table 2 for specific suggestions).

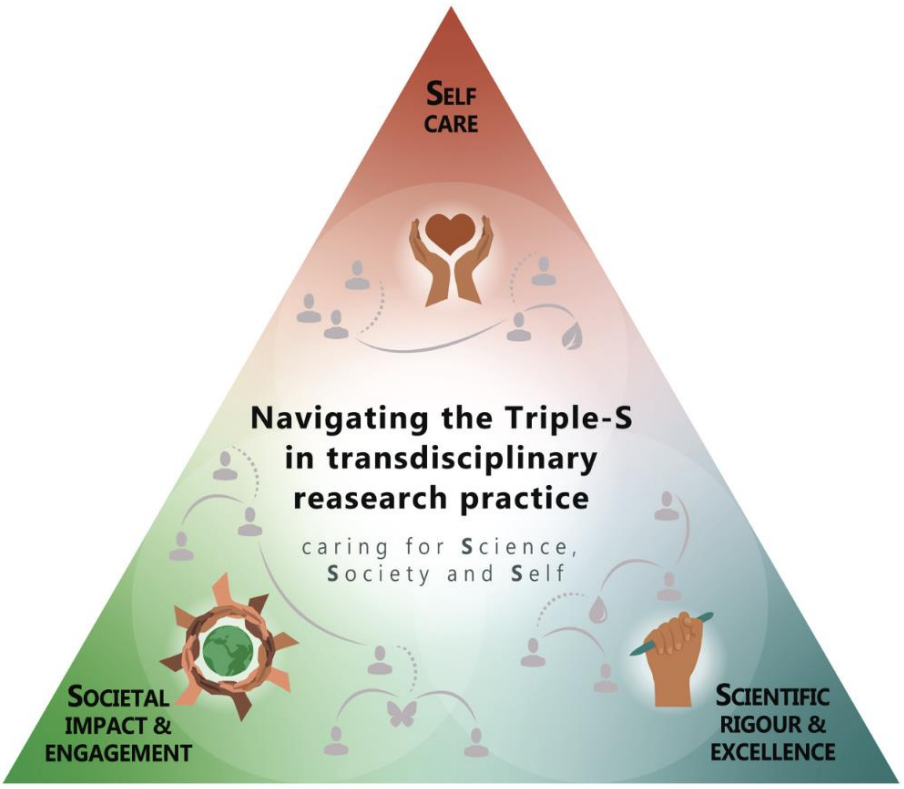


*Figure 8: The "triple-s heuristic" proposed by Sellberg et al. (2021), Illustrated by Liezl Kruger. It concerns the relationships between self-care, societal impact and engagement, and scientific rigour and excellence. The present status of transdisciplinary collaborations creates tensions and trade-offs between these dimensions.*

## 5.4 Recommendations for support

Transdisciplinary collaborations need different types of support than mono- and interdisciplinary collaborations. CUCo can provide space and training to help transdisciplinary collaborations initiate, address challenges, and grow. Moreover, CUCo can use the following recommendations to help teams identify, prioritise, and engage in inclusive, fair, and equitable collaborations.

- Provide differentiated support for the different phases of the transdisciplinary collaborations' lifecycle to not overburden new collaborators with too much information and requirements.
- Actively identify and address not only the general barriers to TD collaborations but also the specific barriers which hinder the participation of distinct groups in transdisciplinary collaborations (e.g., early career researchers, marginalised groups, and undervalued professions).
- An equity-based approach is recommended to ensure involvement and meaningful participation of groups that have previously been excluded, enabling CUCo to identify and appropriately deal with the diverse access needs of (potential) participants.
- Support a processual view of transdisciplinary collaborations, with space for participants to explore and to identify (shared) problem definition and legitimacy of the generated knowledge. This increases the quality of the generated knowledge and improves the ownership.
- Support the inclusion of multiple perspectives, and plural ways of knowing, particularly of those voices who were previously excluded.
- Navigate ways to deal with conflict, politics, and power dimensions of transdisciplinary collaborations (including epistemic conflicts).
- Provide clarity on governance, decision-making, roles, boundaries, and responsibilities of different parties involved.
- In all stages of engagements and collaborations, provide safe spaces to experiment, reflect, share, learn, and fail.

## 5.5 Recommendations for funding

Two key factors for funding are (1) how to support transdisciplinary collaborations and (2) how to evaluate who receives funding *and* the process and outcomes of transdisciplinary collaborations. Along these considerations is that transdisciplinary collaborations take many forms, come across distinct barriers, and exist for different purposes. As such, the initial intentions often need to be re-evaluated and time and capacity limitations can lead to a lowering of outcome and impact expectations. Thus, when considering funding support and evaluation, flexible recognition of what is (the minimum) acceptable collaborative process while striving for more desirable or deep collaborations.

**Funding support**

- CUCo should provide funding to facilitate multiple aspects of the collaboration in its entire lifecycle: networking opportunities, safe space, training, team vision days, collaboration set-up assistance, materials, collaborative engagement, compensation for time, and knowledge sharing.
- In addition to the phases for the development of interdisciplinary teams already existing in its offering, CUCo should consider additional phases for team building corresponding to the encounters and engagement phases of the collaboration lifecycle, e.g., a team vision day can be an addition to the Spark training providing collaborators with the opportunity to discuss roles, positionality, responsibilities, and expectation management.
- Making funding more longitudinal. Offering more time for team building, co-design and co-creation processes, and potential follow up to projects demonstrating promising avenues for (societal or academic) impact.
- Allowing flexibility of funding that matches the processes of gradually maturing collaborations, allowing for non-linearity (of expectations, of progression), iterative processes, emergence, and feedback loops.
- CUCo does not currently compensate for researchers' time in Spark and UCo projects. Most researchers can have their time compensated within regular hours when their departments support this novel form of collaboration without focusing on results. UMCU and Wageningen Research are understood to be exceptions where project hours are required to declare hours. A challenge is that societal actors may not receive financial support for participating in transdisciplinary collaborations. But how to do it? How much is fair?
- Wider knowledge sharing. In transdisciplinary collaborations, the knowledge created is interesting and important to an audience beyond academia and academic publishing. Thus, groups could be stimulated to think of different forms, audiences, and outputs.
- Orienting funding towards societal partners that would otherwise be unable to fund themselves (similar to what the Science Shop does, for instance).
- Considering match or co-funding initiatives that have emerged from societal actors, where researchers could have a meaningful contribution (instead of the other way around).
- Exploring participatory forms of grantmaking that shift power towards grantees and groups often not reached; and learning from philanthropy's experiences in that regard.

**Monitoring, evaluation & impact**

- Reflection on monitoring, evaluation (M&E) and impact is critical for determining which transdisciplinary collaborations CUCo is willing to support through the project phases and to what extent CUCo evaluates a collaboration as being on a desirable path or reaching an expected outcome. Many widely accepted practices regarding M&E are not necessarily suitable for transdisciplinary collaborations or work better for particular forms of TD.
- CUCo should seek to establish bespoke evaluative approaches that match the type and stage of transdisciplinary collaborations, with appropriate facilitation and attention to domain-specific frameworks.
- CUCo can build on Spark's experience with process coaches, emphasising helping collaborations clarify their contributions and explore different pathways for impact. It can also find opportunities for increasing their ambition, reach, and depth of contributions. Where possible, this may include carefully-designed indicators for quantitative assessment of impact, but that should not be assumed *a priori* and could be detrimental to some forms of collaboration.

## 5.6 Specific recommendations for the different phases of transdisciplinary collaborations

Transdisciplinary collaborations have a wider 'lifecycle' of transdisciplinarity than individual research projects (see §2.1). As discussed in previous sections, initiating and developing transdisciplinary collaborations requires more time and different resources than traditional research projects before tangible outputs are realised. Thus, more foregrounding the process and creating spaces for encounters is needed before engagements and deeper collaborations can be developed. Once people start collaborating, additional support can help navigate different challenges so those involved can continue participating in an inclusive, equitable and fair manner. In this vein, this section proposes ideas for initiating encounters, how CUCo can support engagements when parties consider collaborating, and what roles CUCo can take to facilitate to deepen these engagements into collaborations.

**Initiating encounters**

New collaborations need a safe space for initial engagement to occur. Although it is uncertain which collaboration will emerge, CUCo can offer space for societal actors and researchers to come together. CUCo can do so through (co-)organising moments for enabling encounters such as matchmaking events open to both societal actors and researchers, and working with societal actors in co-creating spaces outside universities. CUCo can create events that facilitate relationship-building, such as ones on themes related to transdisciplinary collaborations or topics that invite different expertise. The events can further showcase ways of approaching complexity and open to other forms of knowledge by sharing documented experiences around the identified tensions and good practices.

CUCo can consider differ avenues to offer to create spaces and moments where encounters among societal actors and researchers can occur. CUCo can access societal actors by connecting with university departments already working with societal actors (e.g. university science shops, citizen's science programmes, or value creation programmes). The connection with these key links to society can also provide insights on how to reach underserved societal actors who do not have means to scientifically fund their questions (e.g., the current goal of Wageningen science shop). A risk to only working through university networks is that certain groups will be excluded. Another approach could be actively identifying on-going societal initiatives to partner with and considering the 'most affected, least heard' voices in the problems or questions people want to engage with others.

**Beginning of engagement**

CUCo can provide training and inspiring safe space for all parties involved when parties are considering working together. When collaborations start taking root along with space, collaborators may need training and external expertise to determine roles, recognize positionality, consider power differences, and manage expectations. CUCo can help teams determine their house rules, discuss the motivations for collaborating, develop a common language, and provide training on competencies needed.

As not all team members may be familiar with reflectivity, CUCo can show teams ways to individually and jointly reflect and what they may want to consider (e.g., needs, well-being, process, goals, tensions, inclusive practices, and how to bring a collaborative process to an end). Moreover, CUCo can

build into the process moments where teams make explicit roles and responsibilities and reflect on this regularly. This will help transdisciplinary teams discuss roles that may overlap and change over time. It further increases credibility of the co-created knowledge if it is documented who was involved in what and what their position was.

**Ongoing and deepening collaboration**

Ongoing collaborations require continued investment by the involved parties to navigate different challenges and barriers while embracing the four principles. Time availability and capacity limits are challenges for ongoing collaborations. These practical realities create tensions between achieving some outcome through the collaboration and supporting plurality and inclusivity in the process. CUCo can help collaborators get in the same rhythm. Project management is particularly difficult when combining different academic institutes' rhythms with those of distinct societal actors. Process advisors can help facilitate the logistics so that more time and resources can be focused on developing the project's collaboration and content. The advisor’s role can be helping determine the frequency, setting, reasoning, and participation in encounters.

Combining multiple perspectives and visions can lead to increasing tensions, which may be difficult for collaborators to diffuse because of a distinct understanding of the problem, perceived power differences, and the sensitivity of the issues. In addition to offering process coaches, another form of support can be designated people to act as third parties to help address conflicts. These contact persons can provide intervision or hands-on support for project leaders to navigate tensions and conflict and harness learning from it, especially in more mature collaborations. Checking in with teams can help determine their needs.

As CUCo cannot support specific collaborations indefinitely, teams must decide how to continue or end their collaboration. CUCo can help teams explore avenues for increasing the autonomy of collaborations and avoid their dependence on CUCo as the sole funder and supporter. In other cases, CUCo can help teams find fair and positive ways to end collaborations when they reach the end of their lifecycle. Documenting the learnings on receiving support from other sources and completing the transdisciplinary collaborations lifecycle will help future teams consider their options and CUCo to support people in transdisciplinary collaborations.

# Outlook

We encourage CUCo to develop further as a centre of excellence in inter and transdisciplinary research. We see enormous potential in extending the existing support and funding opportunities to encompass transdisciplinary collaborations.

Inclusion as a term is very broad. In this scoping study, we provided a first overview of good practices, challenges, and points for CUCo to consider. We recommend further analysis of literature and lessons learned across different fields and refining these topics with a particular focus on navigating between aspirations and ground realities.

# Acknowledgements

We thank CUCo for the invitation to work on this exciting scoping study on transdisciplinary collaboration, especially to Corinne Lamain and CUCo board members, who gave us useful feedback. We would also like to thank Alex Bhogal (UMC) for his input in the earlier phase of this project. Finally, we thank all the stakeholders for their time and willingness to share their experiences in transdisciplinary collaboration with us through their participation in the two days workshops we organised in March 2023 and their written input (see the Annex).

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# Annex: Stakeholder stories on transdisciplinary collaborations

**Story 1: Example of co-created project between academia and practice on the topic of inequalities**
Contributor: Tahnee Ooms

My motivation to engage with this project, as an academic, stems from my personal belief that inequalities can't be tackled from within the academic ivory tower. Academic knowledge has its use and function but to be relevant it needs to be connected to knowledge generated in practice, to have an impact. I found allies (with institutional power) within my organisation that were able to help set up a co-created project with adequate funding. Partners from practice were brought in through existing networks, hence a priori there was a baseline level of trust between collaborators. This was my first experience with co-creation, I tried my best to facilitate exchange and being open to adapt based on my own background. This first experience was positive but with additional funding and time this process could have been optimised to really factor in the TD Collaboration Principles. Funding can help TD projects take off and to bring in an adviser with expertise on co-creation to streamline the process. However, funding does not necessarily take away time constraints. I learned that collaborators, even if fully committed, are all facing their own institutional incentives occupying their time. This ranges from publication pressure to business models not allowing to take out extra time because it conflicts with other jobs. Collaborators are usually tied to an institution, such as a university or an organisation from practice. Within these institutions people may face different incentives and time pressures. If there is funding for people from different organisations to collaborate, even with the best intentions, it is not always feasible to fully adhere to the collaboration principles as written on the paper. The collaboration in this example worked because there was trust, similar work ethos, strong personal belief in the end goal. Collaborators took the time to share reflections even if this meant going outside of the contracted hours, but 'volunteering' is not something that be expected structurally in TD because of personal finances, family constraints etc.

**Story 2: Example of transdisciplinary collaboration between nursing homes and Dutch action researchers**
Contributor: Sofie Barendse

The action research on optimal skill mix in nursing homes is conducted in a transdisciplinary collaboration with nursing homes and action researchers of a Dutch university medical centre. In response to the current and future challenges that nursing homes face, the nursing homes and their teams were studied and coached in the process of uncovering different forms of future-based care. The action researchers studied closely the change process of the participating multidisciplinary teams and gave back the study results during reflection meetings. The results were integrated into daily practice and guided the teams in their change process. In regular meetings with the board and management of the nursing homes, (preliminary) results of the action researchers and experiences of the actors of the nursing homes were shared to enhance further knowledge on the process of optimising skill mix.

The nursing homes and the university medical centre shared a strong interest in this particular research topic and the researched approach, which facilitated the day-to-day collaboration. In addition, the selected research approach was particularly beneficial to the co-creation process as it allowed a constant integration of knowledge and practice. As results and experiences of the multiple nursing homes and action researchers were shared on a regular basis in reflection meetings, best practices between organisations were exchanged and brought back into their own organisations. The obtained insights were also used to sharpen the research focus and improve the facilitation of the teams. The collaboration resulted in useful insights for both scientific knowledge on an optimal skill mixes as well as practical and hands-on knowledge for nursery homes.

**Story 3: Example of adaptive collaborative management and participatory action research in Indonesia**
Contributors: Trikurnianti (Yanti) Kusumanto, Carol J. Pierce Colfer and Ravi Prabhu

In 2000, the Center for International Forestry Research (CIFOR) initiated multi-country research on a forest management approach referred to as adaptive collaborative management (or ACM). The research used participatory action research (PAR) as a research framework and aimed to generate insights about the potential role of collaboration and social learning in forest management. The research has become a basis for CIFOR's later research endeavours, including related to climate adaptation and governance at broader scales.

By definition, ACM is a transdisciplinary approach and provides a conceptual basis for how to treat disciplinary differences. Crucially, inclusivity is key in ACM: it shapes conditions to gaining access to a holistic understanding of relevant contexts, responding appropriately to human and environmental needs, and respecting human rights and ethical issues (Colfer and Prabhu 2023).

ACM has been viewed as an emergent governance approach for complex social-ecological systems that connects the learning function of adaptive management with the linking function of collaborative management. ACM's applicability in research and practice lies particularly in the merging of collaboration with knowledge-oriented processes.

Colfer (2005) defines ACM as follows:
'Adaptive collaborative management, in our usage, is a value-adding approach whereby people who have interests in a forest agree to act together to plan, observe, and learn from the implementation of their plans while recognizing that plans often fail to achieve their stated objectives. ACM is characterized by conscious efforts among such groups to communicate, collaborate, negotiate, and seek out opportunities to learn collectively about the impacts of their action.'

The use of PAR as a framework crucially enables the collaborative (linking) and adaptive (learning) processes to take place: (i) substantively (by way of locally prioritised issues); (ii) structurally and relationally (through PAR's joint plan-act-reflect iterations); and (iii) via transdisciplinary/transboundary learning between different social and institutional entities (Kusumanto et al. 2023).

For more reading on how to put ACM into practice, please see:
Kusumanto et al. 2005. Learning to adapt: managing forests together in Indonesia - CIFOR Knowledge
Kusumanto. Y. 2007. Shaping opportunities for improving forest quality and community livelihoods in Central Sumatra and East Kalimantan, Indonesia (cgiar.org)

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Colfer, C.J. Pierce. (2005). The Complex Forest: Communities, Uncertainty, and Adaptive Collaborative Management. Resources for the Future/CIFOR: Washington, DC.

Coffer, C.J.P., and R. Prabhu (2023). A Time to Change Direction. In: Colfer, C.J.P., and R. Prabhu (eds). Responding to Environmental Issues through Adaptive Collaborative Management. From Forest Communities to Global Actors. Earthscan (from Routledge) and Routledge (Taylor & Francis Group): London and New York. DOI: https://doi.org/10.4324/9781003325932-1

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**Story 4: Example of the young fellowship programme as part of the project Asia Pacific Researchers, Practitioners & Policy-makers in Dialogue with Children & Youth in disaster risk reduction**
Contributor: Jekulin Lipi Saikia

The fellowship programme is a youth-sensitive initiative, focused on amplifying the voices in addressing gaps in policies and building a resilient world for youth by themselves. The programme aims to increase knowledge of the push and pull factors for DRR and strengthen multi-stakeholder partnership in Asia-Pacific region. The programme contributes to filling the gap of DRR policies across the region and actions to strengthen the regional but also national and local level networks and youth movement. The young fellows analysed the country policies and schemes, the extent it has been implemented on ground at local level, climate change actions, nature-based solutions applied (If any) and integration of DRR, traditional indigenous knowledge. This was achieved through participatory action research. The fellowship targets to capture the entire disaster cycle - preparedness, response, recovery, and mitigation. At the end of the fellowship programme, a one-day online workshop (available here) was organised for dissemination of research to policy-makers and academicians.

As part of this process the Young Fellows:

1. Participated in the three workshops on the Participatory Action Research (two online training components on youth-led peer-to-peer research and one on data analysis plan led by DRR researcher). 2. Conduct in-country data collection through individual peer-to-peer and focus groups, national stakeholders / youth dialogue, offline discussions with youth, and interview other relevant stakeholders / multistakeholder.
3. Analysed data and contributed to writing one analytical report and two policy briefs (one per each country and one regional) highlighting key findings
4. Disseminate research results with policy-makers and with different stakeholders by one-day online workshop

Outcomes included:

1. The peer-to-peer awareness campaign in the local level with support from represented organisation based on the evidence from research.
2. This provided an evidence-based foundation for extending dialogue and building advocacy outputs.

**Story 5: Example from the work on development of mental health and psychosocial support intervention in Burundi**
Contributor: Nina Goricar

In the late 2000s, a university in the Netherlands collaborated with an international humanitarian organisation working in Burundi on development of mental health and psychosocial support interventions. Prior to the design of an intervention, a study was undertaken to gain understanding of local construction and understanding of mental health and psychosocial wellbeing and its opposite. The study design was led by the university team, while the process on the ground was led by local staff acting as interlocutors. The process was highly interactive as well as iterative to reach an in-depth insight and understanding of constructs that consequently supported development of interventions to address context-specific challenges.

The purpose of the study had both context-specific societally relevant and scientific value, speaking to principle 1 of the transdisciplinary collaboration. Principle 2 was reflected in the iterative part of the process where complexities, uncertainties and ambiguities were being addressed. Principle 3 was to an extent already part of study design, aiming to understand a way of knowing, and also reflected within the process interaction between the university team and the local team of the international organisation. The outcomes of the process were not only relevant to the university team for the specific purpose of the intervention design but had broader positive implications for the work of the international organisation.

**Story 6: Example of a non-research Transdisciplinary collaboration in International Development Evaluation**

Contributor: Nur Hidayati

I am a Monitoring and Evaluation practitioner under a consultancy company named ResultsinHealth. It is an international development consultancy firm dedicated to increasing the effectiveness of development interventions in the areas of public health, social inclusion, gender, and women's empowerment, as well as education, environment, and livelihood. RiH is based in the Netherlands and is active in over 50 countries through its network of locally based associates. We are experts in providing services on monitoring, evaluation, and learning (MEL), including the design of (participatory) MEL systems as well as conducting baseline studies, mid-term reviews, and single- and multi-country project evaluations using mixed methods, and conducting operational research. RiH is dedicated to increasing the effectiveness of development interventions in the areas of health and non-health issues using a feminist evaluation lens, the meaningful involvement of young people and marginalized groups, and participatory (co-creation process) innovative approaches.

In conducting our assignments, we always use multi-disciplinary and/or multi-professional backgrounds, as well as teams with multi-cultural/languages background, e.g., combination of academics/researchers and societal actors such as M&E practitioners, advocacy/lobbyists, trainers/facilitators, etc. Within one assignment, sometimes we should also include a combination of experts with health and non-health backgrounds, team members with various cultural and language backgrounds to cover wider regional coverage and various types of ethnicities of the program participants. In addition, as part of an inclusive approach, we often involve experts that represent young people, girls, and marginalised groups such as from the LGBTIQ community, people with disability, and people living with HIV. In this regard, we must be able to ensure a safe and meaningful participatory involvement of these groups. To be able to conduct assignments using the meaningful participatory and inclusive principles to amplify the voices of key stakeholders - in particular women, youth, and marginalized groups, in our practice we use inclusive and participative methods, focused on creating ownership and facilitating dialogue for learning, to bring complementarity of the strengths and expertise of all team members using these innovative evaluation/research methods.

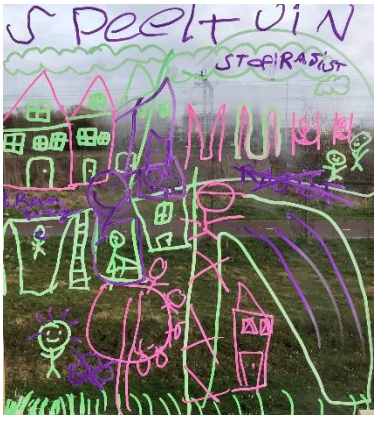
For sure we experience challenges in these transdisciplinary collaborations. The most common challenges we face include: experiencing different perspectives (or ways of working) between academics and societal actors regarding how rigour an evaluation should be; including complexity in assessing the extent to which the project considers different gender roles, identities, and responsibilities; and the extent to which the project challenge existing (unequal) power dynamics, gender roles and responsibilities particularly when we evaluate project focusing on sensitive issues such as gender-based violence, sexuality, and vulnerabilities of marginalised groups.

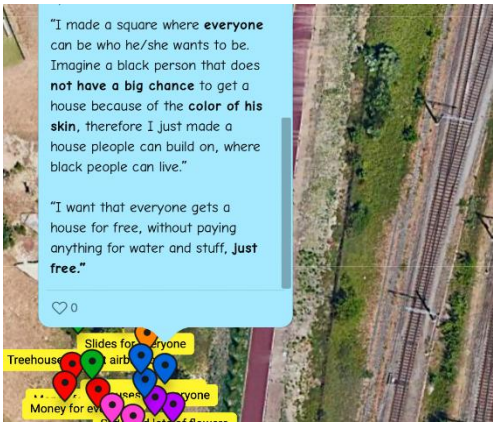
How do we address these challenges? We ensure a co-creation process when feasible, using participatory toolkits, conduct a process of collaboration which is robust and yet inclusive for all stakeholders, creating safe and confidential spaces for individual interviews and focus groups, building in time to develop rapport and trust, providing consent, opt-out, and feedback mechanisms, and communicating clearly with all stakeholders involved throughout the implementation of evaluations/research.

**Story 7: Who can make theory? An example of going beyond textual theory-making in transdisciplinary collaborations**

Contributor: Kitti Baracsi

Transdisciplinary collaborations need to go beyond our current forms of creating knowledge. Those who are usually not considered as those who can make theory, can and should participate in these collaborations beyond contributing only with their experiences.[1] In my work with children on urban conflicts, I advocate for the importance of creating spaces, dispositifs and forms of expression for inquiry that go beyond this dichotomy. The potential of children making theory once we recognise their ways of expression as legitimate, shows us how important it is to understand transdisciplinary research collaborations as spaces where the hierarchies of knowledge production can be dismantled by recognising multiple forms of knowledge.






This dispositif was collectively designed and constructed by the participants[2] of the Urban legends in the making workshop during International Design Workshop Week Antwerp. The Wishwindow - which was tested in Luchtbal, a neighbourhood in Antwerp, enables participants to imagine in situ, looking through the plastic window, what changes they would like to see in their context. However, it is not the tool that changes our collaboration: it facilitates the data collection and discussion, as well as frames the possible formats in which our findings are published, however what makes the real difference is our capacity to go further and instead of using these tools for only collecting experiences that then we frame, we use the radical potential of turning these conversations into legitimate moments of theory-making. Visuals, for instance, cannot be only illustrative to what is then being then written, we need to recognise their unique importance in creating and explaining concepts.

[1] These remarks are inspired among others by bell hooks' critiques about the dichotomy that divides those who make theory and those who organise/contribute with their experiences within the feminist movement: Feminist Theory: From Margin to Center. Cambridge, MA: South End Press, 1984.

[2] Baracsi Kitti, Beneens Lauren, Billemon Elly, Born Flore, Bulcke Birgit, Eeckelaerts Aïsa, Guerti Nisrine, Kesteloot Lieselotte, Scartorchia Luna, Van Broeck Max, Van den Broeck Lotte, Van den Eeden Lobke, Vercauteren Paulien, Wouters Britt, Yang Mengyu

**Story 8: Example of how to set house rules**
Contributor: Migrantour

These questions are example of how to co-create house rules for collaboration. These questions stem from Priya Parker's book *The Art of Gathering: How we meet and why it matters*. Collaborators have the opportunity to reflect individually on the questions before they are brought together to discuss. In this example, the answers were collected by a contact person who moderated the discussion that led to the collectively decide upon rules.

Questions:
I would like to think about yourself as a team member and to reflect on the following items in order to make the training a unique and beautiful experience, where you can flourish. Your answers will help us create [training sessions or collaborative experience] where you feel safe and strive:

You get the best of me, if ...
You get the worst of me, if ...
You can count on me that ...
This is what I need from you (both as facilitators and team members) ...
This is what I wish from this [training or collaborative] experience...
Do you foresee any difficulties in working together with people?
Do you foresee any difficulties in creating the [collaboration/project]?
Are you able to answer these questions? If not, why is this difficult for you?

Probe to the team member:
We might share some answers anonymously within the training to create ground rules together for the coming [time period]. Take your time, think about it, and let your answers be rooted within your heart.

**Reference**:
Parker, P. (2020). *The art of gathering: How we meet and why it matters*. Penguin.