UCLouvain

Analysing and Identifying the Circular Economy's contribution to a just Transition

A Transdisciplinary Environmental Justice Approach in the Brussels Capital Region

(Acronym: AICE-T)

Promoters

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Summary

Shifting to a circular economy is a core policy objective of ecological transition policies in Europe. Further, official policy discourses clearly underline the importance of a just sustainability transition to reach this goal. However, **capacity building for the engagement of the circular economy actors towards improved environmental justice outcomes is rarely considered**. Under these conditions, the AICE-T project asks the following two research questions:

1) **What are the existing practices** used by circular economy initiatives to address the social-environmental issues raised in the context of their activities?

2) **How to create capacities of engagement of actors in the circular economy initiatives for contributing to improved environmental justice outcomes**, in particular through social learning on values conflicts and the formation of shared narratives of change?

To address these research questions, **the AICE-T project will use an innovative mixed-methods research design**, combining a **quantitative assessment of existing practices (using both analysis of existing data and original data collection) with** three recent methodological advances in environmental justice research and transdisciplinary sustainability science, which are **(1) participatory mapping; (2) learning on ethical dilemmas and (3) collective narrative synthesis**. Through the use of this mixed-methods research design, the expected outcome of the project is to contribute to a better understanding of the role of existing practices, capacity building and policy support for social learning in addressing environmental justice issues in circular economy initiatives that are promoted by different societal actors in formal and informal organisations.

Table

1   Theoretical context

1.1   Goals of the research

Shifting to a circular economy is a core policy objective of ecological transition policies in Europe. Unlike traditional recycling, circular economy approaches emphasize product, component and material reuse, remanufacturing, refurbishment, repair, cascading and upgrading as well as renewable energy utilization throughout the product value chain and life cycle (Korhonen et al., 2018). However, the current literature on the circular economy focuses mostly on technical and economic aspects, and **research on the social dimension of circular economy received less systematic attention** (Ashton et al., 2022). Moreover, the role of many informal grassroots and citizen initiatives in the circular economy with an impact on transitions towards sustainable consumption patterns – many of which directly focus on vulnerable social groups – are often not part of the scaling strategies of the circular economy organisational models (Van der Linden et al., 2021; Wuyts and Marin, 2022). Further, although official policy discourses (Weber and Louis, 2020) clearly underline the importance of a just sustainability transition, **capacity building for the engagement of the circular economy actors towards improved environmental justice outcomes is rarely considered** (Rask, 2022).

Under these conditions, **the aim of the AICE-T project is to identify and analyse the potential contributions of circular economy initiatives to achieving just transitions** – which we understand here as a set of societal transformations aiming at jointly addressing environmental challenges and producing social sustainability benefits for vulnerable population groups that are most impacted by the negative consequences of the current ecological crises (Laurent, 2020). In particular, based on contemporary environmental justice scholarship, improved environmental justice outcomes of circular economy initiatives are understood as both addressing issues of environmental inequalities – unequal distribution of burdens and benefits – and improving opportunities for involvement of vulnerable population groups in decision making and recognition of their experiential knowledge (Schlosberg, 2013).

With the view to understand the contribution of circular economy initiatives towards improved environmental justice outcomes (such as enhanced decision-making agency for minorities or reduced health hazard for groups at risk of poverty), the project uses a combination of a quantitative and an

interpretative social science research approach (Willis, 2007), which focuses on the role of values, knowledge and resources of actors in processes of change (Gorddard et al., 2016). More specifically, the project will focus on the existing practices (Thompson and Byrne, 2020) in circular economy initiatives; capacity building for change through deliberation on value conflicts and formation of shared narratives; and policy support for social learning on environmental justice issues. To this purpose, the project will analyse a broad sample of circular economy initiatives in the Brussels-Capital Region in Belgium –internationally recognized for its circular economy programme, hence adopting a regional environmental justice approach. In addition, the project will contrast its findings to research on circular economy initiatives in other European urban regions, in particular through focusing on five pilot cities with advanced circular economy policies. In both cases the project will analyse both formal organisations (e.g. for profit or non-profit enterprises) and informal organisations (e.g. de facto community organisations and grassroots initiatives) (Friedberg, 1993).

The AICE-T project asks the following two research questions:

1) **what are the existing practices used by circular economy initiatives to address the social-environmental issues raised in the context of their activities**?

2) **how to create capacities of engagement of actors in the circular economy initiatives for contributing to improved environmental justice outcomes, in particular through social learning on values conflicts and the formation of shared narratives of change** :

    a. how can deliberation on ethical dilemmas experienced in circular economy initiatives contribute as social learning mechanisms on value conflicts ?

    b. how are shared narratives of socially desirable and feasible transformation established that can drive and motivate actors to contribute to just circular economy transitions?

    c. what are the different means of policy support for social learning on value conflicts and narrative of change in circular economy initiatives ?

To address these research questions, **two interdisciplinary bodies of knowledge** are especially relevant. **The first is environmental justice scholarship** (Coolsaet 2020; Laurent, 2020), which strives to empirically document not just the unequal distribution but also the production of environmental costs, benefits, and associated well-being outcomes and seeks to understand both the proximate and underlying

drivers of this inequality, according to a multiplicity of intersecting social categories (e.g. class, race, gender, age, etc.) as well as in different spatial and temporal contexts (Walker and Bulkeley, 2006; Holifield et al., 2009; Pellow, 2017; Korhonen et al., 2018). **The second draws on transdisciplinary sustainability science**, a field of research that seeks to understand the complexities of coupled socio-ecological systems and develop practical solutions to sustainability issues through knowledge co-production (Dedeurwaerdere 2014; Polk, 2015). Combining both scientific and non-scientific expertise, transdisciplinary sustainability science combines ethical perspectives on sustainability with narratives about socially desirable and feasible transformation pathways (Swart et al., 2004).

Furthering these theoretical developments, the general working hypothesis of the project is that in order to foster just transitions in regional multi-stakeholder circular economy initiatives, there is a **need to combine multi-scalar and socially informed knowledge gathering on environmental justice with a transdisciplinary knowledge co-production process amongst researchers and societal actors**.

To address the research questions, **the AICE-T project will use an innovative mixed-methods research design** (Creswell, 2014), combining a **quantitative assessment of existing practices (using both analysis of existing data and original data collection) with** three recent methodological advances in environmental justice research and sustainability science, which are **(1) participatory mapping; (2) learning on ethical dilemmas and (3) collective narrative synthesis, as described below**. Through the use of this mixed-methods research design, the expected outcome of the project is to contribute to a better understanding of the conditions of addressing environmental justice issues in circular economy initiatives and to advance further methodological developments in transdisciplinary environmental justice research.

1.2   State of the art and hypothesis

1.2.1   Background from the state of the art

The decrease in waste production and the organization of the circular economy is a core policy objective of ecological transition policies, with potential benefits for climate change mitigation, pollution abatement and overall sustainable and globally just resource use. However, waste production

overall continues to increase – also in Europe – and the rate of repairing, re-using and recycling remains far under the desirable societal targets (Mansuy et al., 2022). Moreover, a significant amount of waste is managed under poor working conditions – with potential negative environmental and health consequences for workers as a result, and waste facilities are often disproportionately located in disenfranchised urban and rural neighbourhoods in Europe (Laurian, 2008; Martuzzi et al., 2010; Armiero et al., 2012; WHO, 2019; Jeanjean et al., 2023).

Systematic comparative analysis of these policy challenges has highlighted a series of benefits to strengthening regional circular economy approaches, such as in urban metropolitan regions (Sellers et al., 2020). Amongst other, regional multi-stakeholder governance has proven to be better equipped than higher levels of government to combine policies within and across sectors, given the interconnectedness at local levels of various dimensions of circular economy such as related to food, energy, water and waste (Valencia et al., 2020). Further, empirical studies on environmental governance have consistently demonstrated the importance of regional administrative capacities and multi-level governance relations for the effective enforcement of regulations and implementation of policies (Mazmanian et al., 2009; Knill et al., 2012).

In spite of these and other proven benefits, this strengthening of the multi-stakeholder regional governance of the circular economy faces important challenges with the view to reaching a socially inclusive and globally just transition.

First, the distribution of benefits and harms from the regional development of the circular economy are not only situated at the regional scale, but typically need to be considered at multiple scales of interaction (Lepawsky, 2015). For instance, it has been shown that very high eco-efficiency has been achieved in biomass-based industries, while the imports of this industry have violated the biodiversity of the ecosystems in the source country (Mayer et al., 2005; Boillat et al., 2020). Moreover, circular economy activities still generate environmental impacts, consume resources and are subject to multiple rebound effects (Berkhout et la., 2000: Mayumi et al., 1998). In particular, without an overall decrease in resource intensive consumption practices, the improvements of eco-efficiency through circular economy activities alone are unlikely to result in global savings in the use of non-renewable resources. Therefore, a crucial question is how the circular economy initiatives can both promote technical

improvements in circularity and a transition to overall less resource intensive sustainable consumption and production practices.

Second, population groups living in poverty or at risk of poverty are likely to be most impacted by the current ecological crises – such as in cases of extreme weather events or rising living costs due to recurrent energy crises (Martin et al 2020). While the impact on climate migrants easily come to mind (see Wright et al. 2019), the consequences on vulnerable groups in European urban settings have not received the same visibility (Vanhuyse et al. 2022). Progress towards a circular economy in a just transition perspective therefore needs to consider the impacts of its activities on improving the well-being of population groups at risk of poverty or social exclusion (Laurent, 2020). The latter can be for instance through initiatives that allow to better addressing environmental inequalities – such as the exposure to health hazards in certain urban neighbourhoods (EEA, 2018; WHO, 2019) – or fostering access to employment under good working conditions (Clube and Tennant, 2023; Persson and Hinton, 2023). This is in line with **Mies and Gold (2021), whose extensive literature review points to three main social-environmental issues of circular economy initiatives**: (1) **employment conditions** (presence of many temporary contacts, part-time jobs, employment statuses, informal work, etc.), (2) **work conditions** (exposure to environmental risks, work pressure on the work flour, high presence of burnout in grassroots transition initiatives, etc.) **and (3) addressing environmental inequalities** (reaching vulnerable population groups through the circular economy activities, addressing the distribution of environmental inequalities, etc.).

For instance, one initiative in Brussels on the reuse and recycling of electronic and electric waste products, the social enterprise CF2D (https://cf2d.be/), identified the existence of an **informal electronic waste collection network**. This networks operates **under poor working conditions, in parallel to the official system organized by RECUPEL, which collects only a part of the electronic material that can be recycled**. Moreover the recycling of the electronic waste from the official system is mostly organized for high economic value components (such as recuperation of rare metals), but less so for refurbishing materials of lower economic value (such as small electronic components for repair). In response, CF2D created a collection and refurbishment service, which creates employment with a

focus on vulnerable population groups under safe working conditions and which targets recycling and re-use activities that promote social inclusion in access to basic digital products and services.

As such, the evaluation of the regional circular economy implies examining both the impacts on overall sustainable resource use and the environmental justice outcomes for vulnerable population groups. Considering those impacts will require intense deliberation and coordination amongst a heterogeneous set of societal actors with highly diverse perspectives and value based framings. These **environmental justice outcomes are therefore likely to be enhanced** by a broadly inclusive participatory governance of the regional circular economy, in particular through **involving concerned stakeholders and vulnerable population groups in the activities and development of the circular economy initiatives**

The importance of broadly inclusive participation in circular economy initiatives for promoting just transitions is also underlined in reviews of the scholarly literature. For instance, Piao et al. (2023) identify community and consumer engagement in circular practices, besides the importance of social innovation, as key factors to intensify circular practices embracing social inclusion. Similarly, Ziegler et al. (2023) show the potential of social economy business models – based on active stakeholder involvement in deliberation and decision-making – to foster more socially inclusive outcomes of transition processes. Further, case study analysis shows the contribution of customer involvement in product or service development for recycling, reuse or repair initiatives as a factor that can contribute to more sustainable consumption practices (Inigo and Block, 2019; Mies and Gold, 2021).

In addition, more inclusive participation in circular economy initiatives can advance the building of narratives that are grounded in the local realities and a vision of reciprocal benefits at the regional scale (Carney, 2002). Overall, more inclusive multi-stakeholder approach to just transitions contributes to embed the facts-based analysis of risk exposure and spatial distributions of harm with knowledge co-production on the value-based framings and the various social narratives of change towards improved environmental justice outcomes (Petry et al., 2011).

In short, the scholarly literature **indicates the need to deepen the capacities of engagement of societal actors for contributing to just transition process of circular economy organisations**, with

the view to **take into account the needs of vulnerable population groups** and the **evolution towards more equitable and less resource intensive consumption patterns**.

1.2.2   Theoretical framework

The specific field of research on waste management within the circular economy has been widely documented from an environmental justice perspective in the US context (Weinberg et al., 1995; 2000). In Europe, various longitudinal research projects have been conducted in specific sites on environmental injustices related to waste production and recycling (Cornut et al., 2007).

However, this fact-based approach to (mostly distributive) environmental injustices is insufficient on its own to address the social learning needs on the framing of a socially inclusive and globally just transition process. Indeed, most studies are based on conventional academic and expert-based science approaches to environmental justice, which seem ill equipped to generate the knowledge base to support multi-scale and multi-stakeholder policy making and implementation processes in regional sustainability transformation processes. At present, a systematic framework to address this issue from a transdisciplinary knowledge co-production process amongst research and societal actors is still lacking.

Conceptually, environmental justice scholarship is dominated by US-inspired critical theory (see Schlosberg, 2013), traditionally focusing on individual/community-based risk exposure and rights-based solutions (Bullard, 2000; Sikor, 2013). European political and social theory has only sparsely been put to use in environmental justice studies (notwithstanding exceptions including Deldrève, 2015; Laigle and Moreau, 2018). Conceptual developments in Europe – e.g. "environmental inequality" (inégalités environnementales) developed in francophone environmental theory and sociology (eg. Cornut et al., 2007) – are either ill-suited to speak to the many initiatives from emerging social movements, or underwent a "fast conceptual transfer" from a US-context (Debanné and Keil, 2004), hence providing inadequate tools to help study environmental justice in Europe (Laigle and Dual, 2007).

A growing body of environmental justice research reaches however beyond the individual/community related focus of this established scholarship. In doing so, it seeks to understand the intertwining of environmental issues and social inequalities in multi-stakeholder governance at multiple scales and involving multiple stakeholder categories. To this purpose, these

research practices emphasize the importance of knowledge co-production amongst societal actors and researchers on the various value-based framings and narratives of environmental justice.

In this context, two emerging bodies of knowledge seem especially relevant for the building of a multi-scale and co-produced regional approach to environmental justice in the circular economy in Europe.

A first innovative body of knowledge is developed within **participatory approaches to environmental justice research**. This includes the so-called "spatial justice" framework, which strives to empirically document not just the spatial distribution of situations of environmental injustice, but also the social production of environmental inequalities, according to the experience and perspective of different affected groups (Walker and Bulkeley, 2006). The experiential knowledge on trajectories of environmental injustice is also mobilised in the approach of critical environmental justice – a line of research that questions the universality of framings and concepts of environmental justice (Holifield et al., 2009; Pellow, 2017). Overall, the conception of research tools for participatory research increasingly pays attention to integrating experiential knowledge and normative perspectives from affected parties in all stages of the research process (Chevalier and Buckles, 2019).

A second innovative body of knowledge is developed within **transdisciplinary analysis of social and ecological transition processes in social science scholarship**. These transdisciplinary approaches increasingly focus on the role of deliberation on narratives and normative orientations of change amongst societal actors in the implementation of socially desirable and feasible transitions. For instance, contemporary developments within management scholarship focus on the way that the co-production of narratives of social change in an entrepreneurial context contributes to collective action in addressing situations of social and environmental injustice (Solbreux et al., 2023). Further, analysis of value conflicts around social justice in the sociology of organisations shows the productive role of deliberation on the plurality of frames to overcome these conflicts (de Nanteuil, 2021). The purpose of these transdisciplinary knowledge co-production processes is to facilitate mutual understanding and processes of clarification of the diversity of value framings and narratives about socially desirable and feasible environmental justice outcomes (Dedeurwaerdere, 2024).

In the AICE-T research project, we contend that to understand the impacts of the circular economy from a just transition perspective there is a need to **combine the participatory "spatial justice" approaches**, **with transdisciplinary social science research on the diversity of conceptions of justice and narratives of just transition pathways**.

Indeed, on the one hand the participatory spatial justice approaches contribute to integrate scientific expertise and experiential knowledge from the affected societal actors, but they are less well equipped to build a common approach to the different value laden perspectives on the "environmentally just" transition pathways. On the other hand, the transdisciplinary social science scholarship allows enhancing the mutual understanding on value conflicts and the narratives of change in the framing of the sustainability pathways, but does not necessarily mobilize tools for spatial analysis of the environmental justice issues and responses from circular economy organisations on a regional scale. In particular, not all transdisciplinary research is well adapted to the analysis of the multi-scale environmental justice issues in regional transition processes.

1.2.3   Research hypothesis and added value

As shown in the state of the art above, scholars identify the development of more inclusive participatory modes of governance of circular economy initiatives as a promising avenue for contributing to enhanced environmental justice outcomes. In particular, the involvement of vulnerable population groups can be expected to lead to better identify and promote circular practices that jointly address environmental challenges and produce social sustainability benefits.

Based on the proposed transdisciplinary environmental justice framework, the AICE-T project aims to further develop these initial findings on the importance of inclusive participatory governance of the circular economy transitions. In particular, the research will examine the different expected roles of the participatory processes and examine how these in turn contribute to better addressing environmental justice issues in circular economy organisations.

Furthering these theoretical developments, the **specific hypothesis** of the project is that **capacities to address environmental justice concerns in circular economy initiatives** are enhanced by **improved knowledge** on environmental injustice – in particular from vulnerable social groups, **social**

learning on value conflicts and the co-construction of **collective narratives of change** towards just transitions.

Therefore, three important modalities of participation are expected to contribute to this capacity building: (1) the organization of knowledge integration from science and practice on environmental injustices; (2) the organization of social learning on value perspectives related to just transition with all the affected social groups and (3) the formation of shared narratives of change in the organisational settings of the circular economy initiatives.

By testing this research hypothesis through an innovative empirical approach, the AICE-T project aims to make significant **progress beyond the current state of the art.** More specifically the project aims to

1) contribute to fill the gap in current scholarship on the development of socially inclusive regional circular economy transition processes

> Indeed, many studies exist on impacts on local communities (especially ethnic communities in the US) and on global justice issues (for instance how national policies for electric cars / photovoltaics are interconnected with global intensification of mining operation in conflict prone regions throughout the world). However, few studies exist on environmental justice impacts at the level of regional sustainability transformations processes (for instance how social economy business models can increase access to regionally bio-sourced materials or improved access to sustainable energy/construction solutions for vulnerable population groups)

2) contribute to the development of transdisciplinary environmental justice research, in particular through the use and evaluation of innovative methodologies which address the different modalities of participatory knowledge co-production:

- participatory mapping of spatial justice outcomes to integrate both facts based knowledge and experiential knowledge

- the use of deliberative workshop on ethical dilemmas as social learning mechanisms on value conflicts in organisational settings

- collective narrative practices for establishing shared narratives of desirable and feasible pathways of change

1.2.4   Research methodology

To develop the analysis of the contribution of the transdisciplinary knowledge integration, social learning on value conflicts and formation of shared narratives of change to improved capacities for addressing environmental justice issues, the AICE-T project will use a mixed-methods approach (Creswell, 2014).

The mixed methodology combines a quantitative analysis of existing practices in the initiatives related to the key social-environmental variables of the project (work conditions and employment conditions in circular economy organisations and actions for addressing environmental inequalities in their field of work) with qualitative analysis of capacity building of actors' engagement for improved environmental justice outcomes through the three participatory research methodologies.

A. Quantitative analysis of social-environmental inequalities and practices to address them in the circular economy initiatives

The quantitative analysis will be based on an analysis – both through the analysis of existing data sources and collection of new data – of the top 3 social-environmental issues of circular economy initiatives identified by Mies and Gold (2021) already highlighted above: (1) **employment conditions in circular economy organisations** (presence of many temporary contacts, part-time contracts, informal work, etc.), (2) **work conditions** (exposure to environmental risks, work pressure on the work flour, high presence of burnout in grassroots transition initiatives, etc.), and (3) **environmental inequalities** (reaching vulnerable population groups through the circular economy activities, addressing the distribution of environmental inequalities, etc.).

The questions on work conditions and employment conditions in circular economy initiatives will be based on an adaptation of the **standardized survey on work conditions developed by the European Union Agency EUROFOUND** (European Foundation for the Improvement of Living and Working Conditions). The EUROFOUND data are available in open access (through the UK dataservice https://ukdataservice.ac.uk/) and provide country based data disaggregated per sector of activity (standardized EU NACE Rev2 codes of economic activity). First, we will analyse the data from the 2015 and 2021 general survey for Belgium, for work and employment conditions in the sectors agriculture

(NACE code A), waste (NACE codes B to E) and construction (NACE code F) (cf. 2023 report on work and employment conditions in Belgium, HIVA 2023). In a second step, we will adapt the questionnaire to focus on the main environmental justice issues identified in these three sub-sector and through the literature review in WP1 (cf. work programme below).

The questions on **environmental inequalities** will be based on the literature review of WP1 and an adaption of the **Social Equity Checklist of the US Green Building Council** (Green Building Council, 2023), which contains a set of structured questions on key relevant variables such as equitable supply chains – "including the stages of raw materials extraction, processing, manufacturing", equitable project teams, equitable project design for surrounding communities and engagement with environmental inequality issues by affected communities.

These questions on environmental inequalities will be further adapted to the other sub-sectors of the project (agriculture and waste), through the literature review in WP1 and through the analysis of relevant policy documents of the Brussels Capital Region and the five pilot cities (cf. list in the work programme below). Additional core variables might be added to the top 3 identified by Mies and Gold (2021), if the analysis reveals that they are highly relevant for the project sub-sectors.

B. Qualitative analysis of capacity building for actors' engagement for improved environmental justice outcomes

The qualitative analysis will consider both capacity building through improved knowledge integration of information on environmental injustices from science and from practice and through social learning on value conflicts and collective narratives geared towards addressing environmental justice issues in the organisational settings of the circular economy (cf. figure 1).
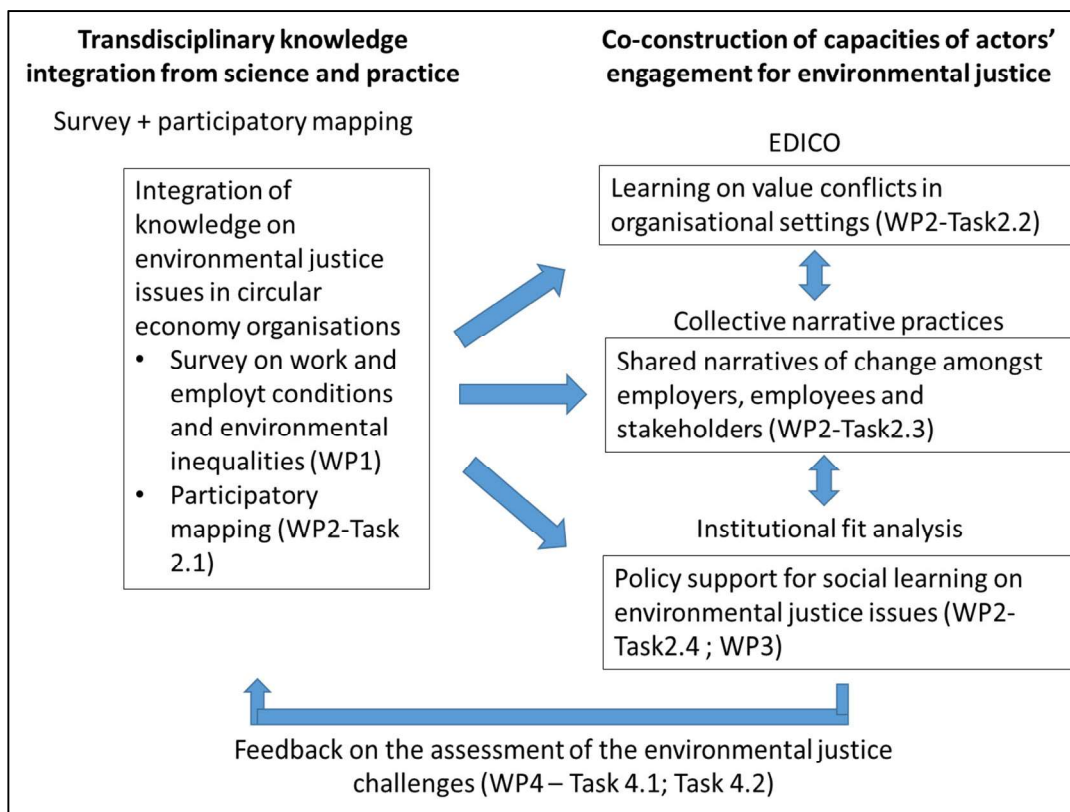
Figure 1. Transdisciplinary research methodologies of the AICE-T project

First, the transdisciplinary knowledge integration will be based on the qualitative research methodology of **Participatory mapping**. Drawing on the latest developments within critical geography (Cochrane et al., 2017; Jung et al., 2019), participatory mapping combines traditional tools for socio-spatial analysis (i.e. Geographic Information Systems, GIS) with the analysis of personal, lived experiences. Targeted GIS analyses will be conducted to document socio-spatial inequalities by locating the circular economy organisations within the Brussels Region, identifying the geographical areas of the members of their workforce, their customers and the beneficiaries of their environmental justice related activities – both regarding their core activity and side activities.

Second, the qualitative analysis of the value conflicts will be based on the action research methodology **EDICO – Deliberative workshops on ethical dilemmas**. EDICO is a workshop based social learning mechanism for overcoming ethical dilemmas in organizations, private or public (de Nanteuil, 2020; online materials at https://oer.uclouvain.be/jspui/handle/20.500.12279/646). Through various deliberative knowledge co-production tools, managers, employees, beneficiaries, stakeholders and affected persons of the circular economy initiatives will identify ethical dilemmas related to the environmental justice practices, but also collectively deliberate over different framings of environmental

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justice. For instance, circular economy actors might struggle with priority setting over focusing on change in behaviour off high income parts of the population – with important direct outcomes on overall sustainability resource use and the reaching of an equitable footprint – or focusing directly on producing social benefits for low income groups through improved access to re-used/re-furbished products or bio-based building materials/energy solutions, but with a less direct impact on change in resource intensive consumption behaviour of high income groups.

The framework for analysis of these and other ethical dilemmas used in EDICO has been applied in different organisational settings, including the collaborative economy (de Nanteuil and Zune, 2021) and agro-ecological transition (Stassart et al., 2021) and more recently as part of an INNOVIRIS funded project for testing the EDICO social learning mechanism in the public health sector in the Brussels-Capital Region.

Third, the action research methodology **Collective narrative practices** will analyse the formation of shared narratives geared towards promoting just regional sustainability transitions through circular economy initiatives. These research approaches consider that individual initiatives are often rooted in broader social and political contexts and that the formation of joint stories by people in collectives can open up their possibilities for action (Muñoz and Cohen, 2017, 2018; Lawrence and Maitlis, 2012; Solbreux et al., 2023). Construction of narratives in collectives can reveal that shared experiences (past), struggles (present) and hopes (future) are socially constructed (Hytti, 2005) and therefore, open to influence, which facilitates the joint production of narrative synthesis of desirable and feasible futures, while appreciating its limits (Veland et al., 2018; Lawrence and Maitlis, 2012). The "collective narrative practices" method has been applied to diverse issues such as developing collective capacities for action in social and sustainable entrepreneurship (Solbreux et al., 2023), organizational stability and change (Vaara et al., 2016), and reflexivity about knowledge production in research teams who experienced social injustices (López et al., 2023), amongst others. The end goal is to produce different narrative syntheses of desirable and feasible futures in **close interaction with** the pluralistic value framing analysed through **EDICO** and the identification of situations of environmental injustice through the **participatory mapping**.

Each of these methodological approaches contribute with different strengths **to the understanding of the role of capacity building** on better addressing the environmental justice issues in organisational settings. Nevertheless, except for a few exceptions (Corburn, 2005; Campbell, 2021), these approaches are **rarely considered together in empirical research,** let alone in an integrated framework.

C. Policy support for enabling social learning in circular economy

The third set of methodologies are based on to the analysis of external support for social learning on environmental justice through the method of "**institutional fit analysis**" (Young, 2002), widely used in studies of environmental governance. This method is based on the qualitative comparative analysis (Rihoux, 2003; Rihoux and Ragin, 2009) of various policy models, with a view to assessing to what degree these **policy models include support measures that support existing trajectories of sustainability transition in specific socio-economic contexts**. Typically, the input to these analytical tools is provided by structured interviews on the impact of different types of policy support and meta-analysis of existing studies and reports on policy models.

Institutional fit analysis has been conducted in various fields of sustainability transitions such as renewable energy (Reichardt and Rogger, 2014), electric mobility (Mazur et al., 2015) and climate change policy (Schmidt et al., 2012). However, with the exception of a few studies reported in Njoroge et al. (2015), rarely have they been applied to analysing policy models for supporting social learning on environmental justice issues.

To this purpose, **three prominent institutional models for external support to capacity building for social learning will be analysed: (1) information based, (2) promotion of interaction and mutual learning amongst initiatives, and (3) support for the building of agency**. While the social interaction-based mechanisms promote mutuality and cooperation amongst organisations, the building of agency also strengthens the opportunities for citizens to take an active role, set their own goals and act upon the capacity efforts (Benkler, 2006). External support for strengthening agency can take different forms analysed in the literature such as the building of ambassadors' networks, common strategy documents or networks for transfer of skills and competences (Kolbjørnsrud, 2017).

2   Work program
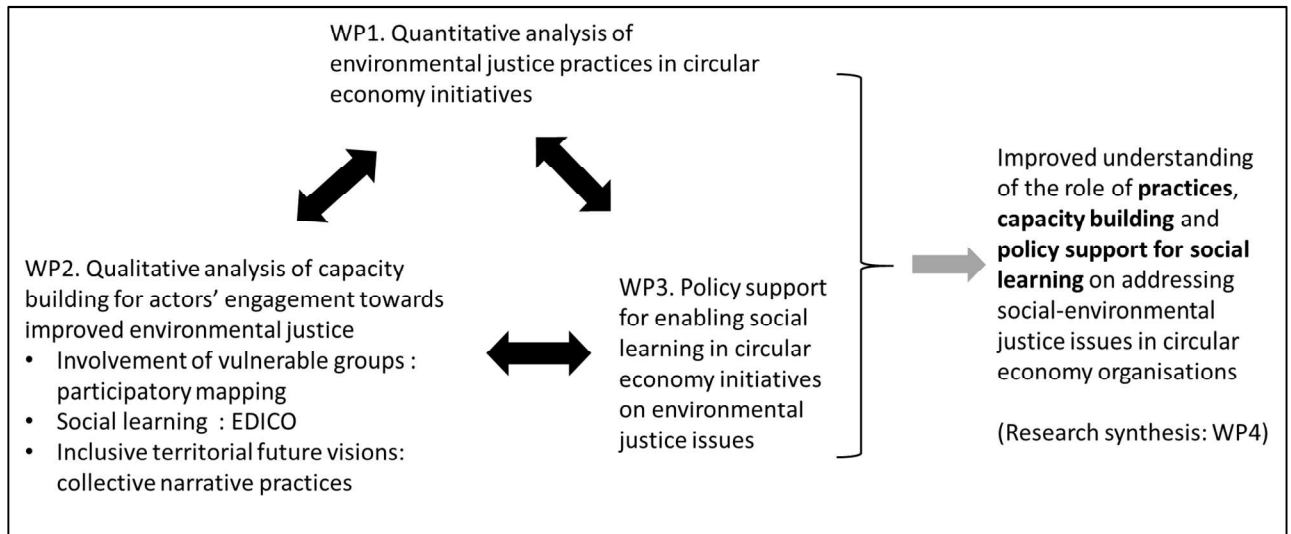
2.1   Overview of the work program and timeline

Figure 2. Work Package overview

			Yr1	Yr2	Yr3	Yr4	task co-leaders				
							1	2	3	4	5
WP1	**Quantitative analysis of existing practices in circular economy organisations**										
	T1.1	Envt Just LIT REV	PhD1,2,3					x	x	x	
	T1.2	Benchmarking in 5 pilot cities	PhD1,2,3					x	x		
		50 interviews with semi-structured questionnaire through MS Teams									
	T1.3	Quanti Survey in Brussels Region	PhD1 (PhD2,3)					x	x		
		online closed-ended questionnaire with leaders of 60 initiatives									
WP2	**Qualitative analysis of organisational capacity building for addressing environmental justice**										
	T2.1	Participatory mapping	PhD1 (PhD2)					x	x		
		3 workshops (with 60 participants each)									
	T2.2	Overcoming ethical dilemmas		PhD2 (PhD3)			x	x			
		3 workshops (with 20 participants each)									
	T2.3	Shared narratives			PhD3 (PhD1)		x			x	
		4 workshops (with 60 participants each)									
	T2.4.	Assessing the capacity building			PhD1 (PhD2,3)		x				x
WP3	**Policy support for social learning on environmental justice issues**										
	T3.1	LIT REV policy support for social learning		PhD2 (PhD1,3)				x	x	x	
	T3.2	Policy interviews			PhD3 (PhD2,3)		x		x		
		30 interviews with semi-structured questionnaire through MS Teams									
	T3.3	Summary on hybrid models			PhD1,2,3		x	x	x	x	
WP4	**Outreach, knowledge exchange and research synthesis**										
	T4.1.	Knowledge exchange and outreach					x				x
	T4.2	Research synthesis			PhD1,2,3		x	x	x	x	x
			Yr1	Yr2	Yr3	Yr4					

Figure 3. Gant Chart with timeline of the WP tasks (the various interactions between the tasks are specified in the work plan below). **The 5 project promoters** will participate to all the tasks, however for some tasks they will have a more important task leader role, indicated in the last column (**task cop-leaders**): 1= Tom Dedeurwaerdere; 2=Matthieu de Nanteuil; 3= Brendan Coolsaet; 4= Julie Hermans; 5=Julie Hermesse. The PhD students will collaborate on all the tasks, however for some tasks they will have a task leader and coordinating role (**PhD leading roles indicated in red, participants in**

brackets). The contribution of the different tasks to the two core research questions is specified in section 2.4 on the Deliverables below.

2.2   Specific research objectives

As specified in the theory section, the AICE-T project asks the following two **general research questions:**

1) what are the existing practices used by circular economy initiatives to address the social-environmental issues raised in the context of their activities?

2) how to create capacities of engagement of actors in the circular economy initiatives for contributing to improved environmental justice outcomes ?

To this address these research questions, the proposed research project will pursue the following **specific research objectives**:

(1) conduct a **quantitative survey of environmental justice practices** in circular economy initiatives in **the internationally recognized regional Circular Economy Program developed since 2016 in the Region of Brussels-Capital, Belgium**, through focusing on the set of core variables identified in the scholarly literature – work conditions, employment conditions and addressing of environmental inequalities, with the view to build a typology of environmental justice practices developed by circular economy organisations.

(2) conduct a set of **in-depth qualitative researches in these circular economy initiatives** on the role of capacity building through knowledge integration, social learning on value conflicts and formation of shared narrative of change in better addressing environmental justice issues through their activities

(3) analyse, through an "institutional fit" approach, the different models for **policy support to capacity building for environmental justice** in the circular economy organisations, in the regional multi-stakeholder governance context.

Adopting a regional environmental justice focus, the transdisciplinary methods of the AICE-T project will focus on the circular economy in the Region of Brussels-Capital. **The Region is internationally recognized as a frontrunner in regional policy processes for the circular economy**. Amongst others, "Be Circular - Be Brussels" won the Eurocities Award 2017 in the "Innovation"

category and the Regional Programme for a Circular Economy is mentioned as an example of a success story by the MacArthur Foundation international circular economy initiative.

The project will focus on the 3 sub-fields of (1) waste management, (2) urban and peri-urban agriculture and forestry and (3) materials and resource use in the building sector. The 3 sub-fields are highly interdependent at the regional scale (Valencia et al., 2022) and **the research team has already collected data or developed research collaborations on these 3 selected sub-fields** in the Brussels-Capital Region through previous research projects – **however without a specific focus on social-environmental issues.**

2.3   Work plan

WP1: Quantitative analysis of environmental justice practices in circular economy initiatives

WP1 will analyse the core **social-environmental** variables – work conditions, employment conditions and addressing environmental inequalities – of the AICE-T project through a quantitative analysis of environmental justice practices of circular economy initiatives in formal (e.g. public sector, for profit, non-profit) and informal organisations (e.g. de facto community organisations, grassroots initiatives). **In a first step**, **the available EUROFOUND survey tools** on the core social-environmental variables (cf. methodology section above) **will be refined through a literature review and a benchmark study in five pilot cities in Europe**. These five pilot cities have been chosen based on (1) their membership of a major national network on multi-stakeholder circular economy initiatives (Weber and Louis, 2020), (2) being mentioned in these networks as a leading pilot circular economy city, specifically with a strong social sustainability focus (cf. *Ibid.*, p. 68), (3) strong academic contact of the AICE-T project partners with a research team working on the circular economy in these cities – in particular through joint involvement in previous EU research projects with some of the AICE-T partners:

- Bologna (Contact: Christian Iaone, Law and political science professor, faculty co-director of the LABoratory for the GOVernance of the City as a Commons at Luiss University (https://labgov.city/))

- Gothenburg (Contact: Merritt Polk, professor of Interdisciplinary Studies at the School of Global Studies, co-director of the "just cities" platform in the larger Gothenburg Metropolitan Region (https://gmv.gu.se/urbanfutures))

- Amsterdam (Contact: Sabine Niederer, professor at the University of Applied Sciences, Amsterdam, co-director of the "citizendatalab" project on participatory data gathering on local and urban sustainability issues)

- Vienna (Contact: Sigrid Stagl, professor in ecological economics, director of the Competence Centre for Sustainability Transformation and Responsibility)

- Paris (Contact: Armelle Mazé, Senior Researcher in Economics at INRAE-Université Paris-Saclay, regional animator of TETRAE projects on territorial transition processes)

Task 1.1. Literature Review. This task will conduct a **literature review on the social-environmental dimensions of circular economy initiatives**, starting from the extensive review produced by Mies and Gold (2021) and completing it with more specific analyses of social-environmental dimensions of circular economy initiatives related to the core project variables (work conditions, employment conditions, and environmental inequalities)

Task 1.2. Test run of the questionnaire on environmental justice practices on the core variables (cf. methodology section above) in five pilot cities. This task will **first constitute a database of circular economy initiatives** in the five pilot cities, based on case study lists in on line repositories such as on the web portal of the Mc Arthur Foundation and the Circular Cities KnowledgeHub (+ information from existing field work from the academic contacts listed above). Through a stratified random sampling procedure 10 cases will be selected in each of the five cities within the 3 interrelated project sub-sectors (agriculture/building/waste). For each of the cities, prior literature research will synthesize the data from the EUROFOUND surveys on working conditions and from the regional urban authorities.

In a second step, Task 1.2. will **conduct the survey based on a semi-structured questionnaire (containing both closed questions and open ended questions) on the environmental justice practices of the circular economy initiatives, with a particular focus on work conditions, employment conditions and environmental inequalities** (inlcluding control variables, such as city level incentives and policies). The 50 interviews will be conducted through Microsoft Teams with the main project manager of the initiatives in English, digitally recorded and transcribed for further coding.

Task 1.3. Closed-ended questionnaire on environmental justice practices in Brussels-Capital Region. **This task will first select a set of initiatives based on a two-step selection purposive**

sampling process. In a first step, within the set of projects that have been supported by the "Be-Circular" program in their yearly call for funding over the last 5 years (2018 to 2022) and the clusters of organisations in the building sector (200 members organisations) and circular production (90 members organisations) task 3.1 will **identify the initiatives that (1) fall within the 3 interrelated sub-fields of the circular economy of the projec**t (agriculture, waste and building) and (2) **promote a strong sustainability approach to the circular economy**, integrating new consumption practices beyond recycling only (such as through reuse, remanufacturing, refurbishment, repair, cascading and upgrading).

In a second, we will interview the coordinators and main stakeholders involved in the Be-Circular program to **identify potential gaps** in the initial selection and add other projects from within the Brussels Region, with the view reach a representative set of initiatives that cover the major types of societal actors of the circular economy, including for-profit medium size and large companies, social enterprises and informal civic grassroots initiatives.

Overall, we aim at **60 initiatives to be selected**, with the view to allow for sufficient in depth analysis of each case and sufficient scope for comparative analysis. The leaders of the 60 initiatives will be invited to the take-off workshop (cf. WP4 below), where the project set-up will be discussed and joint planning established.

This task will then conduct the **survey based on** an improved version of the **closed-ended questions** of the pilot questionnaire tested under Task 1.2. The survey will be translated to the main used local languages (French, Dutch, and English) and administered online with the main project managers of the selected initiatives who agreed to participate based on a prior contact at the take-off workshop.

The expected outcome of WP1 is a better understanding of the different practices deployed by circular economy organisations to address social-environmental issues. In particular the WP1 aims at developing a typology of practices specifically developed for environmental justice (thereby adapting the typology developed in scholarly literature based on the EUROFOUND data, but which does not take into account environmental justice), through a cluster analysis of the survey results in the Brussels-Region.

WP2. Qualitative analysis of capacity building for addressing environmental justice issues in circular economy organisations.

WP2 will organise the qualitative analysis through **the three qualitative transdisciplinary research methodologies (cf. methodology section above)**. To this purpose the sample of 60 initiatives will be separated into three groups of around 20 initiatives each, corresponding respectively to the three sub-fields of (1) waste management, (2) urban and peri-urban agriculture and forestry and (3) materials and resource use in the building sector.

Task 2.1. Participatory mapping. The participatory mapping will be conducted for the three groups of our sample (for each group: with the leaders of the 20 initiatives + 40 local stakeholders). The local stakeholders will be identified through prior desktop research and the stakeholder identification tools used at the initial project take-off workshop (cf. description in Task 4.1 below). The stakeholders and leaders of the initiatives will be involved through a so-called **Public Participatory Geographic Information System** (PPGIS) approach (Haklay et al., 2017). PPGIS is a participatory mapping approach that not only produces more fine-grained social and spatial understanding (Jung et al. 2019), but also allows for **local communities to provide experiential input on environmental justice impacts through collective mapping workshops using simplified base maps on cloud-based mapping software** (e.g. OpenStreetMaps) which can easily be edited. The direct output of Task 2.1. is a report containing the results of the participatory mapping, with a detailed summary of the experiential viewpoint on the depicted environmental justice relationships from the point of view of the members of vulnerable population groups. This report will be used as an input to the discussions in the workshops under Task 2.2 and Task 2.3.

Task 2.2. Deliberative workshops on ethical dilemmas in organisational settings. Task 2.2 will use the results of Task 2.1 and Task 1.3 as inputs to three EDICO workshops (1 workshop for each sub-sector, with the leaders of the 20 initiatives, who participated to Tasks 2.1). The goal of the use of the EDICO method in Task 2.2. is to: 1. **discovering the importance of the ethical dilemmas** to be addressed when implementing circular economy initiatives and policies from an environmental justice perspective; 2**. identifying the societal values in conflict and, through them, the role of these societal**

values in the framing of environmental justice outcomes; 3. **identifying and applying possible facilitation mechanisms for fostering further social learning amongst the participants on the ethical dilemmas** (de Nanteuil, 2020). To this purpose the EDICO workshops in the project will be embedded in a sequential empirical research design: (1) prior mapping of the values used by the participants to asses the selected ethical dilemmas for the EDICO workshop (through an adaptation of the structured guide developed in Gurr and Forester, 2023); (2) EDICO workshop; (3) production of a summary of the workshop discussions by 2 researchers in the roles of observers and validation by the workshop participants.

Task 2.3. Co-construction of shared narratives. Through the method of "collective narrative practices", Task 2.3. produces different narrative syntheses of desirable and feasible sustainability transitions at the regional level by using the pluralistic value framing of Task 2.2. and the identification of situations of environmental injustice in WP1 and Task 2.1. To collect the narrative materials in the AICE-T project, **Task 2.3. will use a narrative practices protocol inspired by White and Epston (1990), operationalised through scaffolding questions as a facilitation method to collect narratives at individual (step 1) and collective level (step2).** The scaffolding questions will be based, amongst others, on identified ideal types of sustainability transformations identified in the literature (Luederitz et al., 2017), which might be adjusted and re-assembled for the specific situations of the Brussels Region. **In a first step**, the narrative approach provides individual workshop participants with opportunities to reflect on their shared experiences, struggles and hopes and formulate their own **narrative synthesis of desirable and feasible futures**. **In a second step**, participants will be invited to **co-construct shared narratives** through discussing the narratives **within different possible constellations of actors** (cf. Schäfer and Kröger, 2016) from the circular economy ecosystem in Brussels (horizontal peer group constellations, traditional vertical government-stakeholder/industry constellations and hybrid multilateral sector-based constellations, see for example Arsova et al., 2021). Based on this methodology, Task 2.3. will organize 3 sector specific workshops (for each sub-sector, with the 20 leaders and 40 stakeholders identified under Task 2.1) and 1 cross-sector workshop (with the 60 leaders of the sample of initiatives). For each workshop, Task 2.3 will produce a double research output – in the form of workshop summary reports by two researchers in the roles of observers, validated by the

workshop participants: (1) a report on the narrative syntheses produced by the different participants; (2) a report on the shared narratives that emerged amongst different actor constellations.

Task 2.4. Assessing the capacity building. Task 2.4. consists in assessing the capacity building that occurred through the three qualitative research methodologies. To this purpose task 2.4. will **organize an ex-ante and ex-post survey** (Osinski, 2021) with the participants (leaders, stakeholders, impacted social groups) from the sample of circular economy initiatives in the Brussels-Capital Region. **The ex-ante survey** will be **administered to the participants of the participatory mapping workshops** – in the three sub-fields of the project – and address the prior level of integration of the core environmental justice dimensions of the project in the practices of the circular economy organisations, along with a series of questions on relevant control variables (mainly related to the governance models of the organisations (cf. Lambert et al., 2019), the types/degrees of external support for social learning (cf. Kolbjørnsrud, 2017) and the contextual conditions that impact on successful participation (Lux et al., 2019)). **The ex-post survey** will be **administered at the end of the sectoral "collective narrative practices" workshops**, i.e. after the three social interventions based on the transdisciplinary research activities. **The capacities that will be assessed include new organisational capacities** (action plans in the organisation to implement social sustainability dimensions), **individual capacities** (improved understanding of the environmental justice dimensions) **and relational capacities** (improved identification of possible coalitions/collaborations with other initiatives within shared narratives of desirable and feasible futures).

WP3 Policy support for enabling social learning in circular economy organisations on environmental justice

WP3 aims at analysing different models of policy support to social learning on environmental justice issues in circular economy organisations, through an "**institutional fit analysis**" (Young, 2002; Young et al., 2008, cf. **details in the methodology section above**). The institutional fit analysis will more specifically **addresses the most appropriate policy tools for supporting the specific capacity building needs for social learning, in relation to the environmental justice issues identified in WP1 and WP2**.

Task 3.1 will first conduct a **literature review on policies for enabling social learning** in regional multi-stakeholder governance models of circular economy transitions (cf. for example van Herwijnen et al., 2022 and details on the different levels of social learning models in the methodology section above).

Task 3.2 will then **conduct a series of interviews for conducting the institutional fit analysis in the 5 pilot cities of WP1 and in the Brussels-Capital Region** with 5 key informants in each city (2 policy officials in charge of circular economy policies and 3 key stakeholders involved in public consultation and evaluation of theses policies) to (a) refine the typology from the literature and (b) to identify gaps in each of these models in addressing environmental justice dimensions.

Task 3.3. will summarize the findings from the literature review and the interviews and identify promising hybrid governance models that can address some of the gaps and formulate questions for future research.

WP4. Knowledge exchange, outreach and research synthesis

Task 4.1. Knowledge exchange and outreach workshops. WP4 will organize an initial take-off workshop, a mid-term workshop and a final conference. First, the project team will organize a **take-off workshop with societal actors**, **to map the key stakeholders in the three sub-fields of study (agriculture, building and waste), to clarify the stakeholder expectations and plan for the involvement of stakeholders in the transdisciplinary knowledge co-production activities in the project** (Matt et al., 2023). This workshop will be based on two specific tools developed by the transdisciplinary research lab (TdLab) at the ETH Zürich, the "Functional-dynamic stakeholder involvement" tool (Krütli et al., 2010) and the actor constellation tool (Pohl, 2014). The functional-dynamic tool allows to specify what stakeholders are to be involved in a transdisciplinary research project and why, when, regarding what aspects and how. Second, the team will organize a **mid-term workshop** with societal actors and international scholars (in particular from the pilot cities of the benchmark study). In the last year of the project, the team will organize a **final conference** with societal actors and international scholars (in particular from the pilot cities of the benchmark study)

Task 4.2. Research synthesis. Task 4.2 will summarize the findings of the various tasks of the project and **produce a synthesis** of the role of existing practices, capacity building for change and institutional support for social learning on addressing environmental justice issues in circular economy organisations. In addition, task 4.2 will **compare the findings to similar findings reported in the literature, discuss the transferability of the results to other city contexts** – in particular through contrasting the findings with the research conducted in the teams of the academic contacts in the 5 pilot cities listed above, and formulate questions for follow-up research.

2.4   List of deliverables

1. **Intermediary (M24) and final (M48) report** on the two core research questions (cf. section 1.1)

- Q1: **what are the existing practices used by circular economy initiatives to address the social-environmental issues raised in the context of its activities?** (main contributing tasks to Q1: 1.1, 1.2, 1.3, 2.1, 3.2, 4.1 and 4.2)

- Q2: **how to create capacities of engagement of actors in the circular economy initiatives to contribute to improved environmental justice outcomes, in particular through social learning on value conflicts and the formation of shared narratives of change?** (main contributing tasks to Q1: 1.3, 2.1, 2.2, 2.3, 3.1, 3.3, 2.4, 4.1 and 4.2)

2. Finalized doctoral theses: 3 PhDs form the project researchers (cf. profile description below)

- PhD1: PhD research on assessment and participatory mapping of environmental justice outcomes of circular economy practices: a critical assessment of regional circular economy policies

- PhD2: PhD research on social learning on ethical dilemmas related to environmental justice practices in organisational settings

- PhD3: PhD research on collective narrative practices in strengthening mission oriented social entrepreneurship in the circular economy

3. Journal publications

- Review journal article on indicators of social dimensions of circular economy in a just transition perspective

- Journal article on knowledge integration from vulnerable population groups on just transition of the circular economy

- Journal article on application of deliberative workshops on ethical dilemmas related to environmental justice practices in organisational settings

- Journal article on the role of collective narrative practices in strengthening mission oriented social entrepreneurship in the circular economy

- Journal article on policy support for social learning and capacity building on environmental justice in circular economy organisations

- Journal article on addressing environmental justice issues in urban circular economy transitions: the contribution of capacity building for actors' engagement and policy support for social learning

- Final co-authored monograph on the project results

4. Project outreach and knowledge exchange: cf. 2 project outreach workshops and final conference detailed in WP4 above

2.5   Roles and qualifications of the consortium partners

The envisioned research project will build upon a **successful record of collaboration among the group members**, including joint research projects (Dedeurwaerdere and Coolsaet, Hermesse and Hermans, Coolsaet and de Nanteuil) and joint publications (Coolsaet and de Nanteuil, Coolsaet and Dedeurwaerdere, Hermesse and Dedeurwaerdere).

We collectively cover a full range of relevant expertise, whilst also all having **considerable experience in interdisciplinary and transdisciplinary teamwork**: environmental justice scholarship within political and social sciences (Brendan Coolsaet), management, organisational theory, and entrepreneurship (Julie Hermans), environmental anthropology and ecological transitions (Julie

Hermesse), economic sociology and ethical frameworks (Matthieu de Nanteuil), and governance theory and transdisciplinary research (Tom Dedeurwaerdere).

The various empirical research methodologies of the project have been successfully applied by the different consortium members – although not yet systematically in relation to environmental justice transitions (cf. Solbreux et al. 2023; de Nanteuil and Zune, 2021; Stassart et al., 2021 ; Dedeurwaerdere et al. 2016a, 2016b).

The project consortium strives for a **balanced gender representation** in the work package leadership and in the recruitment of the project researchers and involves **both early career and senior researchers amongst the 5 promoters of the project consortium** (cf. CVs of the promoters in the Annex).

2.6 International collaborations and research environment

International collaborations

The members of the AICE-T consortium develop their research activities within international research networks. Through these collaborations, research results of the AICE-T consortium will be confronted to similar transdisciplinary research efforts in environmental justice research at the international level and opportunities created for the project PhD and post-doc researchers to present their research in an international environment.

Selected international collaborations that are relevant to the project include the following:

(1) **Brendan Coolsaet** works within an international network of leading environmental justice scholars in both Europe and the USA. He is the co-founder and current chair of the JUSTES research group in Belgium on social and ecological justice and an organising committee member of the French Environmental Justice network. Recent projects include the edition of the leading textbook in the field at Routledge (Coolsaet, 2020), Co-Investigator on the Just-Scapes project addressing the justice challenges posed by the transformation of rural landscapes in Europe (PI Adrian Martin, University of East Anglia) and Principal Investigator of the Just Conservation project conducting a large-n meta-analysis (n=1000) on how concerns for justice are approached by different actors of biodiversity conservation and involving partners from 10 different research institutes;

(2) **Tom Dedeurwaerdere** actively collaborates within international research networks in the field of transdisciplinary sustainability research, such as the ITD Alliance (Global Alliance for Inter- and Transdisciplinarity), the Sustainability Transitions Research Network (STRN) and research units involved in partnership research from INRAE-France. Recent activities include joint preparation of the Nov. 2023 UCLouvain conference on research for sustainability, with prof. Bianca Vienni Baptista, ETH Zürich, Switzerland, and analysis of transdisciplinary research with the INRAE-TETRAE programme, 24-27 Oct 2023 (with Danielle Galliano, Directrice de recherche en économie, INRAE Toulouse, France);

(3) **Matthieu de Nanteuil** has a long standing collaboration for field work with the Group of Investigation in Contemporary Political Theories (TEOPOCO, National University of Colombia), with an important focus on theories of justice. He is also a co-founder and of the JUSTES research group in Belgium on social and ecological justice;

(4) **Julie Hermans** collaborates with Vincent Angel of the University of Bordeaux (Faculty of Psychology) on the role of self-regulation and framing in managing tensions within social enterprises as well as Miruna Radu-Lefebvre (Audencia Business School, Nantes) on the role of material artefacts for sustainable entrepreneurship ;

(5) **Julie Hermesse** has been visiting research fellow in different universities in Latin America and Asia (Guatemala, Mexico Philippines) and has been postdoc at Oxford University (UK, with Thomas Thornton) and at CIESA (Mexico, with Virginia García Acosta). She currently leads four international research projects (INUT, PDR-FNRS with Christine Schaut; 2 European RESSAC project with Jean Nike) and collaborates on two other (ARES-PRD in Burundi with Christine Schaut and in Bolivia with Hervé Vanderschuren) dealing with socio-environmental transitions.

2.7 Organisation and management

Organisation of research

To conduct the research we plan to hire 3 PhD students. We both allocate generic research tasks in common to all PhD researchers – to foster interaction – and specific research tasks individually to the PhD fellows – to constitute research agendas that are coherent (cf. Gant Chart in Figure 3 above):

- PhD1 (profile: interdisciplinary social science researcher, with competences in social geography and environmental governance); co-promoters Brendan Coolsaet and Tom Dedeurwaerdere; accompanying committee Julie Hermesse, Matthieu de Nanteuil: Tasks 1.2, 1.3 (lead), 2.1, 3.1 (lead), 3.2, 3.3, 4.2.

- PhD2 (profile: researcher in organization studies, with competences in environmental studies); co-promoters Matthieu de Nanteuil and Tom Dedeurwaerdere; accompanying committee Julie Hermans and Brendan Coolsaet: Tasks T1.1, 1.2, 2.3 (lead), 2.4, 3.1, 3.3, 4.2.

- PhD3 (profile: researcher in social entrepreneurship, with competences in participatory governance); co-promoters Julie Hermans and Tom Dedeurwaerdere; accompanying committee Julie Hermesse and Matthieu de Nanteuil: Tasks 1.1, 1.2, 2.3 (lead), 2,4, 3.1, 3.3, 4.2.

For the planning, organisation and facilitation of the 10 research workshops under WP2 and the 2 knowledge exchange workshops under WP4 we plan to hire a professional facilitator (0,2 EFT cf below), who will received specific training and ensure continuity in the use of the different research methods.

The different research questions will be addressed in a highly interdisciplinary way, through organizing an implication of the different teams in all the tasks (cf. Figure 4).
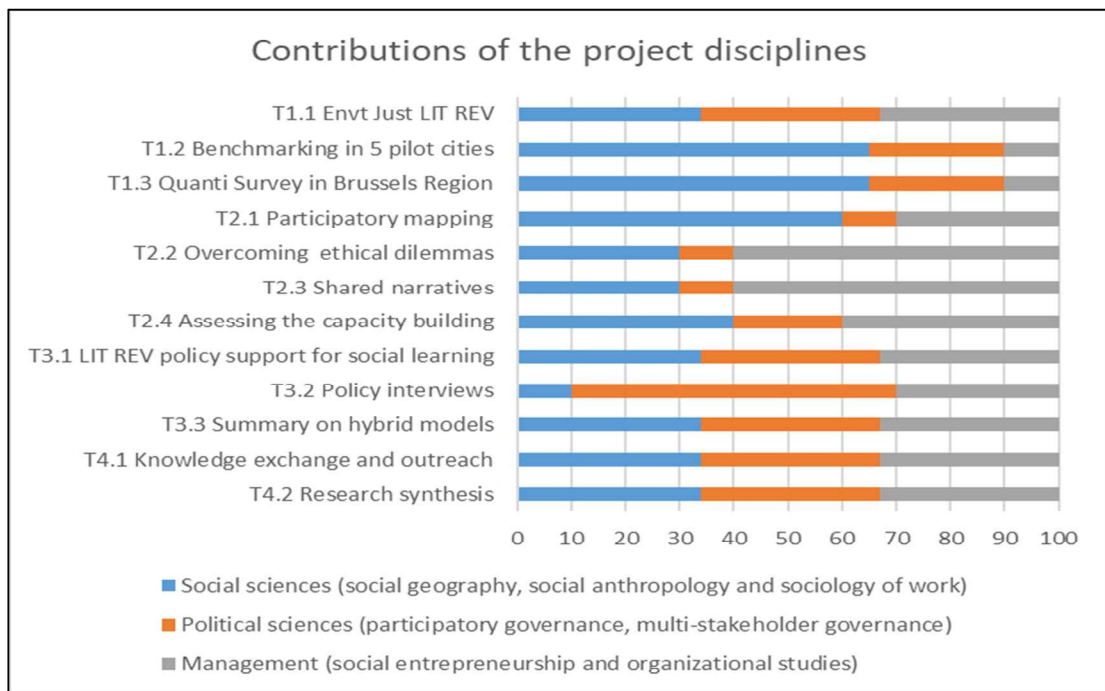

Figure 4. Interdisciplinary collaboration of the project partners with relevant expertise in the different WP tasks (the length of the blocks indicating the relative implication of disciplinary expertise in the interdisciplinary collaboration for each task)

The five project promoters will participate to all the tasks, however for some tasks they will have a more important task leader role, indicated in the last column of figure 3. Moreover, the whole team will be involved in the guidance of all the researchers. To promote cross-fertilization we plan the following activities:

- Informal team meetings (two per month): interactions amongst the researchers, guidance from the promoters

- Project seminars (5 per year): presentations of work in progress, fostering interdisciplinary insights

- Training workshops (2 or 3 per year): specific training to the project researchers (and possibly to promoters) on the project research methodologies and methods for analysing the results

- Open research seminar on transdisciplinary research for environmental justice: creation of a permanent methods' seminar on transdisciplinary sustainability research (8 per year), advertised through the LPTransition website

Dissemination and outreach activities

- Two outreach workshops (initial, mid-term) and final conference (cf. above WP4)

- Presentations to international conferences (2 per year for each project researcher and each PI, 1 in EU, 1 beyond EU)

- Presentations to the research seminars organized in the respective research Institutes and by the project promoters

- Blog posts on academic blogs (creation of a dedicated page on Hypotheses.org) and mailings lists (e.g. the mailing lists of "JUSTES" managed by one of the promoters Brendan Coolsaet)

Research ethics

In the implementation of the project tasks, the consortium members will comply with the general ethics standards and guidelines for research in social sciences and humanities (see for instance NESH, 2022), such as obtaining written consent of participants in surveys and interviews through a process that is voluntary, informed and documented; and clarifying mutual responsibility to adhere to research ethics when interacting with user communities and stakeholders.