Just transition: An operational framework to make transitions more just

Lessons learned from science and practice

Coninx Ingrid (eds.), De Rooij Bertram (eds.) Casu Flavia, Dijkshoorn-Dekker Marijke, Eunice Likoko, Eweg Annemiek, Harding Tossa, Koopmanschap Esther, Mekonnen Daniel, Reemer Thies, Termeer Emma, Van Alphen Monica, Van Assendelft, Yael, Van Ree Marlies, Zeinstra Thamar

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Rechtvaardige transitie is een veel gebruikt principe. Maar wat bedoelen mensen ermee? En hoe realiseer je een transitie die als rechtvaardig beschouwd wordt? Op basis van wetenschappelijke bevindingen, analyse van praktijkervaringen en dialogen tussen beleidsmakers, wetenschappers en praktijk mensen is er in dit rapport een operationeel kader ontwikkeld dat ervoor zorgt dat rechtvaardigheid beter ingebed wordt in de transitie processen. Om dit kader te maken, is gebruik gemaakt van de context van voedselsysteemtransformatie en klimaatadaptatie/mitigatie. Het operationeel kader bestaat uit vier stappen die elk een aantal vragen omvatten. Deze vragen maken mensen in transitie processen meer bewust van de mogelijkheden om de transitie meer rechtvaardig te laten verlopen. De vragen stimuleren een diepgaande zoektocht en kunnen in sommige processen zelfs een gesprek tot stand brengen over hoe mensen rechtvaardigheid concreet willen vorm geven. Het rapport eindigt met een kennisagenda die een overzicht geeft van de huidige kennisvragen waar nog onduidelijkheid over is. Een aantal van die vragen zouden verder verkend kunnen worden om zo het operationele kader weer verder aan te vullen.

Just transition is currently a leading principle in discussions about transitions. But what does that mean? How do we make sure that transitions are just? We have developed an operational framework to help people in the transition process to put justice in practice, based on a review of the literature, analysis of just transition practices and dialogues between policymakers, scientists and practitioners. We have scoped our work in the context of food systems transformation and climate change. The operational framework consists out of four steps and several questions that help to raise awareness on the potential to make transitions more just. It can even be used to initiate a dialogue among people in transition process on how they jointly would put justice into the transition practices. The report concludes with a knowledge agenda that summarises pending research questions that would be useful to further complete the operational framework.

Keywords: justice, transition, food system, climate adaptation, operational framework

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Summary

Transitions are taking place to deal with the challenges of our times, like food insecurity and climate change. These transitions may go hand in hand with injustice. Transitions can emerge from experienced injustice. They may aggravate existing injustices, or they cause new injustices. Therefore, there is a strong call by policymakers to make sure that transitions are taking place in a more just way. Just transition is a global issue that has a strong local and contextual meaning when one tries to put it into practice. This project has aimed to develop an operational framework that can help policymakers, scientists and practitioners and others to find ways to make transitions more just.

The operational framework is developed based on evidence from science and from practice. Given the existing gap between what is known in science and what is known in practice, we also organised Just Transitions dialogues to bring knowledge together and to create a shared understanding around pending topics. To scope the evidence collection, we have focussed on the societal challenges of food insecurity and climate change.

To develop the operational framework, several questions must be answered. We started with exploring the different meanings of justice. Four types of justices had been identified:
- Recognitional justice: Whose values and culture are recognised, considered and represented?
- Distributional justice: How are (societal) costs and benefits shared?
- Procedural justice: Is every voice heard, and does every voice have participate?
- Restorative justice: How do we compensate for the damage done?

Intergenerational justice was considered as a type of justice that interacts with all other kinds of justice, as it refers to future generations that must bear the consequences of (in)action. It was strongly recommended to make explicit what meaning is attached to the justice aspect during transition processes, as varying interventions would be needed to put justice into practice. Then, we explored what kind of injustice may happen at the start or during transitions. This was analysed by evidence collection on injustice in climate adaptation. The findings were that most of these injustices are related to not considering the underlying mechanisms that cause injustice and not considering specific socio-economic characteristics of social groups. Furthermore, the injustices may also be the result of certain assessment methods or engagement approaches. And the ignorance of power dynamics or worldviews. And it may be the result of not considering different scales of time and space.

Then, the operational framework is built, also, with the help of the joint understanding that had been created during the Just Transition Dialogues. The operational framework should be useful for different type of people involved in the transition process. It must be flexible to very different contexts and transition processes. Therefore, the operational framework consists out of a visual with questions that helps to raise awareness about the potential ways to increase the justice in transition processes. These questions can initiate a conversation between different people in transitions processes about how to increase justice. Or they can be used by some groups to illustrate the potential ways to make the transitions processes more just. Raising awareness about potential ways to increase justice is the key objective of the operational framework in the first place. This will require also the skill among people to listen to each other in order to know how each of the people perceive justice.

The key questions in the operational framework are based on the elements that matter that were identified during review of scientific literature, analysis of empirical practices and the dialogues about just transitions. They are supported with examples and evidence from practices.

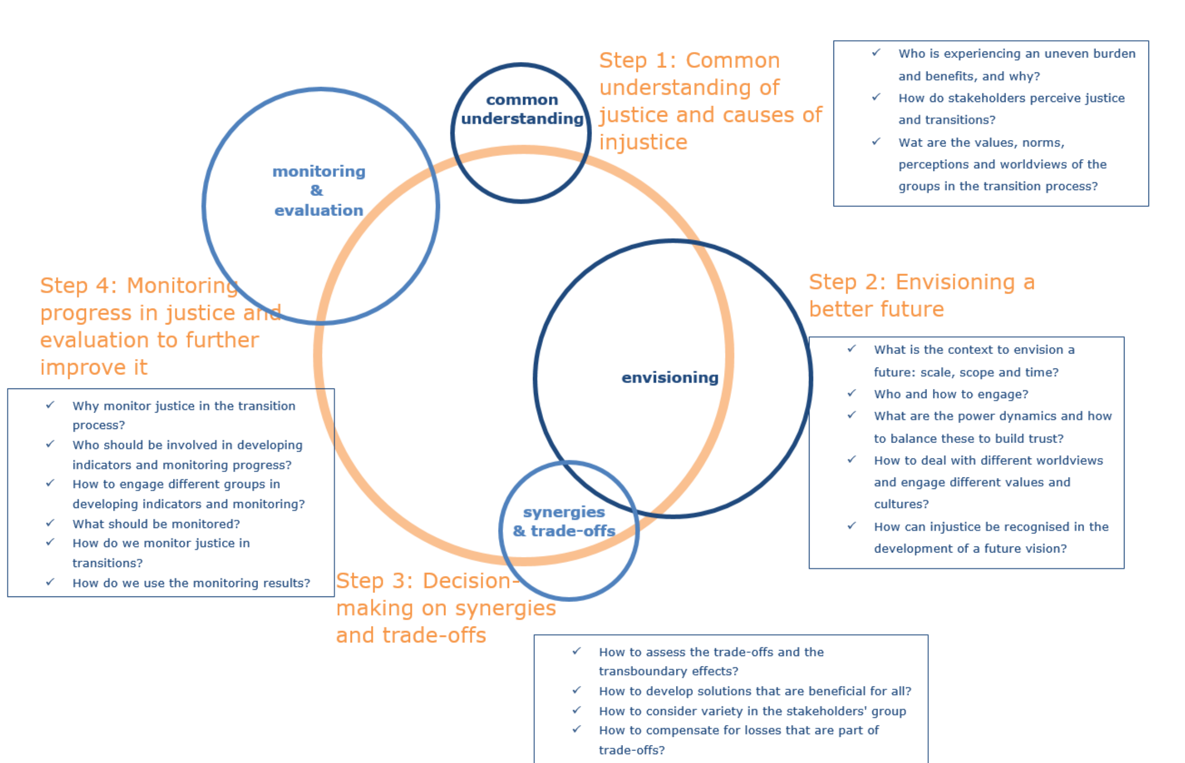


Figure 1 *Operational framework to put justice into transition practices*

To conclude the report, a set of pending knowledge questions are listed that emerged from our work. They can be the basis for further elaboration of the operational framework and for further research.

The main recommendations are to test and enrich the operational framework, as the set of questions are not yet tested into real-life transition processes. There is need to know if additional questions must be added and if all relevant elements are indeed covered. Based on these testing results, the operational framework can be further elaborated. It is also recommended to keep on learning and exchanging between policymakers, scientists and practitioners given the existing knowledge between evidence in science and evidence from practice. Dialogues have helped to harvest the richness of different disciplinary perspectives and to build a joint understanding about the operationalisation of justice in transition practices. And it was recommended that science should focus more on analysing just transitions practices to support a better understanding. Finally, it was concluded during the Just Transitions dialogues that just transition is not merely an approach or method. It is a mindset and a skill that should be acquired by everyone in the transition process.

This background document will go hand in hand with a set of visualised products that can be used in transition processes (Dijkshoorn-Dekker et al. 2022a; Dijkshoorn-Dekker et al. 2022b).

1 Introduction

'There is an increasing realisation that transitions are not only good but can also have a dark side, like dismantled sectors, invisible illegal and harmful practices due to 'sustainable' products, such as mining rare metals under bad circumstances for renewable energy technologies, rebound effects...These benefits, burdens and risks should be distributed fairly. Just transition is about foreseeing potential negative effects, and realising that by upscaling something that is good, it can become a new problem. Just transition is this awareness.'
Prof. L. Klerkx, Wageningen University & Research

We currently live in challenging times. The world is getting warmer, disasters are occurring more frequently, living costs are increasing, and many people are facing problems accessing affordable and healthy food. Many scientists argue that fundamental changes need to occur in the way we organise our society in order to avoid catastrophe and to move towards a sustainable future. Fundamentally changing from one state to a new situation is called a transition. These transitions can be the result of trends and shocks, the result of an orchestrated push by policymakers or a call by civil society.

When situations change, (groups of) people may experience changes in their way of living. People may lose benefits and their well-being may get affected. Some people are unable to catch up with the speed of change, and their situation will worsen. Sometimes, people are the ones who want to change the current situation because they suffer and are harmed. All these situations are often referred to as 'not fair' or 'unjust'. Examples are the effect of net zero transition on people in Colombia working in the fossil fuel industry, who risk losing their jobs (Wilde-Ramsing et al. 2021; CIPAME, 2022), or the landless people in India that cannot benefit from compensation schemes for solar parks (Kelkar et al. 2022). Or the impact of greening cities on the low-income households in Vienna that would be at risk to be pushed out their houses if the government would not have taken action to overcome green gentrification (Cucca, 2019). Just transition is a global issue that has a strong local and contextual meaning when one tries to put it into practice. Therefore, the results of this research project are of relevance for people from every corner of the world, who are looking for justice in transitions.

Justice, or just transition, is about leaving no one behind. Policymakers and civil society organisations are currently calling on to put this principle of justice into practice, from the international to local levels. The principle appears in the preamble of the Paris Agreement and policy documents from several UN bodies, the European Union (EC, 2019; EC, 2021) and the World Bank (World Bank, 2023). The ambition is to deal with the challenges of our times in a way that pending injustices are addressed, and new injustices are prevented. It is often about making sure that no one is hurt or will be worse off. In addition, it is about improving everyone's quality of life while changing the way our societies are organised and our systems work. Justice can also be viewed as a moral imperative. It is about the way we want to change. However, justice is related to underlying power relationships and putting justice into practice may result in protest from groups that are currently privileged. This makes that just transition is politically sensitive too.

Because there are many ways to interpret and define justice, it is a complex task to put justice into the transition practices. Furthermore, justice is referred to in so many other terms such as inclusivity, equity, fairness etc. The Covenant of Mayors indicated that one out in six member cities would like to have more support to unpack the concept of justice in practice (Just Transitions dialogue 12/10/22). Local authorities find the topic elusive and too general to really embrace it. In other words, putting the justice principle into practice requires more operational guidance and, preferably, more tools and methods. Often, transition approaches, tools and methods require some form of adjustment or redirection in order to make sure the processes become more just. But for some situations, new approaches, tools and methods are not available at present and will have to be further developed.

What is the current situation regarding putting justice into transition practices? The Just Transition Initiative (Cahill et al., 2020) mentioned that 'a significant portion of the just transitions literature and discourse is theoretical or descriptive in nature - setting out principles and aspirations for just transition but not providing a roadmap for implementation' (CSIS/CIF, 2020). In addition, Newell et al. (2021) also concluded that there is a considerable and diverse amount of literature on procedural, distributional and intergenerational dimensions of justice, yet its meaning, scope and practical implications are still contested (Newell et al., 2021). Moore (2020) also concluded that a just transition approach is increasingly recognised but still not fully understood in practice, as she mentions, 'there is no template for applying just transition' (Moore, 2020).To increase public understanding and facilitate communication and debate, there is a need for a more common understanding of the elements of just transition (McCauley and Heffron, 2018) Furthermore, there is a lack of research that focuses on the applicability of proposed frameworks in real situations and handling just transition in real-life settings. The focus is often on what to include in the process or what is required, rather than on a framework that is useful to implementers of just transitions (Wang and Lo, 2020).

Therefore, the objective of the research report is to present an operational framework that people who participate in transition processes can use when they actively seek to identify and address justice. These users can be policymakers, practitioners, or companies, but also community groups, scientists or citizens. These people are considered as the target group of this report. This operational framework consists out of a visual with questions that helps to raise awareness about justice dimensions in the different phases of a transition process. If these questions are answered by the people in the transition process, they can better clarify how their transition processes could become more just. Our ambition is also to make scientific and practical knowledge about just transition more accessible to potential users, to analyse just practices, to bring these understandings back to the scientific dialogue and to develop an easy-to-use framework for people in transition processes. Therefore, this background document will go hand in hand with a set of visualised products that can be used in transition processes (Dijkshoorn-Dekker et al. 2022a; Dijkshoorn-Dekker et al. 2022b).

To collect evidence and a better understanding of how to put just transition into practice, the research has focussed on two societal challenges: climate change and food insecurity.

Transitions for both challenges are experiencing injustices. For instance, Althor et al. (2016) have mapped inequality of countries in terms of their carbon consumption in relation to the impact of climate change and found eleven of the seventeen countries with low or moderate GHG emissions are vulnerable to climate change (Althor et al. 2016). And, in food systems transformation we hear the call for more justice, so-called 'food justice', which refers to equal access to affordable and healthy food. Just food interventions use processes that enable people to affect systemic change while dealing with power relations across relevant scales (Cadieux et al. 2015).

To develop the operational framework, the research questions have been as follows:

1. What does justice mean, and what types of transitions can take place? (Chapter 3)
2. What injustices may occur in transition processes? (Chapter 4)
3. What are, according to scientific literature and empirical practices, the key elements that matter when putting justice into transition practices? (Chapter 5)
4. What are pending knowledge questions that would require further research in order to further develop the operational framework? (Chapter 6)

The research report has used different sources to collect evidence to answer these research questions, such as a scientific literature review, interviews with key scientists in the field of just transitions and desk research about practical experiences with (in)justice in transitions. The research also uses insights and understandings that have been gained via dialogues with science, policy and practice about their experiences and knowledge about (in)just transitions. All this evidence has been comprised into an operational framework that can help people make transitions more just, that is summarised in chapter 5.

The following outline can be found in the report: the report starts with the methodological approach on how evidence, examples and insights were collected. Chapter 3 is the conceptual chapter and describes the different definitions of justice and how they relate to different types of transition. This chapter is mainly

based on the review of scientific literature and the concepts are applied by describing several empirical practices. Chapter 4 then summarises the collected evidence on the injustice dimensions that may happen in transition processes. This chapter is solely focussed on the context of climate adaptation, but it is sufficient to illustrate the challenges related to justice to overcome in transition processes. Chapter 5 introduces the operational framework. Each of the steps is based on evidence from science and empirical practices to illustrate the relevance of each of these steps and to inspire the users on how to put justice into practice. Chapter 6 describes the pending knowledge gaps that have been identified based on this work. Future research on these knowledge gaps will help to further elaborate the operational framework.

Transitions for climate change

Calls for climate justice abound globally along with the growing social and environmental injustices aggravated or driven by climate change. **Climate justice refers to fair distribution of the risks, costs and benefits associated with the protection of those communities most vulnerable to climate change** (Mary Robinson Foundation - Climate Justice, n.d.). At the moment, the term 'just resilience' is also used to refer to these effects (EC, 2021). Climate change as well as societal responses to climate change (mitigation and adaptation) have been shown to impact some countries and communities more negatively than others (Althor et al. 2016). Climate justice seeks to address the vulnerability to climate change, while building adaptive capacities including financial means and access to technological innovation, as well as addressing existing power imbalances which determine levels of influence in decision-making. The broader landscape within which climate justice is situated is rapidly changing, bringing new challenges to the understanding and practice of climate justice.

Food system transition

Food systems (FS) include: all elements and activities related to the production, processing, distribution, preparation and consumption of food; the market and institutional networks for their governance; and the nutritional, socio-economic and environmental outcomes of these activities (HLPE, 2017)**. Food system transition or transformation** refers to fundamental changes in the food system which improve access to healthy and safe diets and contribute to more sustainable production, distribution and consumption of food (IFAD, 2021). Injustice is often understood as income inequity, and little or nothing more. But injustice in food security is much more. It is about underlying social mechanisms, and here is where it is necessary to consider why such inequities persist in the food system, as well as to consider the interlinkages with current and historical processes (Clendenning et al., 2016). Because food systems are complex multi-dimensional spaces with limited possibilities for central steering and control, the main just transition priority is understanding drivers and inhibitors of food system transformations towards desired justice outcomes (Duncan et al., 2020). Not everyone has the same access to resources or can benefit equally from food system outcomes. Food system inequities play out differently depending on where people are in their lifecycle. And, this diversity for different social groups is often overlooked (Posthumus et al., 2021). It is necessary to consider who you are, your access to resources, decisions that you are able to make and how cultural norms affect the work you do, as well as your ability to benefit from interventions. Therefore, in food systems, it is also relevant to distinguish where actors are operating (e.g. suppliers, small-scale farmers, commercial producers, traders, retailers, regulators or consumers) and how much power they hold. Disaggregating food system outcomes by different social markers will identify who needs what kind of support and identify the winners and losers in the food system (Posthumus et al., 2021).

2 Methodological approach

To develop the operational framework, the following sources of information and evidence have been used. First, there is scientific evidence from the scientific literature. These are facts, figures and insights that are the result of conscious, sound scientific methodological approaches that have been published in scientific journals. Second, there is evidence from practical justice experiences from diverse European and global transition processes. Since the evidence from science and from practice is still very fragmented, interviews and dialogues have been used to support the emergence of joint understanding by bringing together different theoretical or analytical lenses to make sense, to reflect and to learn. This report summarises the joint understanding and insights from this analysis.

2.1 Evidence collection from scientific literature

To collect scientific evidence about justice in climate adaptation and justice in food systems transformation, we relied on the Scopus and Web of Science databases. The following search terms have been used, resulting in a long list of papers that were of interest.

Table 1 *Search terms used to collect scientific evidence*

	Scopus # of articles	Web of science # of articles
Article title, abstract keywords: ’just transition’ (in the title, abstract or keywords)	296	209
Article title: ‘just transition’	104	69
Article title: ‘just resilience’	4	6
Article title, abstract keywords: ‘ecological justice’	229	145
Article title, abstract keywords ‘ecological justice’ AND food system	2	4
Article title, abstract keywords ‘ecological justice’ AND ’climate adaptation’	0	2
Article title, abstract keywords: justice (title) AND climate adaptation (title, abs, key)	33	30
Title: equity AND title abs key: food systems	25	22
Title, abs key: equality AND Title Abs Key – Climate adaptation	8	7
Title, abs key: equality AND Title Abs Key – food systems	32	31
Title: inclusive, Title Abs Key – food systems	12	17
Title: inclusive, Title Abs Key – climate adaptation	12	3
All fields: ’just transition’, AND All fields- ’climate adaptation’	4	0
All fields: ’just transition’, AND All fields - ’food systems’	4	4
Title: ’inclusion’, AND All fields - ’food system transformation’	30	2
Title: ‘justice’, AND All title, abstract, key words - ’food system transformation’	9	11
All fields: ’inclusion’, AND All fields- ‘climate adaptation’	1	62
Title: ’just sustainability’	73	21
Title: ’inclusive sustainability’:	16	3
Title ‘climate justice’ All fields: ‘local adaptation processes’	5	6

These scientific articles have been screened in terms of duplicate counts. Due to the overwhelming number of articles, it was decided to focus on the most cited articles for analysis and review in order to gain a better understanding of the operational aspects of justice in transition processes. The research team has read each a different selection of articles and has developed a joint understanding via weekly review discussions. These science-based review discussions have laid the foundation for the operational framework.

2.2 Evidence from just transition practices

For this research, we have analysed just transition practices for two purposes. The first purpose was to gain a better understanding of what injustices may occur at start and during transitions. This was to have a better overview of these aspects that needs to be changed in order to have a more just transition. To collect this evidence, we made use of the scientific literature that had analysed injustices in climate change adaptation more specific. Results of this analysis are described in chapter 4.

The second purpose was to gain a better understanding of the key elements that matter when looking for more justice in transitions. These key elements must be the basis of the operational framework. Collection of this evidence took place as follows: each member of the Just Transitions team has mobilised their network to identify suitable just transition practices and additional practices were collected through snowball sampling. Criteria for suitability for this research were as follows:

- Injustice aspect with respect to specific social group
- Transition process taking place
- Initiatives or mechanisms in place to encourage more justice in the transition process

Because our team consisted of people from different research institutes and disciplines and all of us work in either climate change adaptation and/or food systems transformation at local, national, European and/or global level, we have been able to identify a wide range of practices related to just transitions:

- Birmingham Food System Strategy
- Energy transition and the mining industry in Colombia
- Glasgow City Region Adaptation Strategy and Action Plan
- India Solar Farms – Pavagada Solar Park
- Mosaic Governance Approach in Urbanplanen, Copenhagen
- Inclusion of Aboriginal and Torres Strait Islander communities in climate change adaptation in Australia
- Post Coal Rybnik 360 in Poland
- More justice in export credit agencies
- Dhaka Food Systems Bangladesh
- Mining Affected Communities United in Action (MACUA), South Africa
- Guidance for more justice in climate adaptation by DG Clima
- Just resilience indicators, developed by European Environment Agency
- Justice in local climate transitions in context of Covenant of Mayors
- Zimbabwe Cyclone Recovery Project
- Taita Rice Project, Kenya

The cases have been described by historical storytelling approach which means that case description explored the origin of the transition, the people involved, methods used to make injustice explicit, and mechanisms used to increase justice in the transition processes. These key elements or key questions were identified during literature review and during Just Transitions dialogues as key elements to consider during operationalisation. The historical storytelling approach also allowed us to compare and identify similarities between cases. These similarities have been useful to guide us to the key questions that should be asked into the operational framework (see chapter 5).

An easy-to-read ipdf has been composed with the main analysed cases.

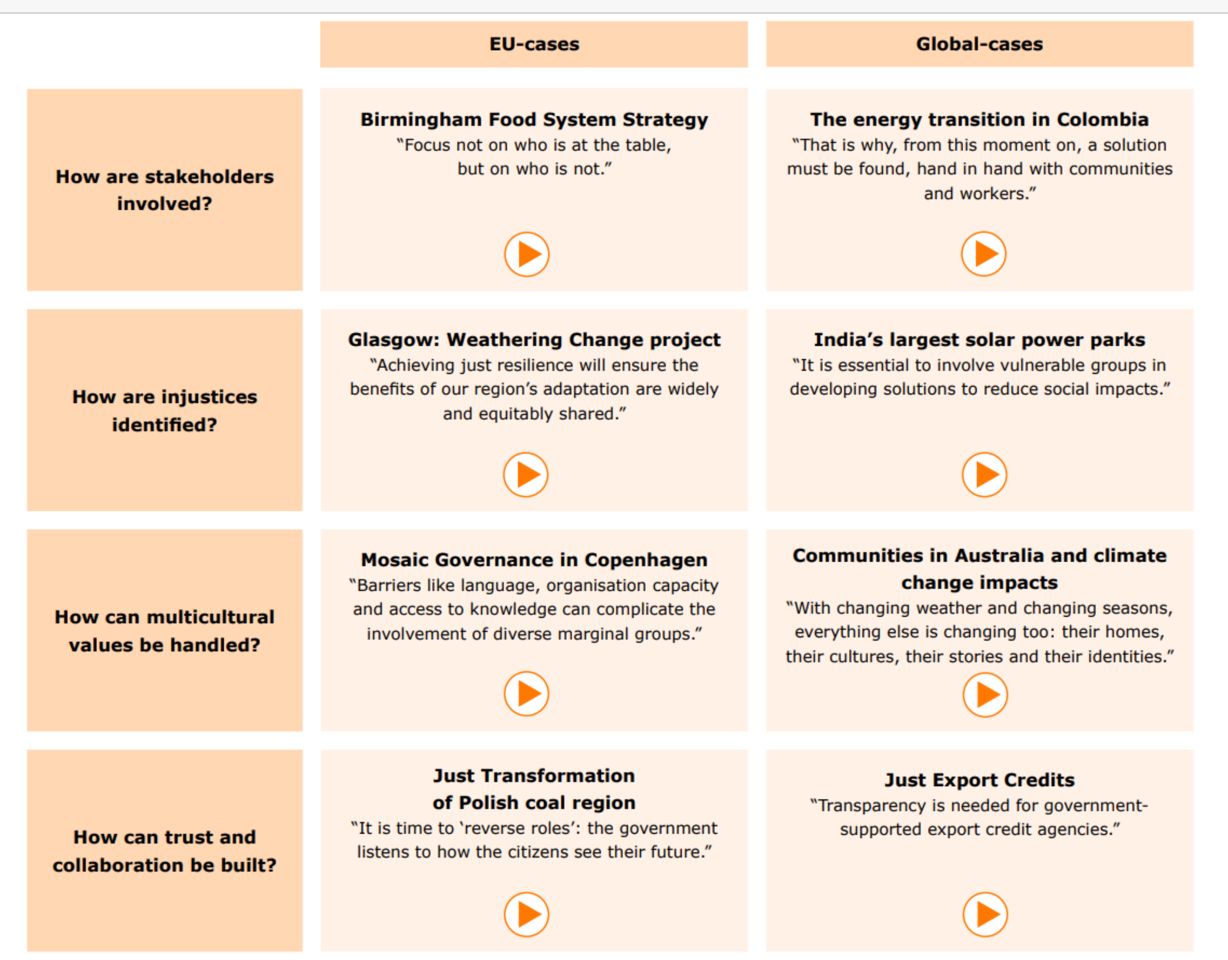


Figure 2 *Overview of cases as illustrated in the ipdf (Dijkshoorn-Dekker et al. 2022b)*

2.3 Evidence from experts' knowledge and practitioners' experiences

2.3.1 Interviews with scientists working on just transitions

At the beginning of the analysis, we interviewed four WUR experts from different disciplines about their understanding of how justice should be integrated into transitions. These WUR experts are as follows:

- Prof. Dr Ruerd Ruben, Food Security, Value Chains and Impact Assessment
- Associate Prof. Dr Arjen Buijs, Urban Green Governance
- Dr. Bart de Steenhuijsen Piters, Senior Researcher Food Systems
- Prof. Dr ir Laurens Klerkx, Professor Agrifood Innovations and Transition

2.3.2 Focus group approach in the WUR Just Transitions dialogues

In total, four dialogues have been organised by the WUR project team with scientists, policy makers and practitioners with experience, expertise and interests in just transitions. We have called this 'Just Transitions dialogues. Possible members of this 'Just transitions community' have been identified in the following ways:

1. Exploring researcher profiles at research@wur on terms like justice, gender and inclusivity
2. Snowball technique by asking key experts to identify other relevant experts within WUR
3. Snowball technique by inviting peers and contacts from the Just Transitions team members
4. Adding new people to the just transitions community who have registered to participate in the dialogue, after online advertisement of the event on website and social media

The following online dialogues were organised, that generally took two hours:

- December 2, 2021: How do we make justice happen in transitions?
- June 8, 2022: How do we manage the social impacts of transitions?
- October 12, 2022: How do we measure progress on justice in transitions?
- November 24, 2022: Unpacking the 'how' of just transition practice.

Each dialogue began with two inspiring presentations about just transition practices. During the dialogue, we discussed the different views on justice in transitions, exchanged experiences, compared justice practices and identified knowledge gaps. These insights are also integrated in this report.

2.3.3 International dialogue on just transition in climate adaptation and food system transformation

At the World Forum on Climate Justice from 21-23 September 2021 in Glasgow, Scotland, research team members organised a panel session on just transitions in practice, 'sharing experiences between food system transformation and climate change adaptation communities' with panellists from WUR, CCAFS-CGIAR and Sniffer with IIED. The research team members coordinated their participation in the other sessions and discussions at the forum to capture examples of injustices, case studies, approaches and viewpoints from different contexts and stakeholders from civil society, academia, government and companies. These dialogues encouraged South-North learning about justice approaches and experiences.

2.4 Conclusions

The methodological approach results in two main conclusions:

1. The methodological approach of the research project has shown that there is a large gap between the type of evidence that was found in scientific literature and evidence coming from real-life practices. While scientific literature mainly wrote about concepts and definitions and also some case study descriptions on injustice that emerged from societal challenges and transition processes, real-life practices provided a better understanding on the approaches and methods that are used to make transitions more just. There is a need to analyse in a more scientific way these practical experiences and to summarise this type of operational knowledge in a scientific and in a practical way.
2. The dialogues among scientists, policymakers and practitioners have demonstrated that many disciplinary lenses can be used to analyse and deal with justice in transition practices. This shows that just transitions are essentially a transdisciplinary topic.

3 Concept of justice: What does it mean?

3.1 An introduction to the concept of just transitions

This chapter describes the meaning of the concept of just transition, based on the collected and reviewed literature.

The scientific literature that is used for this chapter is coming from transitions in climate, energy, environment in the broader sense and food systems, because of our focus on climate change and food systems transformation. In this reviewed literature, we have observed the use of many different perspectives on justice in transitions, in line with the summary of Wang and Lo (2021):

- Just transition as a labour-oriented concept; scholars working with this theme focus primarily on labour-oriented justice within energy justice.
- Just transition as an integrated framework for justice; here, scholars' approach just transitions as an integrated framework of environmental justice, climate justice and energy justice.
- Just transition as a theory of sociotechnical transition; scholars adopt a more transformative understanding of just transition; the sociotechnical transition framework and theory seek to understand the process of technological change and to explain the origins, patterns and mechanisms that drive them.
- Just transition as a governance strategy; scholars taking this approach focus on how transition unfolds under different governing processes or regimes.
- Just transition as a public perception; scholars working with this theme explore social perceptions and attitudes of just transitions, for example, social tipping points.

These different perspectives reveal that the concept of just transitions is perceived and used in many ways. In the next sections, we will describe the different definitions that are commonly used in literature. We have done this by developing a bottom-up notion of justice through analysing the discourses around just transitions.

3.2 Definitions and concepts

Now, there is no scientific consensus on the definition of just transition. By reviewing scientific literature around just transitions to explore and clarify the different definitions and their inter-relationship, we view the review of Wang and Lo (2021) as an important entry point for this section. In addition to the overview of the concept of just transitions, Wang and Lo (2021) also determined limitations of existing research and developed a research agenda on just transitions.

The most used definition of just transition in climate transitions is *'a fair and equitable process of moving towards a post-carbon society'* (McCauley and Heffron, 2018). However, this definition is not sufficient to make justice operational in transition processes. The concepts of 'fair' and 'equitable' can be interpreted in different ways. Furthermore, justice is highly contextual, in that what it means depends on the timeframes, scale frames and the scope (Wang and Lo, 2021). For instance, justice with regard to past events means something different from justice with regard to future changes (Wang and Lo, 2021). Similarly, just transition takes on another meaning when applied on a global scale compared to on a local scale (McCauley and Heffron, 2018). Therefore, in this chapter, we go beyond the general definition of just transitions and will investigate different types of justice in order to enable operationalisation in transition processes.

The following types of justice are deduced from literature and are used as steppingstones for the operational framework:

- Recognitional justice: Whose values and culture are recognised, considered and represented?
- Distributional justice: How are (societal) costs and benefits shared?
- Procedural justice: Is every voice heard, and can every voice participate?
- Restorative justice: How do we compensate for the damage done?

Intergenerational justice is a type of justice that interacts with all other kinds of justice. This type of justice refers to future generations who bear the consequences of (in)action. Intergenerational justice is about recognising the existence of future generations, about considering future generations in the decision-making in the transition process.

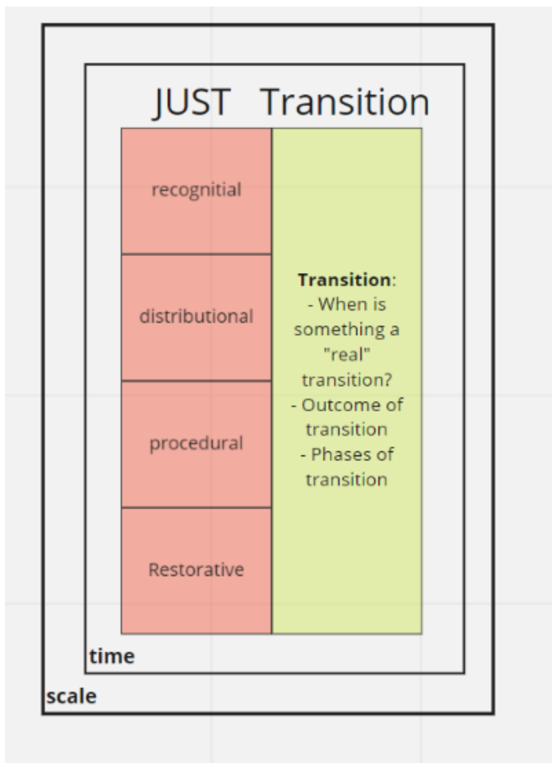


Figure 3 *Concepts of just transition*

3.2.1 Recognitional Justice

3.2.1.1 Definition

Recognitional justice or recognition justice is about **the recognition of groups, communities and individuals (across time and scale) who are affected directly and indirectly by the transition** (Schlosberg, 2004). Recognition not only implies awareness, but also respect for different cultures, values and the socio-political context of these groups (Schlosberg, 2004; Whyte, 2011).

The focus of recognition justice is often on marginalised groups, since they are the least represented (or recognised) in transitions. Marginalised populations 'are groups and communities that experience discrimination and exclusion (social, political and economic) due to unequal power relations across economic, political, social and cultural dimensions' (NCCDH, 2021). These are groups of people who are structurally underrepresented in decision-making processes, overlooked and possibly difficult to reach by policymakers (Bhopal and Deuchar, 2016).

3.2.1.2 The role of recognitional justice in transitions

Recognitional justice is the first step in a just transition and must be repeated throughout (Young, 1990). In transitions, it is important to recognise that specific ways of life are or will become lost. For example, climate change will change the living conditions of some people. This leads to climate grief or ecological grief. These physical changes can lead to feelings of sadness or even depression in people wo experience this loss due to climate change (Comtesse et al. 2021). Not recognising climate grief and its effects means that these ways of life are devalued (Schlosberg, 2004). As Schlosberg (2004) indicated, this is an issue of recognition, not simply equity.

Recognition in transitions is about deciding who to involve and who bears the costs and benefits of the transition. However, recognitional justice extends beyond these questions to examine and to recognise the structural reasons for social, cultural and political underrepresentation. Only through that can procedural and distributive justice be achieved (Young, 1990). Recognitional justice also paves the way for restorative justice, since groups that bear the negative consequences of transitions and the way they have done so need to be recognised first.

Recognition is a key aspect in a just transition for several reasons:

- A lack of recognition inflicts damage to both oppressed communities and the image of those communities in the larger cultural and political realms (Young, 1990). It constrains people and harms them (psychologically) (Honneth, 1996; Taylor, 1994). Honneth (1996) and Taylor (1994) argued that recognition is a psychological necessity linked to our own dignity and is therefore a vital human need. Recognition is studied extensively in the psychological domain and can be linked to our sense of identity (Thrift and Sugarman, 2019; Young, 1990).
- According to Fraser (1998), true recognition affects social relations and prevents institutionalised subordination. A lack of recognition keeps individuals from participating in society (Schlossberg, 2004). Participation will only be meaningful when the processes are sensitive to local cultures and empower the capacities needed to participate (Whyte, 2011).
- A lack of recognition sets the stage for distributive injustice. It is necessary to examine and recognise the social differences attached to privileged and oppressed groups in order to know how these imbalances affect inequitable distribution (Young, 1990). Therefore, the question needs to be asked: What are the social, cultural, symbolic and institutional conditions underlying imbalanced distributions of benefits and costs in the first place?
- **Time scale:** The recognition of the rights of future generations is a key ethical concern of climate justice. Future generations will be most affected by climate catastrophes but are often excluded from the relevant policymaking process. In this way, **intergenerational justice** is an inherent part of recognition justice. Intergenerational justice is mainly identified by the inherent intergenerational duty, expressed by preserving the environment for future generations (Lewis 2021).
- **Spatial scale:** Recognitional justice implies recognition of human rights and cultural differences across space (Martin et al., 2016). A transition process in one country may have human rights implications on the other side of the world, especially given the globalised supply chains. For example, the transition to renewable energy from solar panels in Europe has seen an unequal distribution of harm from mining heavy materials and vulnerability to toxic waste (Newell and Mulvaney, 2013). Recognition on a global level implies awareness of where all these effects occur and what the implication is on a local level.

3.2.1.3 Case to illustrate recognition justice: People’s transition in Ireland (section based on McCabe, 2021)

Agriculture is not only a significant contributor to greenhouse gas emissions in Ireland; it is also the sector most negatively affected by income inequality in the Irish economy. For many communities in Ireland, agriculture is the most important sector. There is a perception among farmers that action to prevent climate change harms Irish farming and would undermine farmers’ livelihoods. This line of thinking results in resistance to climate action from the very communities that stand to be most severely impacted by climate change. Therefore, there is a programme to support rural areas in Ireland a participative through a participatory model called People’s Transition. This approach recognises the contextual and specific circumstances of communities. These communities consist of smaller, poorer farms. The agricultural sector has the most severe inequality in income distribution. It also relies on more vulnerable unskilled workers employed by farm owners. The case also recognises that current legislation favours large business models, which should be avoided due to the detrimental impact on the well-being of communities in Ireland. Community strategies and local action plans are formed through localised dialogues. These dialogues are participative for fostering trust, gathering local knowledge and building capacity while identifying needs and priorities.

3.2.2 Distributional Justice

3.2.2.1 Definition

Distributive or distributional justice emerges as the most widely used justice type. **It focuses on the distribution of environmental goods, costs and benefits**. According to the World Health Organization (2012), distributive justice refers to the spatial distribution of environmental risks and amenities and the resulting disparities among socio-economic and racial groups (WHO, 2012). In distributive justice, an equitable distribution of benefits and costs is the most prominent element. McCauley and Heffron's (2018) just framework provide three questions needed to construct a distributive justice claim: 1) Who are the recipients of environmental justice? 2) What is to be distributed? And 3) What is the principle of distribution? (Heffron et al., 2018). But distributional justice is not only about burdens or benefits. It is also about access to resources and opportunities that are deemed critical (Wang and Lo, 2021).

3.2.2.2 The role of distributive justice in transitions

Distributive justice in transitions refers to examining distribution dynamics in terms of economic, social and environmental costs and benefits. The goal of distributive justice is to actively minimise costs while proactively maximising benefits that emerge in the transition process. The key question is: 'How do transition processes and outcomes address the distribution of costs and benefits?' (Wang and Lo, 2021). In addition, it should be understood how power and governance affect the distribution of costs and benefits among groups, at multiple scales. The distribution of costs and benefits at global scale can affect the vulnerability of certain people at the local level and therefore put an unequal burden on them (Steele et al., 2012). Apart from distribution among scales, it is also necessary to consider distributional effects in terms of space and time among communities and social groups (Sovacool et al., 2017, p. 678).

The review of the literature reveals that distributive justice often focusses only on the costs and risks of transitions, rather than including the accompanying benefits, too. A common pitfall in transition is assuming that the equal distribution of resources and opportunities will address inequalities. Despite the equal distribution, some groups may still experience disadvantages from the transition process. This may be the result of their own characteristics, but also of their location or procedures. This observation refers to the difference between equality and equity (Cardoza, 2021).

3.2.2.3 Case to illustrate distributive justice: greening social housing areas in Vienna (section based on Cucca, 2019)

In European cities, a trend towards green public spaces is taking place. A green environment has many advantages and contributes to the quality of life in the neighbourhood. However, these environmental improvements also lead to negative impacts, such as expensive housing, higher rents and therefore the risk of socially excluding poor people. These green living environments tend to increase quality of life, excluding some residents and drawing in new and wealthier residents. The Vienna government is recognising the specific circumstances of poor people and economically vulnerable residents in relation to greening the city. The Vienna government acts on this recognition by trying to minimise the negative aspects of policies and tools. The high percentage of social housing and rent control measures acts as a mechanism that mitigates the potential negative social impacts of urban greening. Vienna has a social housing policy, and a large part of its housing stock is social or municipal housing, subsidised by the government. Additionally, a significant part of the private rental market is subject to rent control. Vienna has an urban renewal programme, supported by city grants, to improve urban quality while avoiding displacement and providing affordable housing units. Urban planning and housing policies are aimed at both affordability and environmental quality.

3.2.3 Procedural justice

3.2.3.1 Definition

Procedural justice refers to **the inclusion of people in the processes and procedures that guide transitions** (McCauley and Heffron, 2018). It concerns who decides what a fair distribution of climate costs and benefits is, and how various voices are expressed and incorporated in the decisions concerning transitions (Hourdequin, 2016). The term expands on the notion that a policy or decision is just when it is perceived as such by the public, rather than approved by the official legal system (Tyler, 2003). This is a

common interpretation of the term within the legal domain. Perceived justice is more likely to happen when people are informed, included and feel a sense of ownership of the process (Tyler, 2003).

Within just transitions, theories on procedural justice aim for more than perceived justice in an attempt to 'conceptualise, deconstruct, and propose solutions to structural inequalities that make some people the subject of institutionalised forms of domination and oppression' (Holland, 2017). In addition to ensuring an inclusive, participatory process, part of procedural justice is about addressing the structural conditions that produce participatory inequality (such as poverty, exclusion and cultural aspects) (Holland, 2017; McCauley and Heffron, 2018).

Just transition researchers found that procedural justice is key to achieving distributive justice (McCauley and Heffron, 2018). Only through a democratic process can the many and complex trade-offs between different futures be addressed and be supported by a broad range of actors (Newell and Mulvaney, 2013). In doing this, procedural justice also ensures that injustices and ecological harm are not replaced or created elsewhere (Temper et al., 2018).

Some studies also stated that procedural justice is a right: the right to be in control over one's political environment (Nussbaum, 2011). The process of transition includes space for social and political recognition, 'including different cultural understandings, values, and priorities concerning loss.' (Nussbaum, 2011).

3.2.3.2 The role of procedural justice in transitions

Procedural justice is underpinned by recognitional justice: in order to meaningfully involve stakeholders, all groups that are (indirectly) affected need to be recognised (Schlosberg, 2004). Procedural justice is also based on democratic values (Mascarenhas-Swan, 2017). Specifically, procedural justice in a transition process involves the following elements:

- Acting on the **social and political recognition** of groups and citizens, including explicit attention to different cultural understandings, values, and priorities regarding loss of resources or ways of life (Nussbaum, 2011). Social and political recognition means recognising that people have the right to control decisions influencing their daily life (Nussbaum, 2011). This leads to two things:
  - **Empowerment** of groups to enjoy autonomy in decision-making on matters that affect their daily life, and in which transition objectives are consciously aligned with local goals and initiatives (Bennett et al., 2019).
  - **A long-term engagement process with affected communities** (McCauley and Heffron, 2018). The engagement process is based on transparency and accountability (Bennett et al., 2019).
- Stakeholders are connected within the process **at different scales, both locally and globally,** since communities, individuals, companies and institutions are impacted at different scales and need to act upon and restore past harm (restorative justice). Lack of attention to these connections can cause injustices and ecological harm to be replaced rather than mitigated (Temper et al., 2018).
- Throughout the process, **access to justice and conflict transformation mechanisms** for marginalised communities help to mediate unbalanced power relations and achieve restorative justice (Bennett et al., 2019; Temper et al., 2018).
- **Union engagement:** Historically and specifically within energy justice, full participation of labour unions is important in procedural justice (Pai et al., 2020). Transitions lead to the loss of jobs in sectors, and partnership with unions can result in viable social alternatives.

Procedural justice accelerates the transition to a carbon-neutral and nature-inclusive society. Tyler (2003) proved that, based on social psychological research, when people are intensely and meaningful engaged in processes, they were more likely to accept unfavourable outcomes because these were the result of a fair process. Procedural justice accelerates the transition further by aligning the goal of the transition with those of local initiatives and inspiring and strengthening these initiatives in the process (Newell & Mulvaney, 2013).

3.2.3.3 Case to illustrate procedural justice: Climate change and female farmers in Malawi (section based on Prag, 2021)

Malawi is vulnerable to climate change due to its large agricultural sector and the high risks of drought and flooding. People in the most vulnerable communities are underrepresented in current governance structures. This case explicitly recognised the vulnerable position of women due to climate change. In the transition

process, efforts were made to organise a more effective local government for adaptation planning in sixteen villages in four districts. Action research explores what an effective local government looks for just adaptation planning and action, together with communities. This is an initiative of the NGO Sniffer in collaboration with the International Institute for Environment and Development (IIED). Funding comes from the Scottish government. One has learned that the integration of local knowledge into the local adaptation plan heavily influences the effectiveness of action and the resilience of communities. Specific attention is paid to ensure information and accessibility for all. Tools such as the Participatory Vulnerability Capacity Assessment provide an opportunity to explore the social impacts of climate change on different groups and the capacities and gaps they experience. Procedural justice is attempted through locally driven analysis and planning. This means the participation of communities in the decision-making process for adaptation. Governance structures make space for local organisations, traditional leaders, NGO representatives and community groups. Planning is fuelled by a clear understanding of the impact of climate change on different groups to improve local responsiveness and effectiveness. Training is provided to facilitate challenging dialogues within existing governance frameworks. The case has also shown that means are needed to challenge existing power norms. These means must be offered at all levels of governance.

3.2.4 Restorative justice

3.2.4.1 Definition

At its core, **restorative justice aims at repairing and healing adverse, past or foreseen, harm experienced by an individual, group or community as a result of perceived injustice** (Forsyth et al., 2021; McCauley and Heffron, 2018).

3.2.4.2 The role of restorative justice in transitions

While recognition, procedural and distributive justices are well-established and researched dimensions of social justice and are generally presented as part of a conceptual framework for just transition, restorative justice is not yet established as an independent pillar of just transition. However, many scholars advocate its importance. Restorative justice can also be referred to as historical, systemic and compensatory justice (Okereke, 2010; Whitfield et al. 2021). Both can be viewed as sub-dimensions of restorative justice. Historical justice looks at 'how deep-seated inequalities that are experienced over time inform the current situation and is replicated and reinforced through future trajectories' (Whitfield et al. 2021). Systemic injustice refers to the idea that historical patterns of inequality cause vulnerability to impacts of climate change (Okereke, 2010). Compensatory justice is based on the 'polluter pays' principle, arguing that those countries that have contributed the most to climate change should compensate by funding climate change adaptation efforts for the countries that are most affected. A prerequisite here is the acceptance of culpability, which requires evidence of cause and effect (McCauley and Heffron, 2018).

Restoration can take many forms, depending on the injustice experienced. Examples are compensation for carbon emissions, restoration of natural areas, bridging grants to re-employment or retirement, re-training courses, compensation for loss of jobs, harvest, livelihoods etc. (Kaljonen et al., 2021). However, many interpretations of restorative justice go beyond compensation and include acknowledging of the harm that was done. These interpretations acknowledge that the harm caused by injustice can go much deeper and requires a more comprehensive approach to restoration. This is when injustice has also resulted in emotional and relational harm, for example in cases of systemic marginalisation and historical oppression. Restorative justice is then about healing and restoring relationships (Best horn, 2004; Forsyth et al., 2021; McCauley and Heffron, 2018). The focus here is on the experiences of injustice of the victim and what is needed to repair the sense of injustice. Listening to the ways in which injustice has affected the victim confronts the offender(s) with the true effects of their behaviour. Deep listening and storytelling play an important role here (Besthorn, 2004; Forsyth et al. 2021). However, to ensure healing in restorative processes, it is imperative that consensus is reached on the harm inflicted, '[…] "with the goal of (re)building trust among involved parties.' (Timmermann, 2020). Committed participation by all parties and meaningful interaction through dialogue create opportunities for mutual learning and foster empathy (Forsyth et al. 2021). This shared understanding of the harm and its effects allows a collective search for appropriate measures to repair the damage and restore relations between all parties involved. In this way, restorative justice also aims to prevent future injustices (Forsyth et al., 2021; Timmermann, 2020). To make sure restorative justice

takes place, a willingness and high level of commitment by all parties is required, including the offenders of injustice, which requires the acceptance of accountability (Forsyth et al. 2021).

3.2.4.3 Case to illustrate restorative justice: energy transition in Colombia (section based on Wilde-Ramsing et al. 2021)

In February 2021, a Swiss-based coal mining company announced its departure from Colombian coal mines in the region. This abrupt decision came as a shock to workers and local communities in Colombia. Civil society organisations have expressed deep concern about the closure of the impact of the mines on workers and communities in Colombia. These organisations call on mining and energy companies to develop ambitious and equitable plans through meaningful dialogue with trade unions, local communities, civil society and governments in order to responsibly move away from coal. This case shows that responsible disengagement from coal has broader policy implications. In a context like this region in Colombia, there is a dependence on coal mining as a source of income for thousands of workers and entire communities. In areas without a safety net or social protection, the abrupt exit of the coal industry has major consequences for people's lives. The abrupt departure of the coal mining company leaves unresolved unmediated human rights abuses—namely, among other things, the forced displacement of farmers and communities from land in and around the coal mines in Cesar. In general, in post-conflict regions, irresponsible disengagement can create tensions or alter a power balance as a result of the 'gap' left by the coal industry and, in this way, reignite conflict. To address the restorative aspects of justice, a broad analysis of foreseeable impacts (now and in the future) is required, with a focus on the impacts of local workers and communities. Additionally, these unmediated impacts should be included in the responsible disengagement plan to compensate for the damage. It is important to consider the impacts of disengagement in terms of financial impact, but also in broader terms, such as the likelihood of a resurgence of violence. The responsible disengagement plan should identify the risks and risk mitigation measures that will be taken to prevent this from happening.

3.2.5 Transitions

In addition to the concept of justice, it is also necessary to explore the concept of transition. Transitions inherently involve changes from an existing state to a new situation. Transitions occur over time and involve change and adaptation, such as developmental, personal, relational, situational, societal or environmental change (Wang and Lo, 2021). In a transition, there is an overall alteration or reconstruction of an existing reality over time. The cumulative transition cycle captures the effects and responses to change over time with an accompanying adaptation to new situations or circumstances or a new reality. However, it is important to note that not all changes are transitions (Heffron and McCaulley, 2018; Wang and Lo, 2021); while change refers to an alteration from State A to State B, transition is a cumulative process that happens over time and through which there is adaptation to change, and a new status and /or situation emerges.

3.2.5.1 Transition pathways

There are three possible routes to navigate change: incremental change, transitions and transformations (Roggema et al., 2012). **Incremental change** is characterised by slow changes over time through strategies such as active learning and making changes based on emerging real-time information. Planned and unintended incremental transitions can cumulatively lead to shifts in the state of the environment and related impacts on valued parts of ecosystems or on society (Rudolph et al., 2020). Incremental changes allow for gradual adaptation that can eventually amount to a major shift; hence, it is not necessarily a less radical option. **Transition** is a fluent change that aims at improving the status quo (Roggema et al., 2012). After the transition, the system is not fundamentally transformed, but has reached 'a new stable state of higher complexity or quality' (Roggema et al., 2012). On the other hand, **transformation** refers to transitions that cause a major and lasting change. It is a process towards a future that is radically different from the current situation (Roggema et al., 2012).

These three possible routes (incremental, transitional and transformative change) can exist together. A **'transition pathway'** is a narrative that describes how a new or adapted system can evolve from a previous system (Elzen et al., 2020). There are multiple pathways existing together towards future, more sustainable (and inclusive) systems. The term 'transition pathways'' conceptualises this dynamic. Conventional theories of change assume that political, social or market interventions can shift a system from one structure to another, such as the transition from the use of firewood to other contextually more sustainable fuel sources.

These theories of change do not always apply to complex systems such as the environmental ecosystem. To come to a fundamental transformation, a combination of approaches that include incremental changes, learning-focussed, and pragmatism combined with radical shifts in governance mechanisms are more likely to lead to fundamental transformation (Rudolph et al., 2020).

3.2.5.2 Phases of transition

The literature often describes transitions using the following phases (Rotmans et al., 2000; Elzen et al. 2012):

- A pre-development phase: innovations are being developed that do not affect the system.
- A take-off phase: the system becomes unstable due to rapid and possibly conflicting changes. This creates an opportunity for new developments to affect the system.
- A breakthrough (or acceleration) phase, in which physical, socio-cultural and institutional changes accumulate.
- A stabilisation phase, in which the renewed systems come to a new, dynamic equilibrium.

However, these phases are often intertwined, they are not clearly defined, and they are taking place over very long periods (over 30 years) (Elzen et al. 2020; HLPE, 2017; Rudolph et al., 2020). In addition, policymakers can rarely control the development in these phases, and they are therefore considered to be not helpful for the operational framework for just transition.

3.3 Integration of justice in existing transition frameworks

WUR is using and has developed several transition frameworks. This chapter aims to explore the synergies between the justice framework developed in this report and the already existing transition frameworks that WUR is using. The intention is to work towards integration of the justice aspect in these existing transition frameworks and to enrich the justice framework with transition approaches. The transition frameworks that will be discussed to this end are the Transition Pathways approach, the Food System framework, the Adaptation Pathways approach and the Adaptation Support Tool.

3.3.1 Integrating justice in the Transition Pathways approach

As stated above, transitions can take place via three types of routes: incremental change, transitional change and transformative change. These routes differ in the way change is happening, from gradual to more ‘radical’. Transition paths are pluralised, based on social innovations, challenging structures and pursuing unknown ends. Faced with the biggest challenges of our time, different transitions are required to deal with the effects of climate change and shape how our economy and society sustain in terms of resilience, food security and sustainability. These fundamental changes are placed in a complex system and occur through multiple routes or so-called ‘pathways (Elzen et al., 2020)’.

Changes that contribute to a transition are inherently political: At each step, choices need to be made about the actions to be taken, and these choices may benefit or disadvantage certain social groups. As every transition has an impact on society and requires societal change, it should incorporate a justice approach at every step. A shift or change, regardless of its type (incremental, transitional or transformational), which neglects or even increases current injustices will not sustain and even cause new challenges. There is an important role for policy makers in this regard. Policy projects contribute to partial solutions that support, facilitate or contribute to a transition. Well-considered justice choices in transition projects, processes, roadmap developments, programme activities or other activities are important to support, accelerate or even redirect ongoing transitions.

At the same time, to facilitate the full integration of justice in transition processes, well-considered choices require the participation of a wide range of stakeholders in the creation of different pathways that lead to the desired transition. Well-considered choices in projects and early awareness are important, rather than diving right into practical solutions. A starting point is to identify and describe the relevant transition pathways in a project with all stakeholders that have power or are potentially influenced by the decisions that are taken. This will also include making sure that marginalised groups have their voices heard. If, for practical reasons

or otherwise, not all stakeholders can be involved, it is important to be mindful of who is left out, who benefits and what the consequences of being left in or out could be.

Justice links to transitions in every step of the transition process, which makes it an iterative process (Figure 4). During the process of establishing different transition pathways, choices can be assessed based on the four types of justice, namely recognitional justice, distributive justice, procedural justice and restorative justice. In some cases, it may be enough to simply reflect with the wider stakeholder group on the consequences of certain choices on certain groups. In other cases, it might be necessary to assess the impact of certain choices in a more detailed way, for example by calculating the economic consequences for the poorest of a policy direction.

The central question in just transitions is this: 'Are both the transition *process* as well as its *outcomes* just?' All parties involved in transition processes or affected by the outcome of a transition shape or would like to shape the transition based on their specific needs, or in line with their capacities. However, transition pathways may need to change due to unexpected events, new insights and changing needs and values over time. Regular monitoring and reflection are therefore key to ensure that the transition remains just, even if conditions change. Needs, capacities and contexts of stakeholders over time should therefore repeatedly be assessed to record this change.

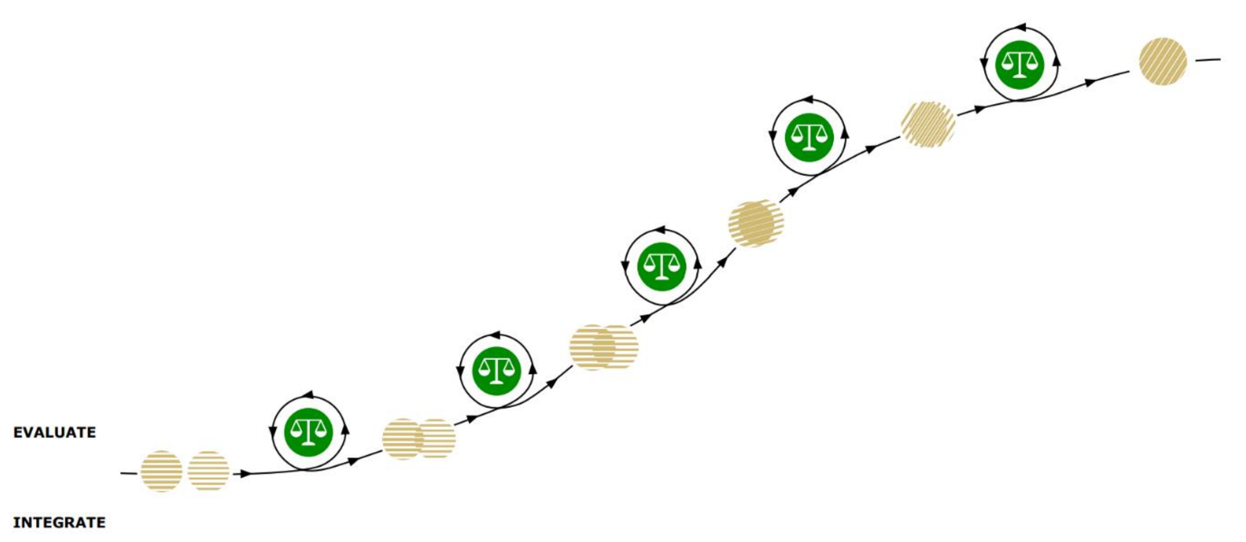


Figure 4 *The iterative process of integrating justice in transitions (Source: Dijkshoorn-Dekker et al., 2022a)*

3.3.2 Integrating justice in the Food System approach

The food systems approach (Van Berkum et al., 2018) is a conceptual framework that helps to analyse the relationships between different parts of the food system and their drivers, activities and outcomes. Central to the approach are feedback loops: parts of the system that influence each other and indicate potential trade-offs between activities and outcomes. In designing change processes that contribute to a transition, the approach is useful as a checklist of topics that should at least be addressed when it comes to improving one or more of the systems' outcomes, such as food security, sustainable livelihoods and a thriving environment.

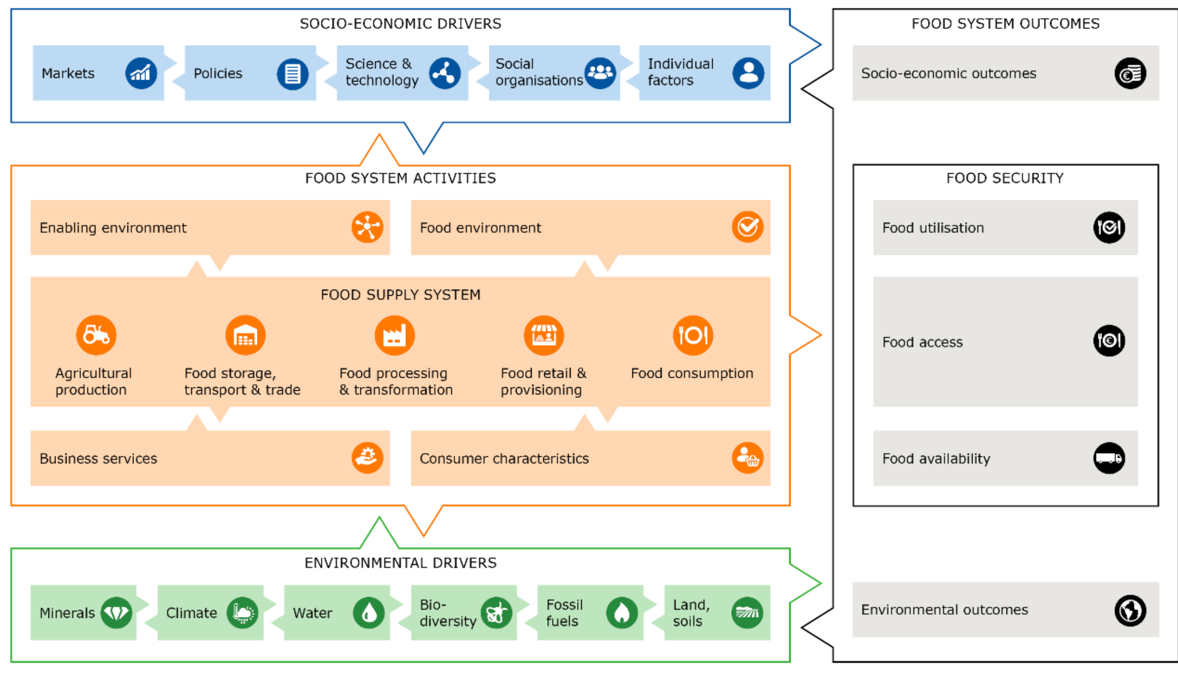


Figure 5 *Food systems transformation framework (van Berkum et al. 2018)*

The food systems approach does not explicitly take justice, actors and power relations into account. However, a food system does not operate without these aspects, which means food system analysis should take this into account in the exploration of food system issues and potential solutions, as exemplified in the Food Systems Decision Support Toolbox (Posthumus et al., 2021), where 'equity and inclusiveness' is taken as one of the quality principles in performing a food system analysis. Different social groups have different challenges and opportunities and differences in access to recourses and in their ability to benefit from the results of the food system. Taking this diversity into account is important, not just because of the justice aspect, but because a deeper analysis of these inequalities can shed new light on their root causes and why they persist. The toolbox offers guiding questions to assist in this analysis.

Guiding questions for inclusion and exclusion in food systems

- Who has access to which resources?
- How do institutional structures and norms shape differences in access to key resources required to engage in food system activities (e.g. land, capital, equipment)?
- Who has decision-making power and on what level?
- How does this play out differently for different actors?
- Why do we see those differences, and how does this affect the food system characteristics and its behaviour?
- How do institutions and gender norms drive inequity within the food system? Who is reached or involved? Who benefits?

(Source: Posthumus et al., 2021)

3.3.3 Integrating justice in the Adaptation Pathways approach

The Adaptation Pathways approach is a decision-focussed approach in climate adaptation research and planning (Werners et al., 2021). Similarly, to transition pathways, the 'adaptation pathways' describes a sequence of actions that can be implemented depending on the future dynamics. In this way, one can specify which measures can be taken now and which measures can be implemented when certain conditions occur. This allows for uncertainty and flexibility in the approach and planning of projects.

Werners et al. (2021) identify three clusters of adaptation pathways as described in the literature:

1. **The development of performance-threshold-oriented pathways** informs adaptation planning by providing alternative sequences of discrete adaptation measures in response to different future scenarios. It is designed to address future adaptation needs in a well-defined system of interest.
2. **Multi-stakeholder-oriented pathways development** stresses the social and institutional components of pathways development. It starts by acknowledging that adaptation plays out in a multi-stakeholder setting. Pathways methods attempt to include multiple drivers and multiple stakeholders with conflicting goals, interests and contested values.
3. **Transformation-oriented pathways development** views pathways as a metaphor for broad directions of change that represent different strategic aims. While pathways generated in the approaches previously reported can also result in substantial change, those pathways are still in support of the existing value set.

Although not traditionally part of adaptation thinking, justice arguably plays a role in all three of these clusters. Werners et al. (2021) make several propositions to support reflexive learning and the desired outcomes of the Adaptation Pathways approach. Two of those propositions are related to integrating justice into the approach.

Proposition 5. Engaging stakeholders with different values, goals and knowledge across levels and sectors facilitates collaborative learning on the potential need for transformation. Those who want to respond equitably to global change (including climate change) might consider (1) stakeholders' differing assumptions, values and goals associated with the present and future; (2) their different views (perceptions, expectations, attitudes) about the nature of change and how to achieve future goals; and (3) how their history and knowledge can guide future possibilities.

Proposition 6. By addressing both symptoms and root causes of vulnerability, adaptation pathways can account for complexity and a need for transformation. The literature suggests that adaptation is most effective when it considers both the causes and symptoms of vulnerability, especially in situations where goals and practices need to change because they are no longer desirable or feasible under climate change, and transformational adaptation is necessary.

(Adapted from: Werners et al., 2021)

3.3.4 Integrating justice in the Adaptation Support Tool

The Adaptation Support Tool (Climate Adapt)[1] is an adaptation planning and implementation cycle that aims to guide decision-makers in climate change adaptation strategies. It is a framework which consists of six steps to develop, implement, monitor and evaluate the identified adaptation strategies.

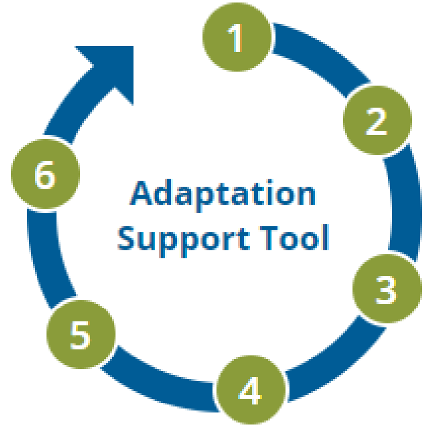


Figure 6 *Framework of the Adaptation Support Tool*

[1] Source: The European Climate Adaptation Platform (CLIMATE-ADAPT)

1. Preparing the ground for adaptation: This preparatory step assures inclusion of the key elements needed for an adaptation strategy (i.e., gather available information; assure sufficient support, structure and coordination; consider roles and responsibilities needed).
2. Assessing the risks and vulnerabilities: In order to formulate an adaptation strategy, it is important to identify the assessment of how to assess impact and vulnerability in order to have a complete picture of the effects of climate change.
3. Identifying adaptation options: After identifying the risks and vulnerabilities related to climate change, an overview of adaptation options should be made. There are different types of adaptation options to ensure a strong basis upon which the adaptation strategy can be implemented.
4. Assessing adaptation options: After completing an overview of adaptation options, an assessment of the adaptation options should be done, where prioritisation of the adaptation options is done, based on the local situation and actors involved.
5. Implementing adaptation: Here, the adaptation strategy is carried out according to the formulated action plan.
6. Monitoring and evaluating adaptation: In order to ensure successful implementation of the strategy, continuous monitoring and evaluation is done in this last step, in which actual implementation and potential issues occurring in practice can be observed and lessons learned are incorporated. The adaptation strategy should be flexible enough to be changed and adapted according to the monitoring and evaluation phase.

The described adaptation cycle shows a thorough process of setting up an adaptation strategy, allowing for the formulation of adaptation options based on research and analysis of climate change risks and vulnerabilities. Although justice is not an explicit element in this model, it is stated by Breil et al. (2021) that justice should play an essential role: Only by looking at the effects of climate change for different groups of society and how they are affected by climate change impacts can the adaptation cycle produce a complete and inclusive overview of risks and vulnerabilities. Furthermore, when identifying different adaptation options, measures should protect all members of society and emphasis should be placed on adaptation options that could potentially burden disadvantaged groups. During this step, it is therefore important to look at measures that create a just strategy without creating conflicts between social groups. Additionally, the needs of disadvantaged groups should be specifically considered in order to create a just process. The participation of different groups of society throughout the adaptation cycle will enhance a just and inclusive process.

3.4 Conclusions

This chapter illustrated the different meanings of the concepts of justice and transition. These different definitions need to be specified in transition processes in order to avoid frustration and irritation as people may all want justice but are pursuing different processes and outcomes. While distributive justice requires to look at costs and benefits among people, procedural justice aims to investigate the way people are engaged. Recognitional is about respecting each other’s values and perspectives and restorative justice is about looking back at past harm. In other words, different types of interventions are expected to be considered in order to pursue justice in transitions. The recommendation for the operational framework is therefore to include a step to explore how people perceive justice and what type of transition they are aiming for. The operational framework should therefore refer to the four most common types of justice are: distributive, procedural, restorative and recognitional justice. And to the three types of changes: incremental, transitional and transformational change. Other elements that are returning in the description of the concepts are time, scale and scope, which should also be part of the operational framework.

This chapter also concludes that just transition does not require a fully new framework but that the justice element can be integrated into existing transition frameworks in order to make sure that justice is better considered.

4 Empirical evidence of injustice in climate change adaptation: conclusions of literature review

To build a useful operational framework, we need to learn about the elements that are relevant when putting justice into transition practices. Therefore, this section illustrates the injustices that may occur during transition processes. Because by understanding the injustices that may take place, we gain better understanding of the elements to work on in order to make sure transitions become more just. For efficiency reasons, we focussed solely on climate change adaptation to collect evidence on the injustice dimensions that matter during transitions. All evidence was collected from scientific literature.

4.1 Injustice of climate change impacts

First and foremost, climate change itself is an issue that can exacerbate existing injustices. Climate change affects people's health, jobs, financial status and quality of life. Although climate change is occurring worldwide, some people experience more severe impacts of climate change due to exposure, vulnerability and ability to adapt. This is referred to as 'social injustice' and 'spatial injustice' (Bulkeley et al., 2014; Eriksen et al., 2015; Ziervogel et al., 2017).

The European Environment Agency (Breil et al., 2018) concluded that the following social groups are disproportionately affected by climate change: the elderly, children, women, people with poor health, low-income households, tenants, illiterate people or people who are not acquainted with the official native language, people living in unsafe areas with high crime rates and people with small social networks. Some social groups are more vulnerable to flooding or heat waves, while others struggle more with drought or sea level rise (Breil et al., 2018).

Justice means that the people most at risk and most in need should be identified and prioritised when developing adaptation measures. These people should also be involved in planning and adaptation in order to ensure that adaptation measures meet their specific needs. However, Graham et al. (2018) indicated that there is no consensus yet on how to identify these people, how to accommodate their needs or how to ensure that adaptation indeed reduces these vulnerabilities, rather than creating new inequalities.

4.2 Transition towards a climate-resilient society

While mitigation remains a first and necessary priority for managing climate change, adaptation processes have also become important in recent years in overcoming the as of now unavoidable impacts of climate change and its related injustices. Adaptation processes play an important role in overcoming the impacts of climate change and its related injustices. Adaptation is therefore a process that helps to transition people from being at risk towards being more resilient. Adaptation includes a process to identify structural, ecological, behavioural and economic measures to cope with climate change impacts (IPCC——Intergovernmental Panel on Climate Change), 2019). Therefore, becoming more resilient can take place in several way, as for instance:

- Ecosystem-based adaptation: Adaptation oriented to introduce or strengthen ecosystem structures or natural interventions to absorb the negative impact of climate change and prevent harmful effects on people (IUCN (International Union for Conservation of Nature), 2019).
- Community-based adaptation: Adaptation that is the result of the management and avoidance of climate change impacts and pressures by local people (UNDP (United Nations Development Programme), s.d.). Community-based adaptation often refers to governance approaches and tools for participatory planning (Archer et al., 2014).

- Transformative adaptation: Adaptation actions that result in a significant change in community goals and expectations, or how they are met, potentially disrupting these communities and their values. Transformational adaptation is undertaken when incremental adaptation is no longer sufficient to address the risk (Coastadapt, 2017).
- Reactive adaptation: Adaptation undertaken in response to an effect of climate change that has already been experienced (Coastadapt, 2017).

However, despite the variety of transition processes, most adaptation processes include the typical phases of the climate change adaptation cycle (Global Center on Adaptation, 2019):

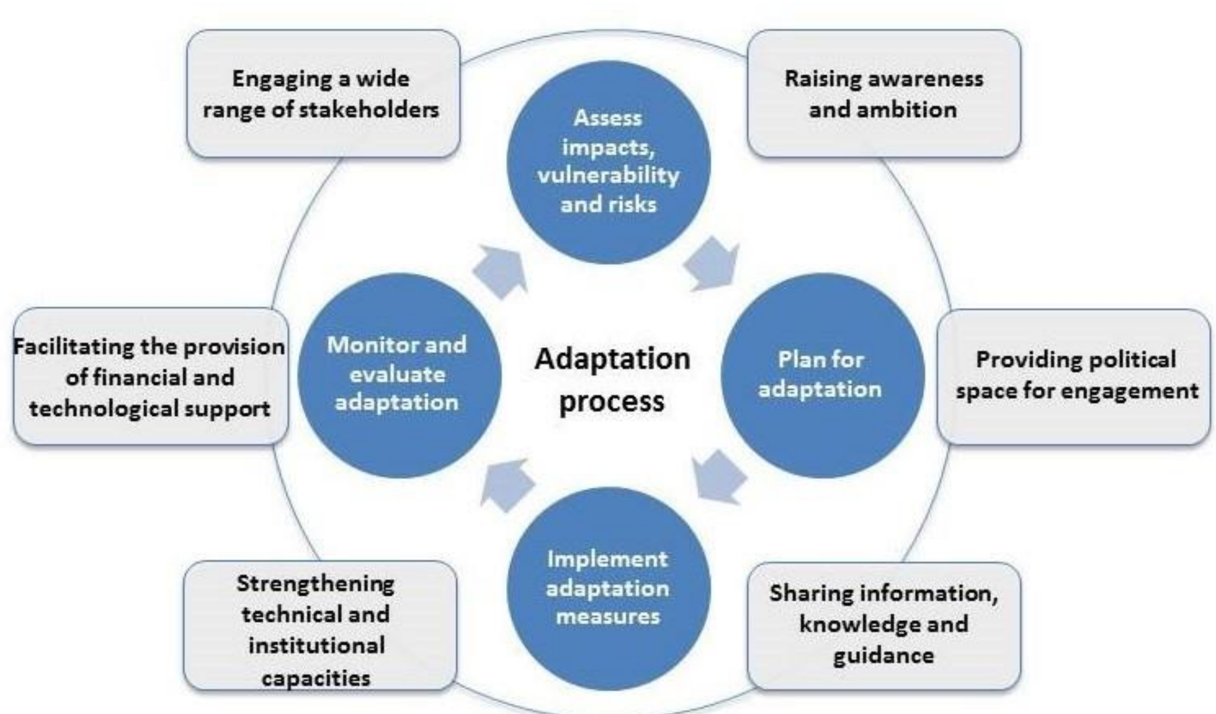


Figure 7 *Adaptation cycle under the UN (United Nations) Climate Change regime (GCA (Global Center on Adaptation), 2019)*

4.2.1 Step 1: Vulnerability, impact and risk assessment phase

4.2.1.1 Injustice due to exposure-based impact assessment methods

Climate risk assessments are used to identify where measures need to be taken. Frequently used methods are related to exposure. These methods identify which people and assets are expected to be exposed to climate change impacts, such as sea level rise, flooding, heat waves or drought. Graham et al. (2018) have illustrated what can happen when the characteristics of the vulnerable are not considered. They analysed the need to relocate people in a coastal town in Australia due to climate change. They found that poor households were very socially connected in a dense network and frequently interacted with friends and people in the community. From the perspective of climate risk assessment that only considers exposure, these people would be advised to relocate. However, given their socio-economic characteristics, relocating this group of people could only be beneficial when considering the maintenance of their social relationships. If relocation occurs in a way that their social networks are lost, this will increase their vulnerability even more. It would also affect their further engagement in decision-making, as they would also lose political networks which are crucial in order to encourage procedural justice. It would be even more difficult for them to make their voices heard in decision-making processes (Shi et al., 2016).

4.2.2 Step 2: Plan for adaptation

4.2.2.1 Lack of involvement of vulnerable and socially disadvantaged people

Step 2 in the adaptation cycle is about planning for adaptation to make sure that impacts are reduced. Injustice is experienced due to the lack of inclusion of vulnerable community groups. The scientific literature has shown that residents of neighbourhoods with low social vulnerability are much better able to organise 'green' infrastructure and attract protective infrastructure, compared to residents of neighbourhoods with high social vulnerability. In other words, these people are better able to engage in adaptation planning (Heynen et al., 2006). Furthermore, Shorky et al. (2020) give the example of Philadelphia, the Rain Check programme favoured privileged homeowners, because it has contributed to individualising responsibility to adapt to those households that do have the capacity and time to adapt (Heckert and Rosan, 2018; Mandarano and Meenar, 2017). Shi et al. (2016) analysed how community groups are engaged in early-adaptor cities in the EU. Only a few cities engaged with community groups, and if they were engaged, it was only in joint fact-finding, not in the identification of adaptation measures and strategies. The lack of a good understanding of a set of methods and approaches to engage with the most vulnerable people is the result of a lack of understanding of issues like power, influence and marginalisation (Dow, 1992; Adger, 2006; Pelling, 2003).

4.2.2.2 Injustice due to maladaptation, when social circumstances are overlooked

Some adaptation measures worsen social, racial, class, gender or ethnic injustices. Some measures can even lead to the aggravating of existing vulnerabilities. This is called 'maladaptation' and should be avoided at all costs (Shi et al., 2016; Barnett and O'Neill, 2010; Schipper et al.). Therefore, Vargo et al. (2016) recommended that adaptation measures consider the underlying vulnerability characteristics of people who are the focus of these adaptation measures. They analysed heat wave mitigation measures in three cities in the United States and concluded that effectiveness of these measures depended on age of people. Young and old people are biologically less resilient to deal with heatwaves, compared to able-bodied adults (Vargo et al. 2016).

4.2.2.3 The use of cost-benefit analysis (CBA) to make a decision on adaptation measures: biased investment in a high economic value area

Cost-benefit analysis (CBA) is a commonly used method to help policymakers make the most cost-efficient decisions about adaptation measures. Another related method that encounters comparable issues with justice is cost-effectiveness analysis (Brouwer and Van Ek, 2004; Adger et al., 2007). CBA is often promoted as an objective assessment tool. But Siders (2019) states that it is not, mainly because so many decisions must be made to build up the CBA. First, some costs or benefits may purposely be eliminated from the CBA because data is lacking or because costs are too difficult to estimate or monetise. Second, how should the time and geographical scale to assess the costs be assessed (Siders, 2019)? Furthermore, when it comes to the evaluation of costs and benefits of adaptation measures, the financial benefits of measures are estimated to be higher in more prosperous areas, compared to areas with low-income households. This is mainly because CBAs often assess to what extent measures prevent substantial damage, estimated in financial terms (FEMA (Federal Emergency Management Agency), 2015; Siders, 2019). As properties in highly prosperous areas are more expensive compared to low-income household districts, the CBA will bias towards the prosperous districts. Consequently, decisions based on these cost-benefit analyses reinforce the existing inequality between rich and poor people within the community (Siders, 2019; Martinich et al., 2012; Tate et al., 2016). There is evidence from the USA that applying CBA to evaluate protection measures in low-value residential housing resulted in a rejection to protect these families because the financial benefits of protection were much lower compared to the costs of constructing a levee (Siders, 2019). All this evidence indicates that CBAs reinforce the existing social inequality between people.

CBA also rarely looks beyond financial costs and benefits. Relocating minority groups or the elderly may be more harmful compared to other groups, especially when their social network is not relocated (Siders, 2019). However, not relocating these vulnerable groups leaves them exposed to future risks, revealing the ethical dilemma behind every retreat programme. This evidence shows that CBA includes a specific type of political subjectivity, despite claims that CBA is objective (Siders, 2019; Nussbaum, 2000).

4.2.3 Step 3: Implementation of adaptation measures

4.2.3.1 Injustice between small and large authorities

When implementing adaptation measures, there may emerge injustices between regional authorities, as smaller authorities are often limited in terms of resources and capacities to implement measures. Shi et al. (2016) stated that most of the three million municipalities worldwide have neither sufficient capacity to access information about risks and vulnerabilities, nor data or technical expertise to identify adaptation measures or funds to implement the measures. Although there are several global city networks, such as the C40 Cities Climate Leadership Group, 100 Resilient Cities, World Mayors Council on Climate Change and the Durban Adaptation Charter, which support learning and policy development around climate change, many of these small-sized municipalities still lack the resources and staff to participate in these activities, resulting in reinforcing the existing inequalities (Shi et al., 2016). These small-sized authorities are also often in an unequal position when it comes to competition to access national or European funding to invest in climate adaptation (Shi et al., 2016). Shi et al. (2016) also indicated that because small authorities struggle to keep up with urban adaptation, while major cities gain access to all types of support, the developmental gap between these types of local authorities is increasing even more.

4.2.3.2 Injustice due to implementing adaptation measures at different scales

Scale matters when deciding on measures to implement. This must do, on the one hand, with transboundary climate risks, as identified by Klein et al. (Goering, 2021). Klein indicates that climate impacts in one country can trigger effects in other countries, one example being the loss of harvest due to drought in Asia in 2008, which resulted in shrinking global rice export and a price increase of 200%, in turn, resulting in food riots in Senegal. Alexander and Ryan (2012) indicated that what people consider fair differs according to the spatial scale they consider (Siders, 2019). Shi et al. (2016) indicated that adaptation measures taken at a higher level may result in injustice at the local level. Some adaptation measures may create negative spill over effects across boundaries, or they may result in transference of risk to other local areas, for example, in the case of river embankment that can cause downstream flooding or shoreline armouring that may result in erosion elsewhere (Shi et al., 2016).

4.2.3.3 Injustice due to not considering the issue of power and economic ideology

Implementing adaptation measures can encounter barriers that are related to the underlying political-economic regimes of capitalism and capital accumulation (Shi et al., 2016; Sovacool et al., 2015). These barriers have been studied in urban adaptation. Even despite the many good intentions to enable procedural justice in planning, a mismatch can arise with the underlying political-economic norms, which are usually neoliberal norms in Europe. This is also the case when it comes to green adaptation, which is currently often based on neoliberal ideology (Ciplet and Roberts, 2017). More specifically, green adaptation financing mechanisms are often based on principles of co-investments, which make vulnerable people even more vulnerable because they do not have the required money. The benefits of adaptation consequently still follow historical urban power inequities in cities (Ciplet, and Roberts, 2017).
A study by Whitmarsh and Corner (2017) has also illustrated that 'justice' has a very much a left-wing connotation, which naturally impacts the space to act from right-wing parties. Wolsko et al. (2016) also indicated that justice is connected to a strong moral tone of environmental discourse. Conservative parties might experience 'practising environmentalism and therefore also justice as an unfaithful act towards the in-group and associated conservative values' (Wolsko et al., 2016).

4.2.3.4 Injustice dimensions of some adaptation measures

Evacuation, managed retreat or relocation

Measures that are often used to prevent impact from sea level rise and flooding are evacuation, managed retreat and relocation. Evacuation is a temporary measure that is implemented when flooding occurs. Evacuation is defined as 'mass physical movement of people in a community, that is temporary in nature and emerges to cope with threats, damages and disruptions' (Quarantelli, 1985). Evacuation may reinforce the harmful impact on the most socially disadvantaged. Given that these socially disadvantaged people live proportionally more often in risk areas, they are more likely to be evacuated (Kuhl et al., 2014). When evacuation is not planned proactively, these socially disadvantaged people are impacted by this adaptation measure itself. For example, Kuhl et al. (2014), Eisenman et al. (2007) and Renne et al. (2008) indicated that

socially disadvantaged people rely on public transport, which is often not available at times of evacuation. Some of them are not willing to be evacuated due to fears of theft, safety and loss of job security (Eisenman et al., 2007; Baker, 1991; Dow and Cutter, 2000; Elder et al., 2007). Furthermore, socially disadvantaged people rely more on their social network to receive reliable information about risks, which can cause delay in the evacuation movement, as was shown during hurricane warnings in New Orleans or during the Denver flooding (Spence et al., 2007; Kuhl et al., 2014; Eisenman et al., 2007; Airriess et al., 2008).

Policymakers can also opt for managed retreat or relocation, especially when flooding is expected to occur frequently. Managed retreat or relocation refers to the 'purposeful movement of people and infrastructure out of vulnerable floodplain.' (Siders, 2019). Managed retreat is a way to reduce the cost of future emergency response and disaster recovery efforts (Siders, 2019). Managed retreat is plagued by the dilemma that purposefully relocating low-income communities is socially inequitable and may harm those communities, but not relocating low-income communities and leaving them in floodplains exposed to future hazards (even if protected by barriers) is also socially inequitable and may cause harm (Siders, 2019). Solutions, such as relocation of affected communities, which are so ardently sought by some local environmental justice groups, are themselves socially and economically disruptive, and these solutions rarely are satisfactory in their outcomes (Mohai et al., 2009). The most vulnerable people are often not included in decision-making regarding managed retreat. Finally, the buyout programmes that support managed retreat are also biased (Siders, 2019). Siders (2019) analysed eight buyout programmes in the United States in terms of justice and came to the following conclusions:

- Retreat can have a severe impact on relocated people. They may experience social, economic or psychological harm because they lose their sense of community and their sense of place (Siders, 2019). Evidence has shown that elderly and minority communities are severely impacted when relocated without also relocating their social support system (De Vries and Fraser, 2012; Muñoz and Tate, 2016).
- Decision criteria and processes for buying out may not be transparent, and it may be that some criteria are perceived as subjective, affecting trust in the government. Consequently, concerns about fairness emerge (Siders, 2019).
- CBAs in buyout programmes assess which properties will be substantially damaged by using the definition that repair costs would be 50% of the pre-disaster value. This definition can result in more low-value homes being labelled as substantially when damaged compared to high-value homes. In the USA, this disparity has resulted in tensions between low-value and high-value homeowners due to perceptions of unfairness (Siders, 2019; Rakow et al., 2003; Rakow, 2005).

Gentrification as a result of 'green' adaptation

Gentrification can emerge when integrated adaptation measures that also improve the living environment. Gentrification refers to the phenomenon in which areas are the focus of renovations and low-income households are evicted from their neighbourhoods to re-value the neighbourhood.

Green gentrification refers to gentrification that emerges after implementation of green or nature-based adaptation measures. These green measures are often applauded and stimulated because of their co-benefits and their significant contribution to more attractive neighbourhoods (Shokry et al., 2019). These co-benefits may be advantageous for vulnerable people: they may improve health and well-being and foster greater social cohesion when they are planned in a participatory way, and they also may create new jobs (Shokry et al., 2019). However, 'greening' a neighbourhood may make it more attractive as a residential area, resulting in an increase in house prices. This in turn can make living in the neighbourhood too expensive for the original population, leading to an influx of more wealthy households, a phenomenon known as 'eco-gentrification' (Anguelovski et al., 2016; Shokry et al., 2020; Anguelovski et al., 2018). If these investments are made, they often lead to increased property values and gentrification, pushing lower-income residents out of the neighbourhood (Bullard, 2007; Gamper-Rabindran and Timmins, 2011).

The Barcelona Lab for Urban Environmental Justice and Sustainability has analysed the green gentrification trend related to eighteen new green spaces/parks and has concluded that this trend is taking place in half of the analysed new parks. Gentrification can be explained by the location of the park close to attractive areas, such as the central tourist area or near the coast. The absence of gentrification despite the park may also be explained by the territorial stigmatisation of isolation from cultural and social amenities (Anguelovski et al., 2018). Green gentrification was also found in Philadelphia, where Green Resilient Infrastructure was

introduced to deal with climate impacts (Anguelovski et al., 2016; Roberts and Parks, 2007). The study indicated that GRI is both the cause and the consequence of gentrification in Philadelphia. This means more specifically that green adaptation took proportionally more place in wealthier areas, in the meantime, low-income residents shifted from wealthy areas to underinvested neighbourhoods (Shokry et al., 2020).

Green adaptation and other negative impacts on vulnerable people
There is a biased assumption that green adaptation measures are wholly benign. However, there is empirical evidence that green measures can also negatively impact some people. Anguelovski et al. (2018) and Ziervogel et al. (2017) indicated that there are green solutions are promoted as benign. But underlying socio-economic inequalities are often overlooked (Hardy et al., 2017). Ambrey et al. (2017) summarised that green infrastructure disservices relate to health and safety: increase in pollen allergies and tree limb fall; increase in maintenance and therefore also costs; engineering and design, such as traffic hazards, damage to buildings or soil desiccation; environment (fire-risks, wildlife behaviours, obstruction of views); legal concerns such as conflict with neighbours and jurisdiction disputes; and public liability (Davison & Kirkpatrick, 2014; Mortimer & Kane, 2004; Roy et al., 2012; and Barnett and O'Neill, 2010; Juhola et al., 2016). There are studies that have indicated that income is a barrier for the adoption and implementation of green solutions (Baptiste et al., 2015; Newburn and Alberini, 2016), resulting in the creation of green landscapes for the privileged (Anguelovski et al., 2018; Connolly, 2018). Provision, apportioning and opportunity costs associated with economic and other resources invested in green infrastructure may also have social justice implications (Braverman, 2008).
Furthermore, Ambrey et al. (2017) indicated that socially disadvantaged groups may not see any benefit from green infrastructure to deal with heat in their study area on the Gold Coast in Australia. This indicates that pushing green adaptation can result in confrontation with groups that do not understand the need for it. A potential explanation may also be that these socially disadvantaged groups may perceive that green infrastructure is associated with increased costs rather than with increased benefits. It would help to combine green adaptation with supporting programmes such as subsidies, rent assistance or educational programmes (Ambrey et al., 2017).

4.2.4 Step 4: Monitor and evaluate adaptation measures

Step 4 is in full development in adaptation policy (Brink & Wamsler 2018; EEA, 2020). There are thus far few methods and efforts taken to enable the monitoring and evaluation of the impact of adaptation measures over the longer term, and reflexive learning, based on the monitoring results, rarely occurs. Consequently, justice is also underdeveloped in this step. Lager et al. (2023) have tried to fill this knowledge gap by exploring a set of indicators that can be used to monitor justice in climate adaptation in Europe.

4.3 Conclusions

Describing evidence about injustice dimensions in transition practices helps to further explore the core elements of the operational framework. From this chapter, we learn that the following elements should be considered:

- We can use the four steps of the adaptation cycle as a categorisation of steps that help to specify justice in transitions: problem assessment, planning, implementation and monitoring and evaluation.
- Even the best intended adaptation measures can result in unintended social impacts. It is therefore necessary to become aware of the assumption that all adaptation measures are good for everyone and to prevent maladaptation.
- When assessing injustice, it is important to consider socio-economic characteristics of groups in combination of their location. Also, in the ex-ante impact assessment of measures, it is necessary to consider the socio-economic circumstances of different groups of people and the impact of the proposed measures on them.
- It is needed to be cautious about the use of specific assessment methods that are biased towards privileged people and that exclude specific social groups.
- Justice in transitions means that transition measures fit with characteristics of relevant people. This means that it necessary to tailor and evaluate if measures are helping these people and fit with their living

circumstances and cultural values. It is recommended therefore to effectively engage the most vulnerable people in the design of measures.

- Injustice is often the result of underlying power dynamics and worldview ideologies. To put justice into practice, one must become aware of these underlying dynamics and worldviews.
- To avoid transboundary effects, it is necessary to look beyond the local scale of the implementation area to make sure measures do not cause unintended harm elsewhere.
- We have learned that injustice may be related to the problems with access to the resources needed to implement adaptation measures in the first place. This can be a problem for specific social groups, but also for whole towns or small cities.

5 Towards guidance for just transition

5.1 How to build the operational framework?

This chapter brings all the insights and evidence from the previous chapters together and adds it with results of analysis of just transition practices and the results of Just Transitions dialogues to build a framework that can help policymakers, practitioners and scientists to put justice into transition practices. The framework's main aim is to raise awareness about and draw attention to the potentially undesirable and unintended effects of climate change adaptation and food system transformation, as well as to anticipate these effects and act on them to ensure a fair distribution of costs and benefits. Most important is acknowledging and getting a better understanding of the power dynamics at play and finding a way to change these power dynamics.

In our research, we encountered an almost overwhelming amount of literature and publications addressing just transitions, often from a specific entry point and discourse. However, overall, many fundamental principles and understandings are shared, but they are often reframed slightly differently in terms and semantics. As the Stockholm Environmental Institute (2020) concludes, 'the justice of transitions comes from pursuing all of these principles and objectives simultaneously' (Atteridge et al., 2020). The big question is how to pursue all these principles and objectives simultaneously without getting lost. Yes, the different justice domains should come together much more consistently, as they are connected and dependent, and they also deal with the same society and diversity. Nonetheless, the framework must be applicable, tangible and practical at the same time.

Given these complexities, it is challenging to build an operational framework for transitions that can be applied to different types of transitions and be used in different contexts. This means that the framework needs to be general while also creating sufficient space for topic-specific issues. The framework needs to be a practical framework that combines approaches, tools and indicators along the different elements and types of justice, scales and timing, as well as different types of transition. This means that the operational framework must be flexible. Therefore, we have opted to raise awareness by building the operational framework out of key questions related to the key elements that matter in just transitions, added with supportive approaches and tools, as well as examples from just transition practices. To quote from these questions: 'a gentle reminder to continuously consider the "what", "how" and "who" of justice, and perhaps most importantly the "why" ' (Smaal, 2021). Our aim is also to build an operational framework that is dynamic and can be used at different stages of the transition processes by different end users.

To raise awareness on and draw attention to justice in the transition process, the operational framework can work as a list of questions that should be answered by people that are part of the transition process. Answering these questions helps to better understand the justice dimensions in the transition processes and together with the examples and practical experiences they help to foster a conversation on how to make the transition more just.

The key questions are concluded as being at the core of the operationalisation process and are coming from the literature, from our expert conversations, the empirical practices and the Just Transition Dialogues. We have structured the key questions around recurring steps in transition processes and completed with illustrations of examples. As many of the examples include several aspects, we have added these examples at the end of the most relevant step.

5.2 User groups of the operational framework

Just transition by whom? The question of who bears the responsibility to foster just transitions has popped up many times in the Just Transitions dialogues. Initially, everyone referred to governance bodies, like national governments, the intergovernmental climate and food architecture, the European Union, the United

Nations and multi-stakeholder partnerships. Others stressed the role of financial institutions like the World Bank and companies worldwide to take responsibility beyond the rules set by governments. The role of civil society in furthering procedural and recognitional justice by empowering unheard voices was mentioned.

Based on these insights, we have tailored the operational framework for the following users:

- Social groups that experience injustice or NGOs advocating for these social groups. They can use the operational framework to better understand what type of justice they are looking for, as well as why this type of justice matters.
- Those people who are in the driver's seat of transitions, for instance governmental officers, politicians and the private sector. These people can make use of the operational framework to make the transition processes proceed in a more just way.
- Scientists who play a role in transitions, whether by providing fact-based evidence or by playing more active roles such as facilitator or honest broker.

In transitions, these user groups are usually interdependent of each other, as they are connected to each other in a specific power relation. It is this power relationship that shapes justice in transition. Therefore, understanding this power relation and fostering fundamental change to this power relation are key to making sure transitions become profoundly more just (Newell et al., 2021). This depth of change is what the operational framework should enable. De Koning, et al. (2021) and Newell et al. (2021) indicated that a specific type of knowledge is needed to encourage this fundamental change in power relation: knowledge about the pluralistic norms and values in society that affects world views, knowledge about how systems are perceived and knowledge about all types of options for change. Therefore, the operational framework aims to provide users groups with these types of knowledge (or insights) to enable the change in power relations and pave the way towards more justice in transitions. This means that the operational framework helps user groups to deeply reflect on their own positioning in existing power relationships.

This also means that the operational framework should best be used by the different groups of users in a joint dialogue, i.e., the social groups that are affected by injustice, as well as by the groups that are in the driver's seat of the transition process now. During the Just Transition dialogues, it was repeatedly confirmed that the pursuit of just transitions 'is a collective thing'. Before we can understand how to make systems fair, we need to know how people engage in and perceive these systems. Enhanced listening, deliberation, diversification of participation and co-creation are key. Also, key is shared framing, common understanding, levelling languages and including power relations (West & Worliczek, 2019; Newell et al., 2021; IDLO, 2021).

5.3 Raising awareness by asking the questions and deep listening

As stated in the previous section: the operational framework raises questions for more awareness about the justice dimensions in transitions. Raising questions goes hand in hand with deep listening to ensure that knowledge for real transformation is exchanged. Deep listening is needed to understand each other and the system and to increase the willingness to change the power relations. This conversational approach is helpful in addressing possible sensitivities among stakeholders and the importance of taking into account diverse worldviews, norms and motives.

5.3.1 Formulating questions

Because injustice is related to underlying mechanisms and power dynamics, it is necessary to apply questions that encourage so-called triple-loop learning in order to mobilise the types of transformative knowledge needed to make the transitions more just, as was stated above.

Tosey et al. (2012) provides an interesting overview and discusses the different conceptualisations and intentions or meanings of the triple loop. Starting with Argyris and Schön's single- and double-loop learning (Argyris and Schön, 1978), the conceptualisation of triple-loop learning emerged. Recently, Kwon and Nicolaides (2017) further conceptualised triple-loop learning in the context of diversity management (Kwon &

Nicolaides, 2017): it is a form of learning that goes beyond single- and double-loop learning. It serves as the basis for processes of the most fundamental and profound change' (Kwon & Nicolaides, 2017; Peschl, 2006).

As also cited by Tosey et al.(2012) and Swieringa and Wierdsma (1992), the triple loop takes place when 'the essential principles come into discussion', as well as 'the development of new principles' (Swieringa and Wierdsma, 1992). In addition, Isaacs (1993) points out that 'triple-loop learning opens inquiry into the underlying "why's"...that permits insight in the paradigm itself'. Nonetheless, each loop matters in the dialogue—a focus on the what, the how and the why (Concilio et al., 2021)—to fully understand what is happening, how it's happening and why it's happening. It is therefore of absolutely necessity to understand who experiences what, how and why in transition processes.

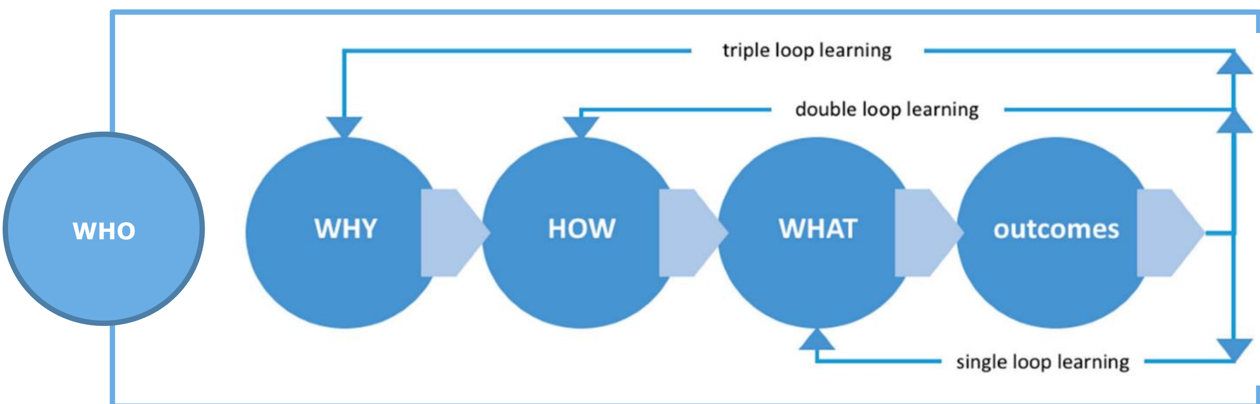


Figure 8 *Triple-loop learning and the what, how and why questions (Source: Concilio et al. 2021) Debategraph (Debategraph reworked the concept of triple-loop learning considering the 'what', the 'how' and the 'why')*

However, Tosey et al. (2012) also raises critical issues: Third-loop learning touches upon the most critical elements of an organisation or society and raises questions about the possibility and wisdom of actively pursuing change and transformation, let alone the opportunity to plan this. There is a risk that this will not necessarily have beneficial outcomes (Tosey et al., 2012). And, as Concilio et al. (2021) write, 'The more disruptive the change to be achieved, the more triple-loop needs to engage all involved actors, from individuals (micro-level) to institutional (meso-level), up to the societal scale (macro-level).

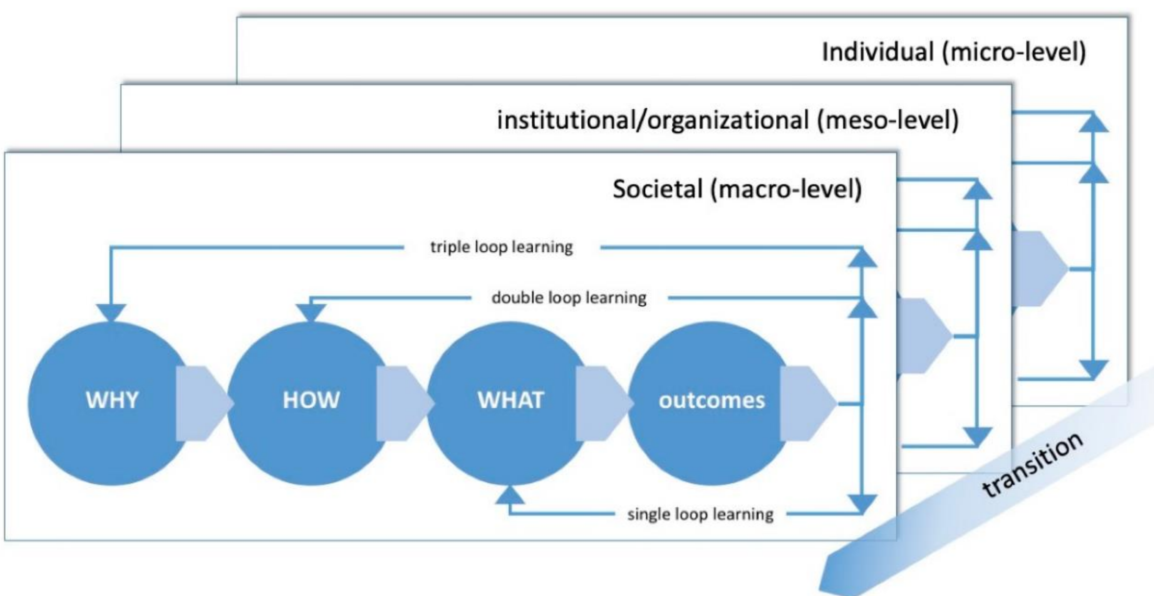


Figure 9 *Triple-Loop Learning and the three learning dimensions for transition: micro-(individual), meso-(institutional/organisational), and macro-(societal) levels, such as empowerment, self-esteem, (strengthening of) social cohesion and autonomy (From: Concilio et al. 2021)*

The questions that are formulated in the operational framework are coming derived from analysis of scientific literature, but mainly also from the practices and the dialogues.

5.3.2 Deep listening

'We think we listen, but very rarely do we listen with real understanding, true empathy. Yet listening, of this very special kind, is one of the most potent forces for change that I know.'
Carl Rogers, 1980.

Answering questions help to move beyond preconceptions, biases, group dynamics, power relations and—let us not forget—emotions. They help to reveal values, norms, perceptions and worldviews. These elements are always at the table and are heavily determined the direction of conversations and discussions. However, one does not always listen to these underlying values, norms, perceptions and worldviews. Once aware that there are many underlying aspects, an opportunity emerges to move to a positive-but-critical, self-reflective starting position to enter the dialogue about just transitions. This understanding is needed to shift the existing power relationships in a more just way and to better understand how each stakeholder in the process perceives justice. Answering the questions jointly is one part of the conversation. However, deep listening is necessary to exchange transformative knowledge.

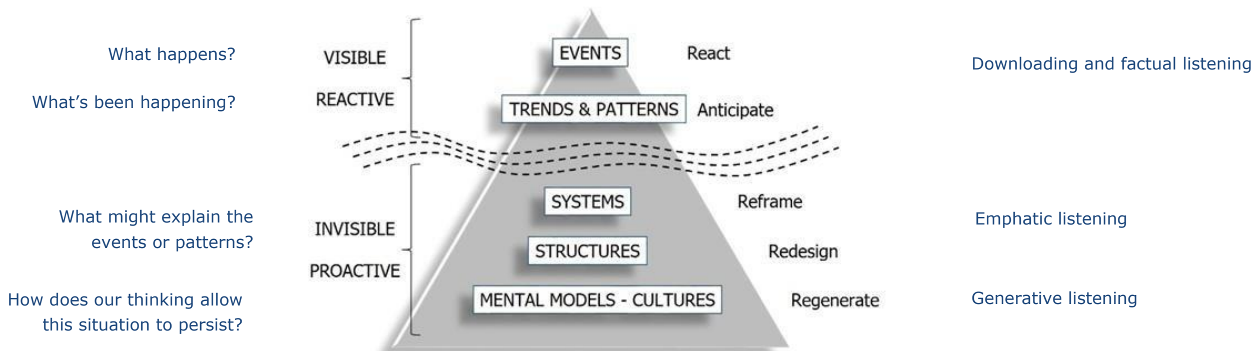


Figure 10 *Systems Thinking Iceberg Model key questions and listening modes (Adapted from Bryan et al, 2006)*

Deep listening has the potential as analytical tool to improve understanding about the root causes of injustices, but it also serves as a valuable tool to lift and support the process and dialogues towards just transitions. It demands different mindsets, approaches and skills of researchers and practitioners.

In his book 'Theory U Leading from the Future as It Emerges' (Scharmer, 2009) and in his article 'Uncovering the blind spot' (Scharmer, 2008), Scharmer clearly emphasises that 'we are blind to the deeper dimensions of leadership and transformational change'. He states that this all has to do with our modes of listening and understanding of the field, or inner space, from which we and others are operating.

Koch (2020) notes that 'how to listen and represent others remains a perennial challenge, especially as the power inequalities and cultural differences between researcher and respondent grow.' However, she posits that 'listening in multiple ways, across multiple spatiality, temporalities and communities may be one modest way to conceptualise....toward the realm of mutual understanding and surprise.' According to Koch, deep listening 'begins with critical reflexivity: a reflexive form of deep listening therefore demands an ethic of openness and humility that questions our role in challenging or upholding various popular or academic meta-narratives, as well as attending to how geographic (spatial and temporal) context shapes all interactions.' (Koch, 2020). In these reflections, Koch brings forward a sustained commitment that requires 'unlearning', openness to uncertainty and surprise and the power of silence over speech.

Staddon et al. (2020) invites readers to consider the myriad ways that listening matters and how an ethics of listening should be promoted. She offers questions to reflect upon, some of which address awareness of what is not yet known: ‘Who are you listening to, and who is not being listened to?’ ‘What conversations are happening that you are not hearing?’

Deep listening principles
In our approach, based on the above understanding, we outline three key principles for deep listening:
1. Neutrality: an observational mode
   In dialogues and discussions, biases, preconceptions, assumptions and resistances or emotions (or whatever the first reaction is) should be put aside in order to best assume a position of open listening.
2. Intellectual humility: an approach of inclusion
   Current knowledge or (expected) insights should be parked to open for that which you do not know.
3. Empathy and compassion: an action of understanding
   To become truly an advocate for the whole, empathy and compassion are key. It is all about trying to get into another person’s shoes and open oneself up to that perspective.

As mentioned, this requires full acknowledgement of the levels or modes of listening and pitfalls, like language (jargon), closed and confirmative questions, (theoretical and basic) assumptions and the tendency toward analytical and technical fact-finding. Being aware of this listening mode is a start, but the type of questions and the focus of those questions matter as well. In short, we must address open questions and take into account triple-loop learning.

5.4 The elements of the operational framework

We build the operational framework along the following different steps that must be taken repeatedly during transitions, and which are in line with transition pathways and the Adaptation Support Tool:
- Step 1: Common understanding
- Step 2: Envisioning a just future
- Step 3: Decision-making: synergies and trade-offs
- Step 4: Monitoring and evaluation

5.4.1 Step 1: Common understanding: How just is the current situation, and why?

In this first step, the conversation between groups of people should be about jointly creating a common understanding about the current situation of injustice. In this step, people explore who is experiencing injustice and, more importantly, why this injustice is happening. The following key questions help in the search for a way to make transitions more just.

5.4.1.1 *Who is experiencing an uneven burden and uneven benefits and why?*
Stakeholder analysis is a way to assess people involved in the transition. It is also a way to categorise people and to identify groups of people that are excluded from the decision-making process in transition, despite the stakes they have. The groups involved are categorised and then assessed according to who should be included in the transition process. As stated by Simmons and Lovegrove (2005), a stakeholder analysis ‘bridges the divide between theory and practice’ and makes it possible to act on the problem’ (Simmons and Lovegrove, 2005). The ways in which stakeholder analyses are carried out is crucial. The most beneficial way is participatory stakeholder analysis. And power relations should be assessed (Just Transition dialogues, 2/12/2021). The salience stakeholder analysis model is worth mentioning in the light of justice, as it takes into account legitimacy and urgency, next to power. It emphasises the challenge of taking into account the degree of hierarchy between stakeholders and from which level the stakeholder setting is perceived (de Melo et al., 2020). Other tools for stakeholder analysis can be found here: Tools for transition (wur.nl) (de Koning et al. 2022)

Then, the question is how to demonstrate the injustice that is experienced and to know they explanations of the injustices? The two most common ways to demonstrate injustice are:
- Storytelling of experiences about injustices
- Mapping and assessment tools

Storytelling of one's experiences of (in)justices in transitions

Example: Deep listening to stories of social groups in Rybnik – Poland (based on Sandura, 2021; Koch, 2020)
Rybnik is a city located in Poland, in one of the largest coal regions in Europe. Because of the ambition of the European Union to transform into a net zero society, the region faces an enormous economic challenge while simultaneously struggling with air pollution. This transition may mean lost jobs for many, and the city might experience an economic collapse when coal mining is stopped. Climate KIC has organised the Just Transformation Deep Demonstrations programme – Project Rybnik360. This project starts a long-term process to organise the just transition by setting up a new development strategy for the city, based on systemic innovations and implemented in cooperation with city stakeholders. This long-term process is oriented towards bringing the perceptions, ambitions and ideas of the many stakeholders together in a joint vision about the future. To gain a good understanding of how people think they might be affected by the transition, the deep listening method was used to assess expected injustices and views about their future. In total, 180 in–depth interviews were conducted, 2800 arguments were mapped, and 93 innovation ideas were developed. The key is to listen to needs, problems, desires and narratives. This approach has helped to build trust and embrace the diversity of values, interests, outlooks and attitudes. It also helped develop a safe environment for conversation. This is a good basis for starting the envisioning process, which is also partly covered during the deep listening approach (Step 2). The added value of this approach was that people felt safe to express their view and that large effort was invested to integrate the different views.

Example: Stories for advocacy and public pressure – Export credit agencies (based on multiple sources – see in references list – case 7)
An example of using storytelling of experiences to demonstrate injustice can be found on the website of Fossil Free ECAs. This is an international advocacy organisation that is supported by many national and international environmental organisations. The website clearly explains that Export Credit Agencies in the Global North are financing fossil fuel projects in the Global South, and therefore hindering a just energy transition. These countries in the Global South remain locked into an economy dependent on fossil fuels. Export credit agencies (ECAs) are government-backed organisations that provide all kinds of credits to the private sector with the aim of seizing business opportunities in developing countries and emerging markets. In doing so, ECAs are financing projects that are destructive to the environment and to the human rights of the local population. These destructive practices have been condemned by NGOs since the 1990s (Hale et al. 2021). Fossil Free ECAs illustrate the stories of the people who experience and fight injustice and who indicate by a blaming and shaming approach which ECAs are involved in dirty investments. In this way, ECAs aim to call upon the public opinion and the national governments to abolish investment in such projects. Fossil Free ECAs and many other NGOs are slowly but surely gaining success, as some national governments like Sweden have recently announced that they will stop investing in fossil fuel projects, resulting in a build-up of international momentum to change ECA investment practices (SEK 2021; Cicero & IISD, 2021)).

Mapping and assessment tools for distributive (in)justice
Maps play an important role in visualising who is disproportionally affected or who bears uneven burdens and benefits. It is a way to show distributive justice in terms of unequal outcomes or impacts of certain interventions. Mapping tools have spatial characteristics and are able to combine spatially different data sets (Maantay, 2002). The power of mapping is the visual explanation of difficult topics that makes information more manageable. An often-applied method is geospatial mapping combined with impact assessment.

Although they are viewed as presenting reality, maps are in fact the result of a process of knowledge construction and can be understood as political tools that are used in decision-making processes. Mapping distributive justice includes the selection of relevant indicators that also depend on the availability and reliability of data sources. It includes standardisation of the data and the construction of a related index to illustrate the injustice. Consequently, the most relevant scale also be identified, as the map must inform stakeholders in the transition process.

Example: Mapping distributive justice with the Climate Just tool in the UK
This Climate Just tool has been developed to combine information about climate effects and socio-economic data in order to assess the impact of flooding and heat. The online webtool provides a clear narrative and

guides users through information and possible action. This kind of map can be used as a starting point in the conversation on who should be better involved in the transition processes and what would be the effect of the transition on these groups.

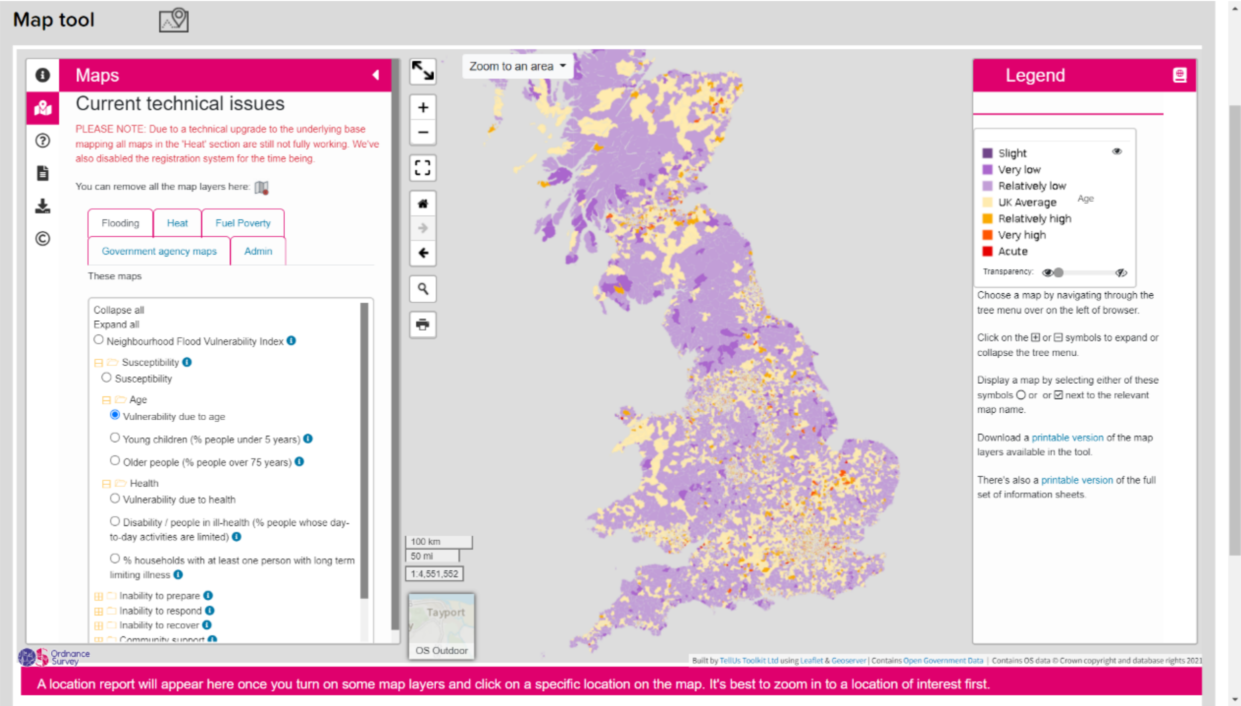


Figure 11 *Climate Just Tool – (https://www.climatejust.org.uk/map)*

Closely connected to the Climate Just tool is the case of the Glasgow City Region Adaptation Strategy and Action Plan. Climate Ready Clyde (CRC), a cross-sectoral initiative funded by fifteen member organisations and supported by the Scottish government, has developed a Glasgow City Region Adaptation Strategy and Action Plan[3] (Climate Ready Clyde (2021a; 2021b). This Strategy and Action Plan focusses on how Glasgow City Region can become resilient while ensuring everyone benefits from this focus and also preventing new inequalities from adaptation measures (just resilience). As part of the process, a comprehensive climate assessment was conducted. In addition to technical and economic assessments, a climate risk assessment and social impact assessment were executed, providing insights into how processes and actions can deliver climate justice by supporting those who are disproportionately affected by climate change risks because of race, gender or other social-economic factors. To develop climate adaptation interventions that also improve the resilience of vulnerable groups and communities, the CRC aims to strengthen recognition-based justice by taking into account vulnerability and other related social and economic determinants when determining and prioritising interventions and investments (Climate Change and Marginalised Communities Workshop Contributors, 2020).

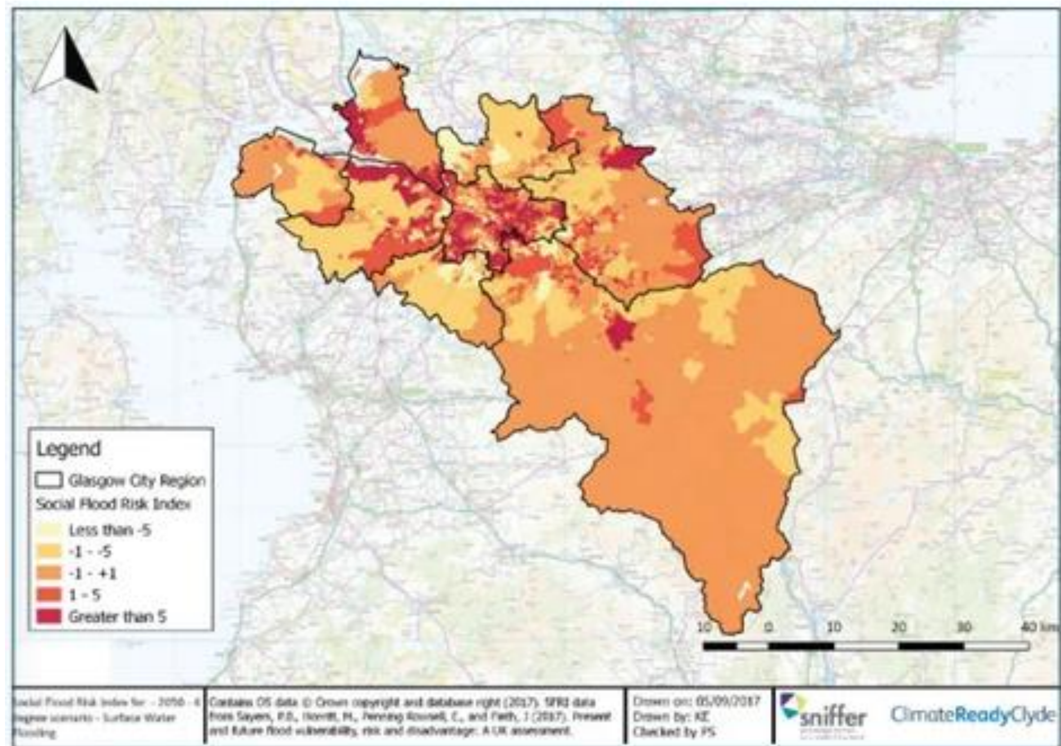


Figure 12 *Glasgow Region Adaptation Strategy and Action Plan on how to combine future flood exposure and social vulnerability in 2050*

Example: Mapping different types of justice in the Melbourne Metropolitan Area – Australia
The Swinburne University of Technology has developed a methodology to define, identify and map injustices in urban landscapes (Pineda-Pinto et al., 2021). For the three types of justice – recognition, distribution and procedural justice – they translated a set of indicators to map injustice for the greater Metropolitan Melbourne area. The results clearly show spatial differences depending on the type of justice. The study illustrates the importance of defining the type of justice before starting the mapping process. It also indicates the need for concrete indicators. Agreeing on these indicators should also be part of the process.

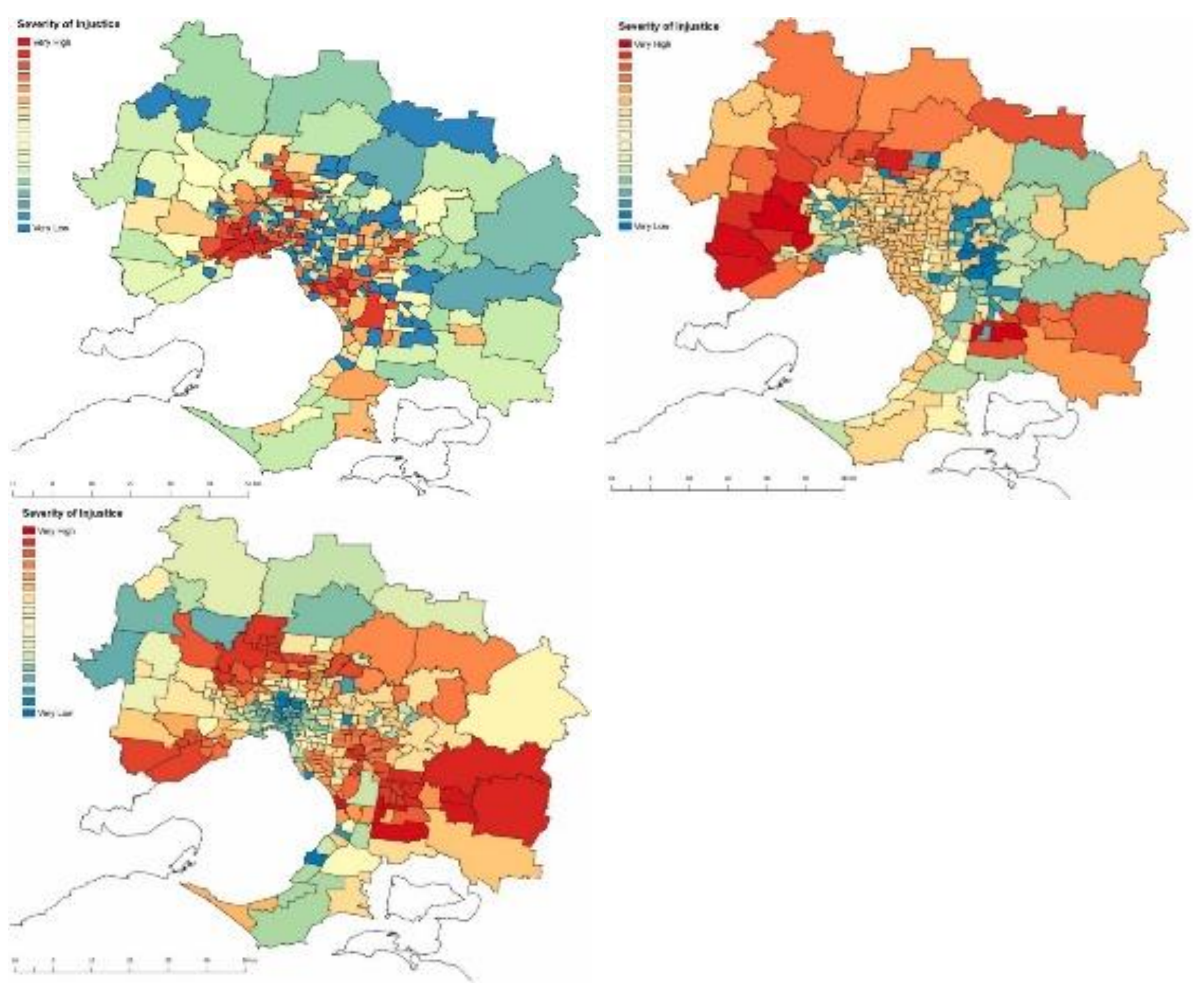


Figure 13 *(From left to right) Distributional injustice map of the greater Metropolitan Melbourne area, recognition injustice map and participation injustice map (Pineda-Pinto et al., 2021)*

Table 2 *List of indicators, definitions, and data sources used for each social-ecological injustice dimension*

Dimension	Indicator	Definition	Data source (year of release)
Distribution	Polluting facilities (PF)	Density of PF = # of PF / area SA2 (square kms)	Department of Environment and Energy (DEE, 2019)
	Contaminated sites (CS)	Density of CS = # of CS / area SA2 (square kms)	Environment Protection Authority (EPA, 2019)
	Extractive industries (EI)	Percentage area of EI = area EI (square kms) / area SA2 (square kms)	Department of Jobs, Precincts and Regions (DJPR, 2014)
Recognition	Future urbanised land (FUL)	Percentage area of FUL = area FUL (square kms) / area SA2 (square kms)	Victorian Planning Authority (2015)
	Future industrial land (FIL)	Percentage area of FIL = area FIL (square kms) / area SA2 (square kms)	Department of Environment, Land, Water & Planning (DELWPa, 2019)
	Native vegetation (NV)	Percentage area of NV = area NV (square kms) / area SA2 (square kms)	Department of Environment, Land, Water & Planning (DELWPa, 2018)
Participation	Environmental groups (EG)	Density of EG = # of EG / area SA2 (square kms)	Department of Environment, Land, Water & Planning (DELWPb, 2019)
	Green voters (GV)	Density of GV = # of GV / area SA2 (square kms)	Victorian Electoral Commission VEC (2018)

Example: Counter-mapping of environmental injustice

This example combines stories on a map, a method called counter-mapping. Counter-mapping is qualitative data collected in an interactive, critical cartography of storytelling, and it is often used as a political tool.

Counter-mapping, which also represents psychological and physical distances, often supports decision-making processes and can present injustices in a critical overview. The Environmental Justice Atlas is an example of counter-mapping, in which critical stories are published about injustices worldwide which are mostly caused by climate change. Counter-mapping deals with present injustices and discusses situations at different scales.

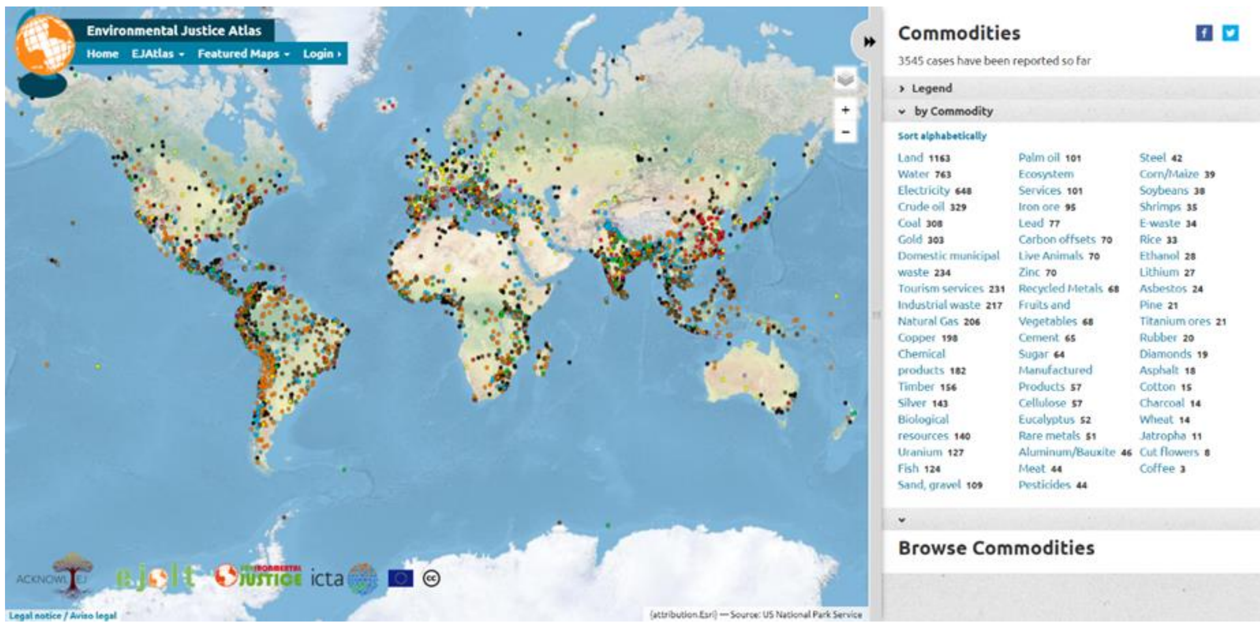


Figure 14 *Counter map of injustices worldwide with different themes (ejatlas.org)*

5.4.1.2 How do stakeholders perceive justice and transitions?

In the previous section, we explained the different meanings of justice and transitions. Because each of the meanings can have different consequences for the transition process, it is necessary that stakeholders discuss their views on the type of justice and the type of transition they are looking for. In this section, we explain a bit more about the background and consequences of each of the meanings.

Justice is defined by people based on their norms, values, motives and worldviews on the one hand, and based on the context definition on the other hand. This approach also refers to recognitional justice as a precondition for integrating justice in transition because respect for the norms, values, motives and worldviews of each other is needed. Also, transition is defined via the same mechanisms.

The figure beneath demonstrates the different types of justice and different types of transition that people could be looking for. The people are encouraged to position themselves and to explore how they view justice and transitions. They are also encouraged to find the relationship between the way they perceive justice and transition.

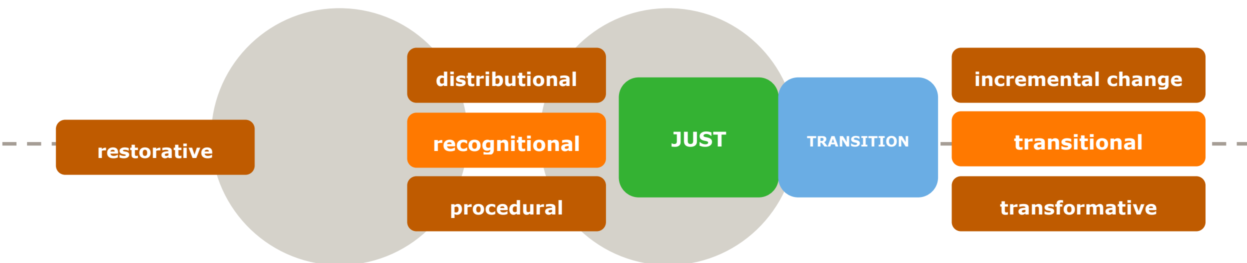


Figure 15 *Assessing the meaning of justice and transition*

5.4.1.3 What are the values, norms, perceptions and worldviews of the groups in the transition process?

Just transitions are confirmed to be normative and depend on people's values. When people act, they are driven by internal aspects like their values, cultures, norms and motives. These guide the way they view and perceive justice and consequently also influence their actions. This step aims to make these elements more explicit in order to understand the differences among the groups of people in the transition process.

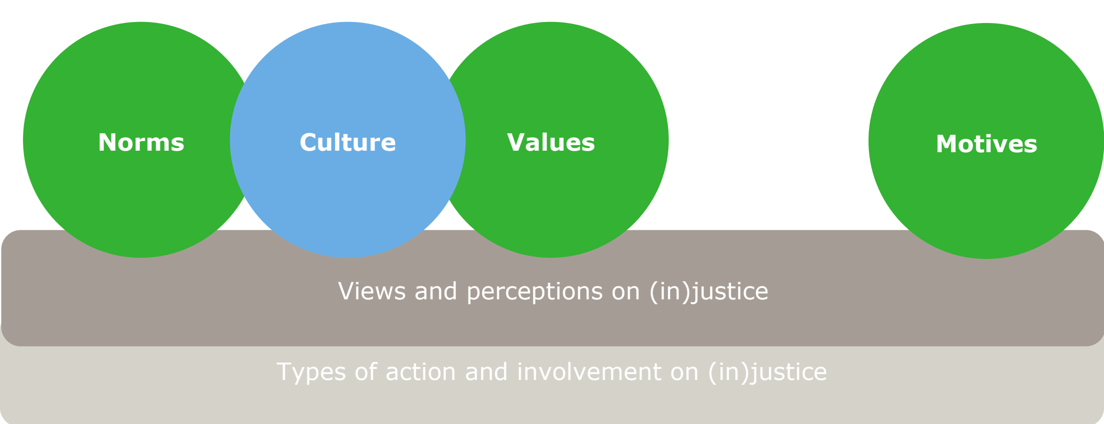


Figure 16 *Norms, values and motives are decisive in perception of and type of action on (in)justice*

Literature confirms that one has to bring in a good and full understanding of the motives and values in order to put justice into transition practices. As Krause et al. (2018) mentions, 'it is important to question whose ideas and values are in the driving seat and how this influences transition' (Krause et al., 2018). We should not neglect the fact that justice and justice restoration are not always beneficial for all. At the same time, it is of utmost importance to involve social groups that experience injustice in a way that their culture, norms, values and motives are part of the transition process. This dilemma, that justice is not always beneficial for all, along with the inclusion of social groups that feel unjustly treated, makes the integration of justice in the transition process highly delicate. We must look for approaches and tools to facilitate this dialogue.

What values and motives are behind each type of justice? As stated above and confirmed by Fraser (2010) and Smaal (2021), economic values refer to distributional justice, political values and motives refer to procedural justice and cultural values refer to recognitional justice.

It is consequently also necessary to understand who is framing justice, who is targeting and who is operationalising justice. This is the key to bridge dominant mindsets, activist mindsets and target groups. Specific knowledge on norms, norm diffusion and how to bring this to the operational arena is helpful.

Involving groups with different norms, values, motives and worldviews may lead to tension, especially when these norms, values, motives and worldviews are not made explicit. Newell et al. (2021) indicated that there are different 'spheres' of regimes in justice: international regime, activist contribution and academic scholarship. Each uses different angles and intentions when referring to justice. Newell et al. (2021) illustrates the emerging tensions as follows: 'Some activists have defined themselves in opposition to more mainstream climate activism and UN processes, which are frequently depicted as technocentric, bureaucratic and co-opted by corporate actors, pushing "false" market solutions and overriding the poor and marginalized groups.' Also, Wahlström et al. (2013) noted a tension between system-critical and more individual action-oriented framings (Wahlström et al., 2013).

Users of the operational framework should also reflect on their own norms, values, motives and cultural worldviews and how they differ from those of others. Spinney (2020) advocated that we 'stop and understand what we are trying to achieve and for whom: what are our motivations? As such, whose experience matters is a question of justice.' Spinney (2020) mentions that our motivations in any transition should be to create systems that offer favourable, wide-ranging experiences for as many potential users as possible (Spinney,

2020). In other words, we should carefully take into account the societal differences and different motives at full swing from the start. This deals with actors and potential target groups in all their diversity.

This should be done in a way to avoid polarisation but to foster respect for each other. As, for instance, in food systems transformation, there is critique on neoliberal worldviews. Pettygrove and Ghose (2018) indicated this: 'Although many benefits are noted, scholars also contend that food activism often serves to bolster neoliberal structures by encouraging neoliberal citizen subjectivities or engaging in localised activities that do not directly challenge broader structural injustices' (Pettygrove and Ghose, 2018).

Example: Lived Value Assessment – Values-based tool to reveal values
An example of a tool that considers values is the 'lived value' assessment, as described by Graham (2018). This assessment aims to understand and classify the lived values of four marginal rural communities at risk of sea level rise in Australia. This lived value assessment shows that a focus on place-specific values can provide decision-makers options for better tailoring strategies and interventions, linking to value and perceptions. As Graham states, 'The lived values approach facilitates an understanding of the situated determinants of fair adaptation – fairness has its subjective, spatial, social, and temporal dimensions that cannot be captured by assessments based on material and economic and circumstances alone.'

Example: Dynamic Integrated model of Climate and the Economy (DICE) – economy-based tool for distributive justice
This model presents economic inequalities within the model's regions, such as income. With this model, conclusions can be drawn about who is and who will be most affected by climate change, based on socio-economic characteristics of the area. This is an important means of oversight, as much of poverty can be associated with high levels of vulnerability to climate change (Dennig et al., 2015)

Example: power mapping – politics-based tool to enable procedural justice
Power mapping, as discussed above, is a tool for procedural power mapping can be used to determine how the power relations are distributed and being carried out. When these relations are out of balance, in most cases, power mapping is useful to restore these distortions. This tool is used to achieve equal treatment in the decision-making process.

5.4.2 Step 2: Envisioning a more just future

When uneven burdens and benefits are assessed and there is a common understanding that this situation needs to change, one enters the step of envisioning a future. In reality, this step overlaps with other steps, and envisioning rarely takes place in a peaceful continuum. The step is often accompanied by frustration, irritation or conflict. Nevertheless, envisioning the future includes many dialogues and debates among stakeholders. There are different approaches to envisioning: technical approaches that are looking for technical solutions; or engaging approaches that are looking into how to engage with related processes in order to progress change (Wigboldus et al. 2021)

5.4.2.1 What is the context to envisioning a future: scale, time and scope?

Based on the above insights from literature, we have added the components scale, time and scope time to the framework which need to be clarified before envisioning the future.

Figure 17 *The starting points and boundary conditions should be clearly established and decisive*

Scale
Maher (2018) mentions that 'climate justice is concerned with addressing the disjunction between climate risk and responsibility across scales, places, spaces and temporalities' (Maher, 2018). Also, Kalpavrisksh

(2017) formulates three types of scales: the temporal scale (which is actually referring to time), the geographical scale and the human/nature scale (Kalpavrisksh, 2017).

The importance of a multiscale process should be broadly embraced in transitions. This multiscale perspective is also relevant for justice. Barrett (2013) mentions that 'climate justice analyses have typically been normative, single scale or based on case study analyses. He views a multiscale analysis of (climate) justice as a necessity; working towards a 'multiscale analysis with quantitative capabilities works in accordance with several characteristics intrinsic to the subject matter of (climate) justice' (Barrett, 2013).

Scale refers to governance levels, as well as to spatial levels. And, according to Williams (2018), scale is more than a normative evaluation (Williams, 2018). He argues that 'spatial representations frame the justice debates by making certain constituencies present in the political process'. He refers to spatial justice as 'best understood as an analytic lens that illuminates the ways in which "space" – a term denoting the location of things relative to each other – participates in the formation of justice claims.

Jessup (2014) mentioned that 'spaces of vulnerability and privilege were recognised as especially evident across scales' (Jessup, 2014). Much of the found literature still discloses a distributional focus on the scalar issues, whereas the links between the different elements of justice across scales still seem underexposed. We argue that, in particular, this understanding could be helpful for distributional justice, perhaps as the outcome of underlying systems and elements of a broader justice perspective.

Time

Much of the justice literature focusses on the past and present (in)justices and how to 'solve it'. Only limited attention is paid to the future aspects of justice. Only recently has envisioning just futures gained more attention, including dealing with the uncertainties that come with climate change and transitions. An interesting statement is made by Jafino (2021): 'The fact is that we do not know the values that future generations will uphold. Hence, in order to have a fair representation of future generations, we need to explore value changes.' As argued by Padilla (2002) and Taebi et al. (2020), accounting for intergenerational justice requires that one acknowledges that the values of the current generation cannot simply be assumed to also hold for future generations (Jafino, 2021).

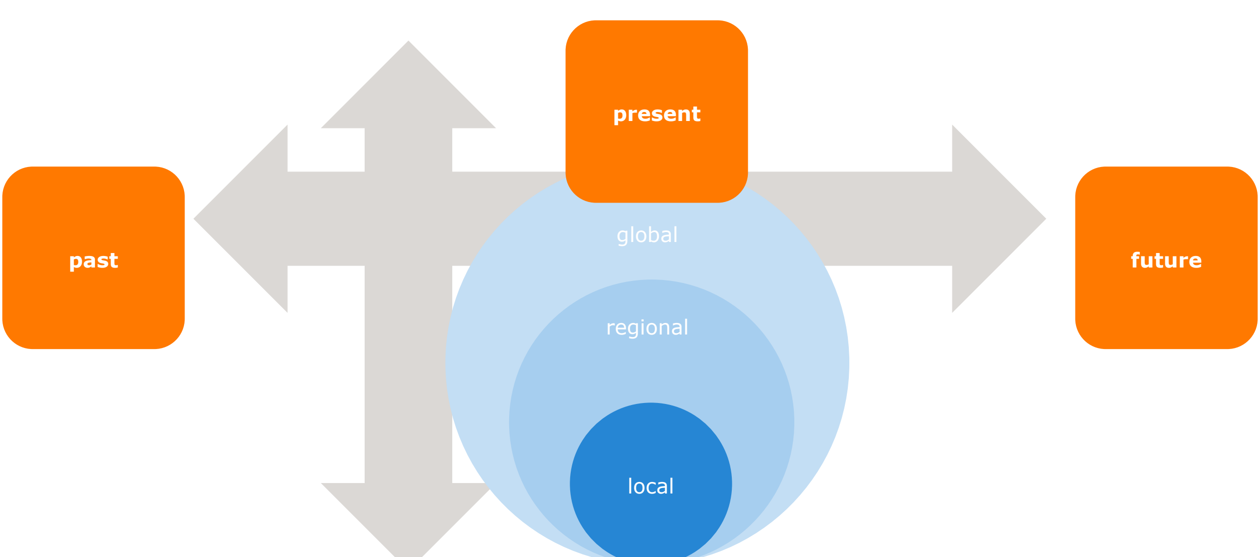


Figure 18 *Time and scale*

Scope

Perhaps the most challenging part of operationalising just transitions is defining the scope. As many domains and transitions have presented justice as an important aspect, justice has been associated with many topics.

In our review of the literature, we observed the following:

- Topic-based types of justice deal with specific topics like climate, energy, food or health. It is good to have an understanding how these topic-based types of justice also connect in practice.
- Conditional types of justice link to more systemic and conditional aspects in the justice framework, like environmental justice, spatial justice, financial justice and legal justice.

The numerous adjectives attached to justice ask for clear distinctions.

As such, scale, scope and time also bring in the perspective of desired outcomes of the just transitional process. That is also something actors and target groups should be aware of and strive for together—what is the shared intention? Scope is added to the operational framework, as well, as climate, food, energy and health all correlate.

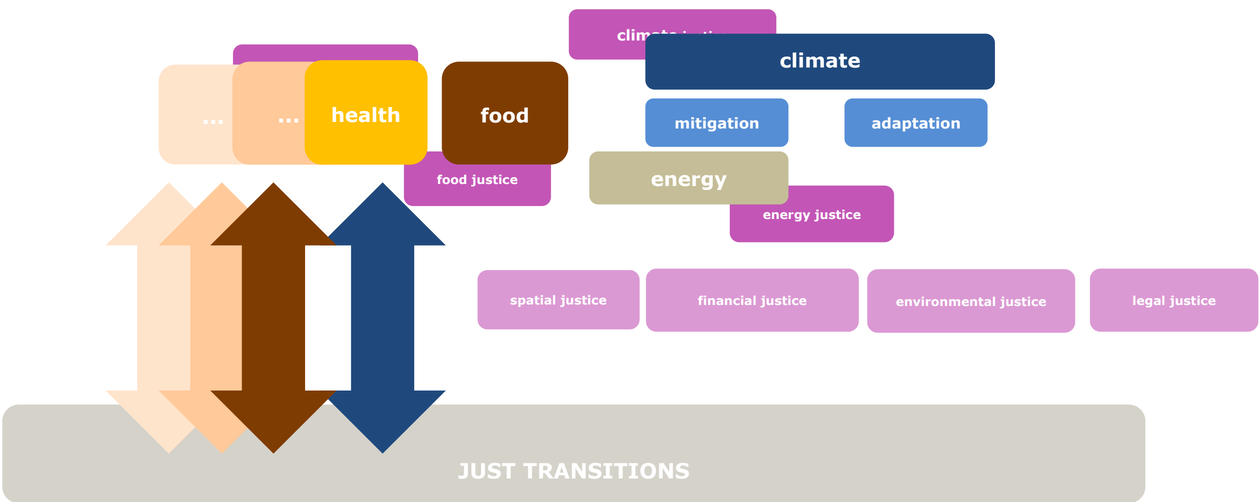


Figure 19 *The scope of just transition*

5.4.2.2 Who and how do we engage in envisioning?

West & Worliczek (2019) brought forward operationalising visions and scenarios as an important thematic area that should be further developed and researched. The development and assessment of integrated scenario tools and foresight techniques, in combination with practices for engaging marginalised voices and stakeholders, should be given due attention (West & Worliczek, 2019). At the same time, this development and assessment should give further notice on how transformation visions can be grounded in present realities, knowledge and values (West & Worliczek, 2019).

The question of who to engage in the envisioning and how to engage with them is therefore directly related to the results of the step of common understanding. All social groups that currently bear an unfair burden should be included, as well as all groups with a stake in the transition. The challenge is to ensure that these marginalised groups are able to make their voices heard. The question is therefore what are tailored engagement approaches that remove the barriers that these groups often experience when trying to enter into envisioning and even policymaking?

Example: engaging excluded groups in Birmingham Food System Strategy (based on Brimingham City Council, n.d.)
The City of Birmingham faces several challenges in its urban food system. Affordable, healthy and sustainable food is not equally accessible to all citizens. Feeding over 1.1 million residents every day, the city's urban food system has a great impact on its people and the environment. Moreover, the city is the most ethnically and culturally diverse city in the UK outside of London, and one in three children lives in poverty.

The Birmingham Food System Strategy 2022-2030 is the city's eight-year approach to creating a sustainable and healthy food system. The city's Food System Team deliberately chose a systems approach, meaning they take into account all elements involved with food, including production and transportation, but also

socio-cultural aspects like education, food culture and how and where food is bought. The strategy is the result of three years of close collaboration between the city, its partners and its citizens, and its collaborative efforts are underpinned by three principles:

- *Collaborate* (strengthen partnerships and build on existing best practices)
- *Empower* (remove barriers and facilitate solutions)
- *Equalise* (focus actions where they are needed most to reduce inequalities)

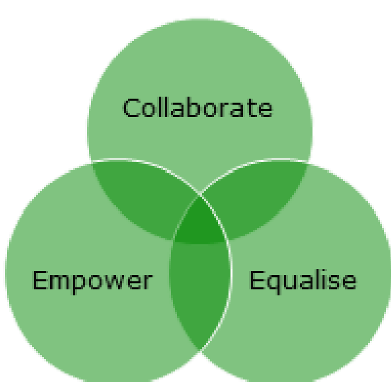


Figure 20 *Three principles of Birmingham Food System Strategy 2022-2030*

The strategy describes key areas of focus to eventually develop the city's Food System Action Plan, with the aim of creating a regenerative food system that works for the environment, the economy and the diverse communities within the city. Apart from the strategy itself, one of the key outcomes is the way in which the process was conducted, providing a good example of how to ensure just multi-stakeholder processes that we can learn from.

Justice was taken into account in both the content of the strategy and the creation process. In terms of content, the strategy focuses explicitly on the most deprived areas of Birmingham, where there are fewer supermarkets and healthy affordable food options. These areas are, on the whole, more food insecure and suffer more from financial hardship and health issues. The strategy is explicit in its ambition to put the diversity of citizens at the heart of the approach and consider the barriers and accessibility of the actions, for example by considering different use of language or delivery methods, such as internet access and literacy.

The key way in which the city's strategy aims to take a just approach is in terms of how stakeholders are involved and how ownership of the strategy is shared between communities. One of the key principles of the process was to make it as collaborative as possible, involving also those communities that are usually harder to reach (which they have named the 'Seldom Heard Food Voices'). The outbreak of the COVID pandemic and the subsequent digitalisation of many processes helped in some way, as it was easier to get people to attend meetings and get young people involved. The participation of many had the benefit of being able to build on what people already did before and were already doing, rather than coming up with something completely new.

One of the ways in which this was done was to connect with existing initiatives led by people in the city, the so-called 'local food legends'. These legends participate in all sorts of activities to reshape the city's food system: from organising zero-waste dinners to learning the recipes of your neighbours and community bakeries. The municipality is looking for new legends, establishing a network between them and highlighting their initiatives to support them. Together, they form the Food Justice Network, working to assist citizens in need of support and campaigning to end inequalities and injustices.

Lessons learned: How are stakeholders involved?

- Building on local knowledge and working with community 'legends' provides an entry into communities that are usually harder to reach in strategic engagement processes.
- If ownership and engagement with the transition is felt at all levels, it is far more likely that the transition approach will be efficient and just.

5.4.2.3 What are the power dynamics, and how do we balance these dynamics and build trust?

Most academics argue that ownership and empowerment by local communities is needed to address the structural barriers to inequality and to resist unequal power relations. This includes the transfer of some degree of power and influence on people who usually do not have power or influence (Cahill and Allen, 2020). Newell and Mulvaney (2013) warn that current states and interstate institutions might lack the willingness, the degree of capacity and autonomy to oversee such a just transition.

The role of power can be illustrated by this example:

> *'What kind of transition are you looking for? Technical, technological or economic, or efficiency-driven? Food system transitions are political, too; they are processes in which stakeholders negotiate their interests and try to influence the agenda for transformation. It's not only about getting your food system to a next level, or to a higher sustainability level, or even a resilience level. It's more about whether the stakeholder community recognises the direction of the food system—and, if not, does that stakeholder community have the power to influence direction? Transition then becomes a political-economic, but it is mainly a political-societal struggle. Cases in which all stakeholders can agree are exceptional because, in such cases, all stakeholder communities have equal power and are capable of negotiating their interest in such a way that the consensus really reflects at least some of their interests. However, in most cases, these powers are not equally distributed, so the transformation will be biased, and there will be losers and winners.'*
> *(interview with B. van Steenhuijsen Piters, 2021)*

Injustice is often the results of structural factors and power dynamics. To move towards more justice, these power dynamics needs to be understood and ways must be found on how to balance power among stakeholders and to (re)-build trust (Glennie and Alkon, 2018). Is the introduction of justice in transition a real opportunity for marginalised groups or is it following the same structural patterns and do voices remain suppressed or excluded? Individual behaviour, and voluntary action to achieve justice or fairness does not work either (discussion during Climate Justice Forum 2021) Active inclusion of civil society and engagement of marginalised groups through processes like co-creation is needed, as well as regulations and policy. For the former, the government should push and dare more. For the latter, we need to have better insights into the instruments, regulations and incentives the government can mobilise to influence private sector behaviour, especially when the private sector is informal. Newell et al. (2021) raises the discussion on how to better understand the enabling conditions for effectively contesting injustice. He presents 'the how, by whom and for whom efforts' to square' different types of justices as a wicked governance problems and urges for participatory engagement (Newell et al., 2021).

What can be ways to reveal power dynamics? One way to do this is power mapping. Power mapping refers to map the dominant power structures. The power mapping method makes it possible to identify power disparities and imbalances. The added value of this method is that it is able to illustrate where socio-political power is concentrated. These insights are necessary to find ways to shift the power structures and create a transformative change on the regime-level (Restorative Justice project, 2019). By analysing and controlling groups with a powerful position, it is possible to act and intervene in time when power relations become unbalanced. In this way power mapping creates more transparency and can power distributed more fairly, if necessary.

From the perspective of procedural justice, the power mapping will reveal which social groups have difficulties to have their voice heard and which groups should be limited in their procedural related power. To enhance procedural justice, power mapping is a qualitative method that starts from the perspective of the involved community and identifies who is in charge in a power relation, who influences the target group and shows what can be done to influence and change the direction of a power relation.

When the method is used from the restorative justice perspective, the method identifies the organisations or groups that are having conflicting agendas and therefore harming the community in the past or present. In this way the harm that has been done to marginalised groups can be compensated and restored in the

future. Consequently, the decision-making process is analysed, and the major centres of decision-makers related to the conflicting agendas are identified. The power mapping also reveals opposition groups and ally groups as well as groups that are not organised. These power groups are then mapped on a power map grid and scored in terms of their support or resistance to solutions and change.

Other approaches to engage marginalised groups are: mosaic governance, multi-method approaches and co-creation. These are about the engagement of different segments of society. Still, an important part of these approaches is the empowerment of groups that have generally had less agency, thereby addressing power imbalances as well. Another approach is the capabilities approach from Amartya Sen, who stated that 'justice can only be achieved when people are capable of achieving well-being and meaning in the way they desire'. 'With large transitions, you, therefore, tend to wonder, will people actually be happier as a result?' The capabilities approach perceives what capacities of non-state actors need to be enhanced to engage and participate meaningfully in transitions? What capacities are needed at local government levels to achieve ethically justifiable and socially just responses to climate change? What competencies need to be developed? (Anat Prag, Sniffer, during the 2nd World Forum on Climate Justice).

Example: Colombia: the energy transition and the extractive sector (based on several sources – see case 3 in reference list)
Countries in which the extractive sector plays a critical role in their economy are highly challenged against the background of global decarbonisation: phasing out of fossil resources and phasing in of energy alternatives. The case of Colombia showcases the ambivalence of the energy transition, but also the opportunity to use this as a leverage point for restoring current injustices and moving towards new just practices. At the same time, this case shows the importance of some critical conditions to guide the transitions.
Colombia is rich in natural resources. Although global ambitions have been set to reduce the use of fossil fuels, the demand is still high. The extractive industries play a large role in the country's exports and GDP and are a large source of revenue for the government. These revenues are important for regional development, but also essential for the transition to renewable energies and in the overall peace process. The foreseen phasing out of fossil fuels will have a significant impact on the extractive industries and the labour force and communities depending on it. Both phasing out and phasing in require a just process. Several cases show that in the enrolment of renewable energy projects, transparency and key values in just transitions are not the standards, leading to new forms of injustice and impact on local communities

In 2021, the workers' unions Sintracarbón, USO and Sintraelecol, representing workers in the coal, oil and electricity sectors, joined forces together with NGOs and academia and launched CIPAME: the innovation and research centre for the just development of Colombian mining and energy sector. Its aim is to proactively participate and engage in just transitions and strengthen the active and direct influence of workers of these sectors towards an energy transition. CIPAME outlines their vision as: '"by 2035, CIPAME enhances the transformative role of trade unions and social actors on just transition policies, practices, technologies and models, to ensure environmental sustainability, economic equity, social justice and compliance with democracy and knowledge management'. Their approach is based on 'the conscious appropriation of rights, technological means and production by workers and social actors who need it, dialoguing, exchanging and contributing to national and international changes that guarantee fair development'.

> *'This is really a new challenge for labor unions. It's the first-time labor forces combine the environment and labor rights within the energy transition. There is no central policy yet, so it's an opportunity now!'*
> *Patricio Sambonino -FNV Mondiaal*

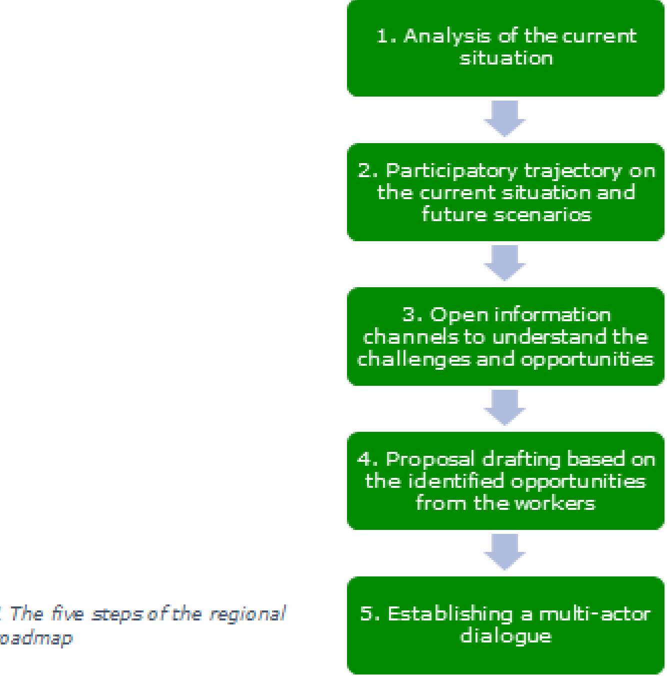


Figure 21 *Five steps of regional roadmap Colombia*

The three main strategies of CIPAME are focusing on building a Just Transition policy, supportive innovations and proper knowledge management and training. CIPAME has an ambitious agenda and is currently challenged by the complexities that arise when building a fundament for just transitions. Their current focus is on developing a regional roadmap, as well as the support of policy formulation and gaining a position in this process. Multi-actor dialogue is central in both.

Reflection on the different elements of justice this case study gives insight into the struggles and needs for a well-designed and supported process and notion to scalar issues. Most of all, much have also to do with values, politics and governance.

The biggest challenges the process is facing have to do with procedural and juridical justice. Current laws seem to hinder just transition as they mainly support current power relations. Safety concerns for the advocates are still a daily reality. Although they are addressing just transitions in a transparent process, an open process is not the standard yet and is even perceived as decreasing justice. Meanwhile, current developments seem to overrun the adaptive capacity, also in terms of time, of local communities. Finally, an asymmetric knowledge basis about the process and the actual situation hinders just engagement and influence.

Lessons learned: How are stakeholders involved?

- Global challenges cannot be seen without global dialogues (global justice). The influence of (the choices) of importing countries on exporting countries may not be underestimated. Currently, it is not always clear if these effects are taken into account.
- Proper insights into recognition are key: looking at the chain of influence.
- It is important to proactively develop a strong concept and alternative in processes that are considered unjust. Essential for this is to build capacity, solve the asymmetric knowledge base and gain a place truly at the table, also in the political process. This requires strong government and policies, putting social terms and a regional approach central.

> *'Many communities currently don't want a transition, because there is no proper alternative. However, to preserve employment in the long term, it needs an alternative.'*
> *Expert CIPAME*

5.4.2.4 How do we deal with different worldviews and engage different values and cultures?

During envisioning, different worldviews emerge. Justice is itself also normative and includes a specific worldview. This needs to be acknowledged. In envisioning, the different worldviews also determine whether justice is on top of the envisioning agenda, as well as what justice would mean in practice. When people talk about transitions and aim to specify a different relationship of society with nature, they may be looking to the future as a continuation of the current economy, as a doughnut economy or as a de-growth perspective. Depending on this vision of the future, justice may mean different things.

Worldviews are closely connected to value and culture. However, in this step of envisioning the future, different worldviews may conflict with each other. It is therefore necessary to critically reflect on these worldviews and politics and on how each stakeholder at the table defines what is just. This is needed in order to overcome justice being another forced topic and to overcome existing inequalities potentially being aggravated. The different worldviews and related expectations about the transitions should become more explicit and engage in a constructive dialogue. Bart de Steenhuijsen Piters stated during his interview that we should be aware that there are neoliberal assumptions behind just transitions and multi-stakeholder processes. More specifically, he refers to the assumption that everything is negotiable. However, while this might be the case for the Netherlands, this might not be the case in all countries. Worldviews and related power dynamics have to be considered as an entry point to determine what interests are on the table, who has the influence and what the drivers are for change. In some countries, the change will have to come from the government of the private sector, while in other countries consumers do have influence and lobby for their interests.

5.4.2.5 How can injustice be recognised in the development of future vision?

Intergenerational justice refers to justice between the younger and older generations, but also between the current generation and the generations yet to be born. For example, greenhouse gas emissions from current and past generations have affected the livelihood of future generations. Of course, it also works the other way around, as measures that are taken now at the cost of current generations will contribute to benefits of future generations. These diverse ways of framing make it difficult to achieve intergenerational justice (Davies, 2020). There are several initiatives underway to make sure these young and future generations are also included in envisioning and decision-making about solutions that are part of transitions. These initiatives try to enable future generations have an influential voice in the decision-making on solutions.

Example: The Generation Check – the Netherlands

The 'generation check' is a new approach that is currently being initiated in the Netherlands to ensure that the impacts of new policies, investments, and regulations on young people and future generations (for the next 20-30 years) are clearly defined and that costs and benefits are equally shared between generations and between young people. The specification of the generation check is currently in full development but is based on existing information and approaches and mainly aims to structure information according to specific themes, age groups and time periods (now – 10 years; 20-30 years and over.

Figure 22 *The Generation Check: key themes, age groups and time periods*

Example: the 'empty chair' in envisioning
The empty chair technique can be used to make future generations visible during envisioning processes and decision-making about solutions. The empty chair aims to make sure that these generations are not forgotten and that what the envisioned future may mean for them is assessed. The empty chair also makes clear that negotiation is not only a matter of taking into account people of the current generation, but also people of future generations (Kurbalija 2021). As Kurbalija stated, doing so helps with 'avoiding policy sleepwalking and inertia'.

Examples: youth empowerment and participation – European Union
2022 was the European Year of Youth. In preparation, Crowley and Moxon (2018) summarised new and innovative forms of youth participation in decision-making. They concluded that more traditional forms of youth participation and new forms are equal in terms of effectiveness, and they encounter the same barriers. In their survey, they listed the following forms of youth participation:

- Youth councils, youth parliaments, youth boards and other formal structures
- Co-management and co-production: young people and adults taking joint decisions about projects or organisations
- Deliberative youth participation: youth debates and dialogues about a decision or group of decisions
- Youth activism and protest
- Young people's digital participation

Their report (New and innovative forms of youth participation in decision-making processes (coe.int)) illustrates a richness of examples on how youth can be better engaged in policymaking and certainly should be consulted for more inspiration.

Example: youth participation in food systems transformation – the Flower of Participation
The Flower of Participation is a tool that uses the metaphor of a blooming flower to describe how MYP can grow and flourish. It illustrates different forms of youth participation and consist of core elements of MYP (the roots), the different forms of MYP (the leaves and the petals of the flower), non-meaningful forms of youth participation (the insects) and the preconditions of MYP (the water and the sun).
https://www.youthdoit.org/themes/meaningful-youth-participation/flower-of-participation

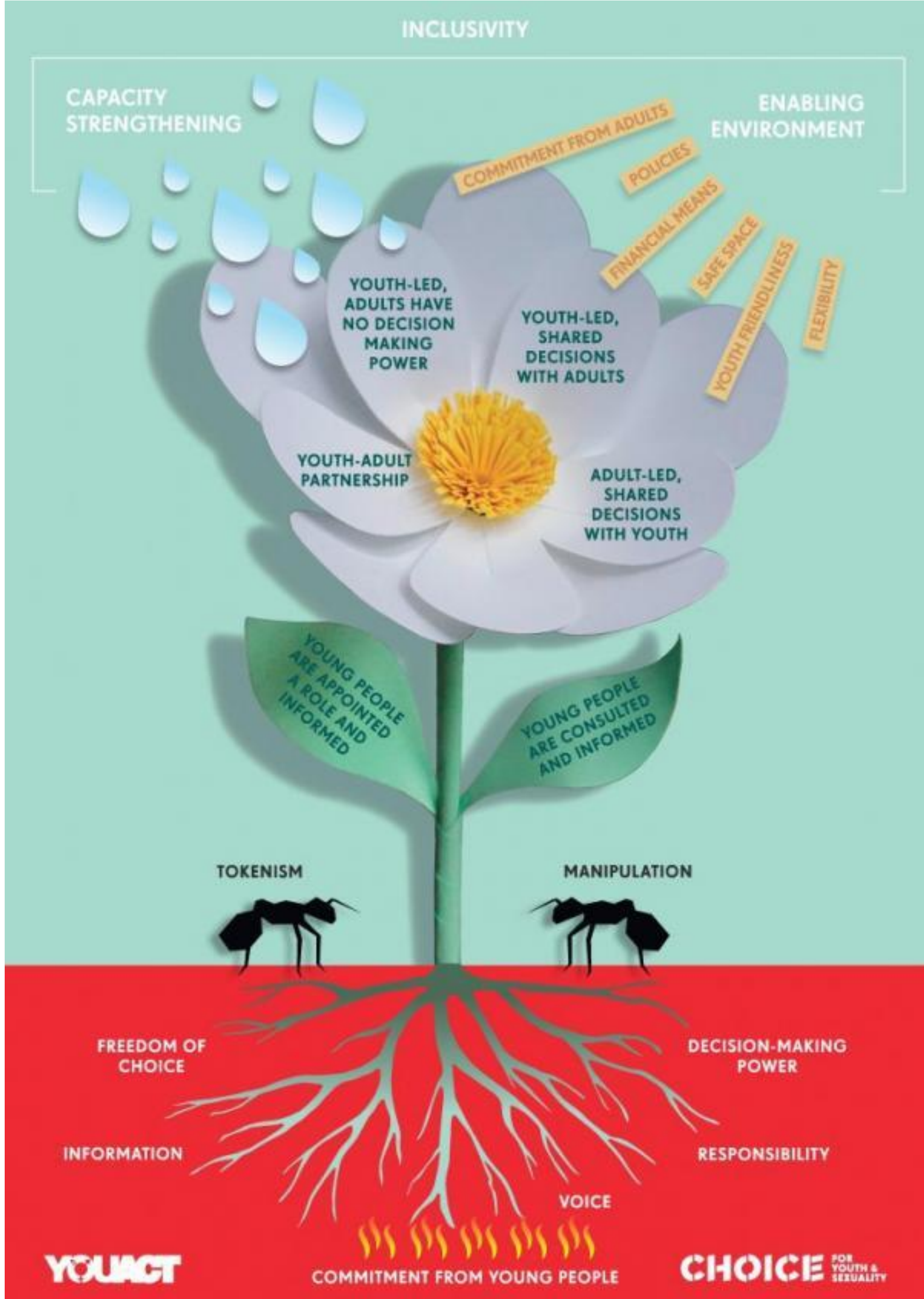


Figure 23 Flower of youth participation – https://www.youthdoit.org/themes/meaningful-youth-participation/flower-of-participation/

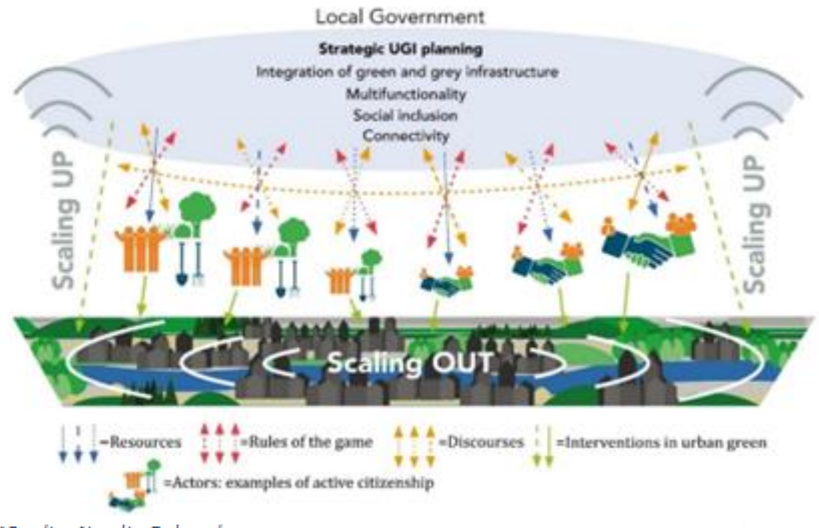
Mosaic Governance Approach in Urbanplanen, Copenhagen (based on several sources – see reference list case 5)

Public access to sustainable, safe and secure housing and leisure environments is a major challenge in Europe and beyond. Sustainable planning practices are aiming to improve this. However, the diverse needs of marginalised groups, such as new migrants and youth, have in general been overlooked in green space research and sustainable spatial planning practice.[5] Engaging diverse groups in sustainable spatial planning is a major planning issue. Barriers such as language, organisation capacity and access to knowledge can make it complicated to involve diverse marginalised groups.

Within the international research consortium VIVA-PLAN6, the mosaic governance approach, developed in Wageningen, is used to identify, amplify and negotiate different values, knowledge and ontologies and include this in sustainable spatial planning with a specific focus on marginalised groups, such as young

people with migrant backgrounds. Mosaic governance is a normative governance model designed to stimulate the co-creation of urban green and NBS in cross-scale networks through improved coordination between governmental and non-government actors.7

One of the cases where mosaic governance is applied is Urbanplanen, a neighbourhood in Copenhagen This is one of the case studies of the VIVA-PLAN where the relation between the Mosaic Approach and Just Transformation is examined.8 Urbanplanen is a socially and economically diverse neighbourhood with large cohesive social housing areas. The area faces challenges regarding safety and overall reputation. To enhance this, bridging organisations and associated social workers have been working in a mosaic governance approach to stimulate Just Transformation. For 15 years, they have been collaborating with many different actors, including civil society and local communities, to strengthen the capacities, skills and agency of green space users (empowering) and to strengthen social capital in communities by building new and better relationships among different people, groups and communities (bridging).



4Credit: Natalie Gulsrud

Figure 24 *Urbanplanen*

Many initiatives are part of the Urbanplanen project. The social enterprise FRAK connects local youth with green maintenance jobs, resulting in the social and socio-economic empowerment of residents. The community group The Fathers Group organises nature experiences and outdoor recreations for fathers and children who recently immigrated from war zones to develop fellowship. Providing informal social interaction and collaboration of different types of activities in local green areas, not only contributes to bridging between residents, but also invites newcomers to use local green space areas suited to their needs.

In Urbanplanen, institutionalised and well-funded bridging organisations are important to link the practices and values important to residents with the dominant discourses of municipalities and housing agencies. These organisations navigate conflicting values between grassroots demands for fellowship and democracy, and the normative demands of the state for increased employment and integration. Negotiating these differences contributes to a more just transformation of the area towards a greener and climate-smart future.

The multi-method approach from VIVA-PLAN contributed to this process through identifying the diverse values and demands for green areas from local community using a diversity of social science methods, ranging from PPGIS (public participation geospatial information system) to walking interviews. In 'Hackathons' – on-site, multi-day workshops to co-develop inclusive solutions – cross-scale and cross-sector dialogues are facilitated to find common ground between community values and demands and sometimes conflicting policy aims and processes.[9]

Lessons learned: How to deal with multicultural values?
- Bridging and empowering local people can stimulate just transformations by broadening the group of green space users and offering new modes of collaboration across scales, spanning different localities, cultures, age groups and educational levels in the light of urban planning (Figure 1).
- Strong and trusted bridging organisations are important to navigate diverse values and demands, strengthen social capital and facilitate collaboration across scales to achieve just transformations within sustainable planning practices.

Example – Aboriginal and Torres Strait Islander communities in Australia and climate change impacts (section based on several sources – see reference list case 6)
Australia has about 500 aboriginal and Torres Strait Islander communities, in total almost 900,000 people. These First Nations people are descendants of the people that originally lived in Australia, before British colonisation. Land plays a key role in their culture, spirituality, language and identity and caring for their country is an important responsibility.

> *'With changing weather and changing seasons, everything else is changing too: their homes, their cultures, their stories and their identities'.*
> *Uncle Paul*[10]

These communities bear the uneven burden of climate change, while they barely contribute to climate change. This is experienced as unjust. Their call is to stop climate change, to be part of the adaptation processes and to be taken care of, to secure their culture and their existence and to get compensated for the experienced losses. This case demonstrates how evidence collection on injustice, dialogues and legal action can contribute to a just transition.

Evidence collection on injustice: the first scientific studies that assessed the disproportionate climate change impacts on indigenous people were developed around 2010. Some studies downscaled the regional climate models to the local circumstances of the Torres Strait Islanders. Another prominent study assessed how indigenous people themselves experienced the changes.[11] This study made clear that climate change is already impacting these communities. These studies have been used for discussion, advocacy, and even legal action. Further aboriginal-led research is required to identify climate change impacts and adaptive responses based on aboriginal knowledge.

Giving voice: National dialogues between scientists and indigenous people have been taking place in 2012, 2018 and recently in April 2021, when over 120 Traditional Owners co-designed adaptation strategies with scientists. During these dialogues, First Peoples have had a genuine seat at the table. Preparing this national Gathering took over 3 years and resulted in materials to take back to their communities. Another inspiring initiative is the joint development of a National Strategy for Just Adaptation by Future Earth Australia as part of the Reimagining Climate Adaptation initiative. This strategy calls for better inclusion of indigenous in developing adaptation responses to climate change. The strategy states that better inclusion could take place by:
- Formally recognizing 'Caring for Country' as a key pillar in Australia's response to the climate crisis through policies and legislation
- Committing all Australian national parks and protected areas to have some form of joint management with Traditional Owners within ten years
- Drawing these and other opportunities together in a National Indigenous Climate Mitigation and Adaptation Strategy.

Legal action: Torres Strait Islanders have brought their case to the UN Committee for Human Rights and have sued the Australian government for not taking action to combat climate change. Due to rising sea levels, Torres Strait Islanders will lose their home when their islands disappear, while already experiencing loss of homes and food due to heavy rains. In September 2022, the UN Committee declared that Australia had indeed failed to protect the Torres Strait Islanders. The court case against the Australian government will start in June 2023. These cases were brought to court with the help of NGOs and law firms experienced in advocating the legal rights of marginalised people.

Lessons learned: How to deal with multicultural values?

- Science can play a role to voice the needs of marginalised groups and bringing forward more justice
- This case is not so much about conflicting values, but about connecting different knowledge systems. The solution for climate adaptation may be found in the indigenous knowledge systems, as they have learned to live with changes for many centuries.
- There is a key role for so-called 'bridging-leaders': aboriginal leaders working in science and NGOs to translate and connect knowledge systems.

> *'Science research runs in a very different timeline to our cultural protocols, so working around those and bringing those together, is a really big priority as well,'*
> *Ms McNairy*

5.4.3 Step 3: Decision-making on synergies and trade-offs

We know that for a more fair and sustainable future, we need to reach the four goals of agri-food system transformation, i.e., food security, safe food and healthy diets, inclusivity & equitable benefits, as well as sustainability & resilience. Having multiple objectives means needing to very well understand what trade-offs are required, but also, what synergies can we identify and therefore, what decisions are wise? How do we even compare trade-offs when our main topic is 'justice'? Step 3 requires us to better understand the trade-offs to be made but also the synergies we can embark on.

A lot of work in food systems is done around marginalised groups, and these differ depending on context. In Europe, it often concerns disadvantaged neighbourhoods, while in the USA justice historically is an important theme in the context of BIPOC communities. On the other hand, you can also look at what happens when these groups are uplifted, what happens to other groups. Do other need to sacrifice something to increase justice for others? And what is acceptable herein. Who determines the standard for justice? It would be interesting in this context to consult with people from the legal field, but also philosopher and ethicists, and also those concerned with justice for animals.

Policy makers and practitioners are increasingly aware that interventions to adapt to climate change and work towards more sustainable food systems can also have negative social impacts. While synergies are about win-win solutions, trade-offs are about losing something for the benefit of a specific gain. This means that an analysis needs to be made of the losses and wins.

5.4.3.1 How to assess the trade-offs and the transboundary effects?

Example: Trade-off Analysis Framework
Another example is the Trade-off Analysis which is a decision tool and aims at testing multi-criteria scenario's and can be seen as a supporting tool. In most trade-offs a conflict appears between 'desired objectives, where it is impossible to satisfy all criteria simultaneously' (Kravchenko et al., 2021). A variety of alternatives and decisions should be made, but choosing one causes also a loss. Subsequently a contextual evaluation will take place in which the motives, objectives or requirements that have led to having all these alternatives are being looked into. Based on the defined context, alternatives and criteria an informed choice can be made. Together with the stakeholders' objectives, strategies and decisions can be weighted up and this process will be evaluated with everyone afterwards.

The Trade-off Analysis framework works with input data, as illustrated in the figure below, and a guide for a transparent, clear and fair trade-off navigation. This framework aims to create 'a dynamic decision process and reinforce the knowledge of decision-makers about potential risks and opportunities behind their choices', according to Kravchenko et al. (2021). The benefits of this tool are that all involved parties are included in the decision-making process, reduces the risk of injustices and the decision-making process is clearer and more transparent.

Example of Transboundary effects – the case of Manga mining in South Africa (based on presentation during Just Transition Dialogue – June 8, 2022)
Fatima Vally from MACUA in South Africa enriched the discussion by presenting a totally different angle of social impacts of transitions. Mining communities in South Africa are facing the consequences of the huge rise in demand for manganese in Europe for batteries particularly for electric cars and bicycles3. Local communities are not benefitting from the increased demand. On the contrary: the increased demand goes hand in hand with a rise in human rights violations and tensions between workers and communities. Women and girls are disproportionally affected. The right of local people to free, prior, and informed consent (FPIC) was denied at a massive scale. Chiefs are sometimes consulted; however, these seldom represent the interests of women and girls in their community. Communities living near mining projects face serious health related threats, such as exposure to asbestosis, respiratory diseases, and longer distance to water of decreasing quality. Mining uses a lot of water, also in water scarce areas like Kalahari. With the influx of workers, the rates of sexual violence against women and girls increased notably. Fetching water is considered a women's task and the longer distance increases the risk of sexual violence.
Just transition often refers to addressing impacts related to workers' rights and rights of communities whose living environment is potentially impacted. Increased sexual violence on women and girls is hardly ever mentioned in the context of just transition. Yet there is a clear link between the increased demand for batteries for electric vehicles and bicycles in Europe and the impacts on women and girls in South African communities near to mining areas. Does this reach the policy level?

Example – India Solar Farms (section based on several sources – see reference list case 2)
India made several ambitious commitments in Glasgow during the COP26: India's non-fossil energy capacity will reach 500 GW by 2030 and India will transition to net zero emissions by 2070. A key strategy to achieve these goals is to build large-scale renewable energy projects on sites that are considered unproductive, the so-called 'wastelands'. However, these lands provide critical ecosystem services and are crucial for people's livelihoods. The share of solar parks is growing rapidly with the development of the world's largest solar fields, such as the Bhadla solar park in northwestern Rajashtan and Pavagada park in southern Karnataka states.
These solar parks are developed through a leasing model: the land is leased for 25 years from the landowners, who retain ownership of the land. At a first glance, these developments seem positive, with solar farms providing green energy while increasing the financial stability of landowners. However, when zooming in on the social impact on the landless, the situation is less 'just'. There are many communities in India that depend entirely on land for their livelihood, for example, pastoralists and villagers who work in agriculture. These social aspects are not included in this transition and have major implications especially due to the large scale of the implementation.

WRI India is part of the World Resources Institute (WRI), a global research organisation that develops practical solutions for public and private actors in the areas of food and climate change. WRI India's programme works to fuel the growth of sustainable, affordable and reliable electricity for all through research and analysis, building on evidence and stakeholder engagement.2 According to WRI India, there are three elements that need to be assessed as part of the low-carbon transition in India to make this transition more 'just': resource scarcity, differentiated impacts and dynamic vulnerability.
Resource scarcity: In a country like India, resources like land and water are already scarce. At the same time, people depend on these resources for their livelihoods. Therefore, the impact of the transition on the availability of these resources must be taken into account.
Differentiated impacts: What are the differential impacts of the current transition on different income groups, genders, castes, and households with different landholdings? This question needs to be asked and answered in order to make a valid analysis of the social impacts on the various populations in India.
Dynamic vulnerability: Assess the pre- and post-implementation situation in terms of social impacts: What solutions are needed to have both low-carbon infrastructure and positive social impacts?
WRI India came up with three possible solutions to make India's low-carbon transition more just:
- Dual land use, for example by encouraging the co-existence of sheep grazing and solar farms by adopting suitable business models and underground cables. The result is a win-win situation, where solar grazing helps control grass growth in the solar field, while making livelihoods more diversified and resilient. Solar farms can enter into leases with farmer cooperatives. Cooperation and business models must be developed for this purpose.

- Ensure better (urban) employment guarantee schemes for landless workers displaced by infrastructure construction and provide better working conditions and opportunities, such as enrolling landless families in re-training programmes, and providing safe transportation or shelter at the place of employment for women workers.
- Reduce the use of land for land-intensive solar energy by encouraging offshore wind energy. This can be done, for example, by making it less expensive through new forms of financing (mixing public and private financing construction) or making offshore wind financially viable through innovative international financing models.

Lessons learned: How are injustices identified?
- Transition processes must take into account negative trade-offs under good intentions. For example, the misconception that renewable energy is benign ('good') so does not need the same level of scrutiny as other large infrastructural projects in terms of social and environmental impacts.
- In climate transitions, it is attractive to apply the same model (e.g., large solar parks based on leasing) everywhere in a country. This means that the consequences of negative externalities of this model are significant, and therefore it is important to make improvements in the model for better social outcomes.

5.4.3.2 How to develop solutions that are beneficial for all?

We discussed during the Just Transitions Dialogue of 8 June 2022 how solutions could be developed that are beneficial for all. When looking for beneficial solutions for all, s**takeholders' vision, motives, values and interest are considered.** It is not enough to ensure all stakeholders are **present** around the table. Those present need to represent interests of their stakeholder group, and they need to be empowered to **meaningfully participate**. Alignment of norms and values is needed for this, to find joint solutions. Stakeholders who are enabled to express their views but who do not see any **influence** in decisions for designing and implementing procedures will drop out. People also need to feel backed up by the right **data collection and analysis.** Trust is gained based on how it is organised, who is collecting what, where sampling and transparency.

The group argued that distributing benefits and burdens equitably requires a **deliberate approach to work with the informal sector**, in which communities or stakeholder groups represent themselves (as opposed to the formal sector). It needs to go beyond labour unions. It is paramount that policy makers and leaders **understand the informal sector**. **Co-creation** with local communities and stakeholder groups is key. Innovation and research need to go hand in hand. Low-income groups should be consistently considered when developing products like solar based options for cooking, transport, production, and consumption) so that these become accessible

Powerful companies and government agencies working on transitions need to establish **clear mechanisms for participation** of less powerful groups such as black women in mining communities in South Africa. **Coordination** between stakeholders can prevent conflict. The way marginalised groups are represented determines their influence in the distribution of benefits and burdens.

Coordination and collaboration between government agencies are among the key conditions in Dhaka to improve the food system. That is why under the project, City Working Groups were established working on identifying and addressing the current pressing food system concerns. Vulnerable groups – particularly women and households in poor neighbourhoods – **are targeted with solutions** like urban and roof top gardening, nutrition campaigns; upgrading fresh markets (food safety, consumer awareness, online food platforms, mobile courts monitoring food safety); reducing food loss and waste (training market committees, pilot waste segregation, biogas digesters, valorising organic waste for feed). In parallel to addressing current food system concerns, it is important to also build a perspective of Dhaka's food system in the future to drive transitions, based on foresight, scenario planning and modelling, spatial planning, and socio-economic projections. In the DFS project this is translating into the Dhaka Food Agenda 2041.

Examples of synergies are:
- For the India case, **co-existence of farming and grazing (sheep) with solar farms** is being investigated, for which collaboration and business models are needed.

- Rural **employment guarantee schemes** exist, but these would need to enrol landless people in reskilling programmes. For this, women would need safe accommodation, transport, and childcare facilities, for which companies could take responsibility.
- **Rooftop solar power** would prevent social impacts. Increasing offshore wind energy would be a solution but only if it becomes more affordable. It is essential to involve vulnerable groups in developing solutions to reduce social impacts.

5.4.3.3 How to consider variety in the stakeholders' group

As observed in the India case, **differentiation of social groups** is very much needed. 'The landless' were differentiated into women or men landless informal farm workers, migrants, and pastoralists. These social groups have diverse needs and capacities to adapt to climate change as well as the interventions brought to them as part of transitions, such as the differences in freedom of movement between landless men and landless women.

These affected **communities need to be trusted to know what they need**, and an attitude of 'complementing' with external research to locally set priorities is required. In many cases this may require a **shift in the mindset** of public and private organisations. In the same spirit, **accountability frameworks** are needed to enable feedback from communities and monitor the government and prevent lip service.

The India and South Africa cases demonstrated that procedures for justice are often lacking or failing to increase the involvement of marginalised groups. The Dhaka food system initiative is partly a response to this. In such cases – where procedures are put in place – a key condition is that **the effectiveness is evaluated throughout the lifespan** of the initiative, so that procedures can be adapted should these fail to engage marginalised groups. There is a need for recurrent impact, barrier, and stakeholder analysis to reflect whether everyone is represented and heard, and whether the process is just for all involved.

During the Just Transitions Dialogue of 8 June 2022, the group agreed that it all starts with awareness that different social groups have different cultural values. Next, voices of these social groups need to be heard, recognising their specific identities, culture, values, and the context they are part of. Vague reference to 'communities' should be prevented. (Potential) social impacts need to be mapped out in the light of cultural identities, taking in consideration power relations. Where applicable, extra effort need to be done to translate into local languages. Above all, it was seen as important to explicitly discuss visions on what a desirable future looks like for groups sharing a cultural identity. A **deliberate extra effort is needed to recognise informal legal structures and systems** apart from the formal alone. Mining communities' voices should have a central place in climate adaptation plans and lobby and advocacy efforts.

5.4.3.4 How to compensate for losses that are part of trade-offs?

There are many questions now around trade-offs and how we can phase out in a way that is just for the 'losers' as well. It is important to make people aware of the political views that underpin just transitions. It is very much related to a political movement, it is based on democracy and equality, which are fundamental values yet interpreted differently by the different political movements. Is this a new left-wing agenda for example, after years of neoliberal thought being dominant? There will be different ideas about what is just and unjust. Those who believe in market mechanisms will say that 'losers' are unavoidable, others will say that this is not acceptable. It is interesting to reflect on the role of the ruling party is herein, do you need a different approach, or can you develop a universal model that is acceptable to all political colours?

During the Just Transitions dialogues, several ways were shared on how losses can be compensated. **Compensation mechanisms** are potentially helpful – such as the lease agreements for landowners in the solar park case in India. However, conditions need to be met for these to include marginalised groups – such as the landless. When land claims are involved, **arrangements for** landless people are needed such as share-based systems and co-ownership, or otherwise skills building and opportunities for new jobs. Another example were microcredits for low-income groups which help to level the playing field. It is increasingly accepted that Just Transition also implies that harm done in the past to specific groups or individuals is addressed. In the South Africa case it would involve **reparations** for vulnerable groups in surrounding communities initiated by enterprises and buyers of South African manganese for batteries in Europe. **Compensating in advance** for actions in the future seems easier than repairing harm already done. Some

even argued that in a transition process harm should only be acknowledged, before quickly moving forward to avoid the process to drag. Distributive justice works different for **cross-boundary cases**. How to share wins and losses between European countries and South Africa? What basis and standards could be applied for compensation?

5.4.4 Step 4: Monitoring and evaluation to progress justice in transitions

When transitions are moving forward and actions have been taken to improve justice, a need to monitor the progress of justice in transitions emerges. Monitoring justice is again closely connected to the step of common understanding, as the results of monitoring are used to reassess the state of justice in the transition process. This topic of monitoring justice was discussed during the Just Transitions dialogue of October 12, 2022. There, it was acknowledged that just transition contains normative topics that are all considered important. There is a risk that 'just transition' becomes a buzzword rather than action on the ground. Therefore, monitoring matters. 'Measuring' just transitions, as well as setting the right indicators, is viewed as a way to promote justice. However, during the Just Transitions dialogue, the general sentiment about indicators was that it is really not just about the figures or the numbers; rather, it is about the mindset change of planning and managing adaptation efforts with a justice lens.

In the operational framework, we again make use of key questions to help users set up and deploy their own monitoring and evaluation framework to assess the progress in terms of justice in their transitions.

5.4.4.1 Why monitor justice in the transition process?

Stakeholders in the transition process should jointly determine why justice monitoring would be needed and what they would like to achieve with monitoring and evaluation. There are many reasons to monitor progress on justice:

- Transparency and accountability
- Showing that policy goals are achieved
- Identifying pending issues that hinder justice and being able to catch these issues at an early stage
- Evaluating the efficient investment of resources
- Supporting further decision-making and funding
- Encouraging learning from interventions

5.4.4.2 Who should be involved in developing indicators and monitoring progress?

At this point, it is good to be careful not to focus blindly on completing a set of indicators. Likewise, we must also improve the process, better understand the situation on the ground and overcome framing by justice indicators. 'Recognitional justice' as the first step is important when considering indicators. This takes place by assessing which groups may be affected by interventions for more just transitions, both in a direct and indirect. The aim is to involve everyone and create a good space to talk to them, and then look at developing indicators as a secondary step (Just Transitions Dialogue, 12 October 2022).

5.4.4.3 How do we engage different groups in developing indicators and monitoring?

To prevent monitoring processes that only engage the 'usual suspects', there is a need for more innovative approaches to also engage the marginalised groups of people. Currently, there are no shared practices experiences on how to involve these groups in developing indicators and monitoring. However, it was stated during the Just Transitions dialogue (12 October 2022) that the participation of these different groups of people in choosing indicators, and the transparency about that process, could be more important for success than the exact choice of indicators.

5.4.4.4 What should be monitored?

The selection of indicators to monitor justice should be in line with the type of justice that is seeking. Distributive justice might require different indicators compared to procedural justice or restorative justice and recognitional justice. Given the contextual differences, a preconfigured set of indicators that fits all types of just transitions is not expected to work (Just Transition dialogue, 12/10/22). As was also indicated during the World Forum on Climate Justice (September 2021), 'the (far too) "macro" indicators used to measure progress were criticised as these do not really "reveal the drivers for injustice done to groups and their vulnerability, nor the bottom-up activities taking place" '. Furthermore, having a fixed set of indicators might

lead to a tendency to compare and benchmark areas. However, this should be done with care, as areas might be diverse in terms of location, population, size, risks they face and many other factors. During the Just Transitions dialogue, it was stated that cities should develop their own indicators and be inspired by the successes and failures of other cities. However, what could be helpful is a long list of indicators and examples of how they have been used, from which other cities can choose.

5.4.4.5 How do we monitor justice in transitions?

During the Just Transition dialogue of 12 October 2022, several different types of monitoring have been exchanged between the participants:

- Mapping tools, i.e., showing changes in injustice on maps. Mapping tools, as mentioned in the above sections, can be used to demonstrate injustice, but they can also play a role in monitoring progress in terms of justice. The aim of mapping tools is to better inform society and policymakers by showing the actual and factual maps. To assess progress in a useful way, the question is this: What should we be able to show on these maps? The risk is to be overwhelmed by a wide range of possible indicators. However, the benefit of mapping is that the spatial distribution of injustice becomes visible and can be linked with other information. The participants in the Just Transitions dialogue jointly concluded that good mapping should link existing risk and vulnerability data to demographic data and possibly also sector-specific data (i.e., employment). This helps to assess whether the situation of marginalised people is improving due to interventions to improve justice in transitions. Methodological challenges might be as follows:
  - Where do we start?
  - How do we find vulnerable individuals and groups with the current privacy regulations?
  - What level/scale do we use in the monitoring?
  - How do we link distributional, recognitional and adaptive capacity to the maps? What is the story to tell?

  There is a common feeling that connecting narratives, based on causal relations, helps to develop monitoring.
- Ex-ante monitoring of impacts via scenario analysis and modelling to predict if justice is expected to progress in terms of better distribution of costs and benefits. A well-defined and validated model of our society, coupled with ecology, would help to come up with scenarios that can identify constraints in the future. But no one can do everything from behind their desk.
- A more action-oriented approach is needed, by applying justice frameworks to concrete cases.
- Ask people how they experience justice. Art and stories from people have the power to put issues forward to influence justice. There are other creative methodologies to detect where things (may) go wrong for certain individuals and groups that are yet to be brought to the fore.

5.4.4.6 How do we use monitoring results?

This question was discussed during the Just Transition Dialogue of 12 October 2022. The group had concluded that the results of the monitoring should be used in a reflexive monitoring approach, as we are seeking transformational knowledge to advance justice in transitions. A culture of reflexive monitoring would be needed within the ways of working of the different teams involved, to recognise emerging issues. The information gained information should flow back into the decision-making process. Continuous learning is very important because each crisis and each intervention may create new inequalities, and thus new indicators to monitor will be needed. For example, the energy crisis, the financial crisis and the COVID crisis all change the individual needs for certain groups. For example, we see that during COVID, green places for nearby relaxation have become increasingly important for certain groups of people. However, it is currently a need to combine energy poverty and geographic social indicators. We should keep track of the drivers of inequality, and continuous learning is very important in this regard.

Example: the roadmap for a systematic evaluation

A tool in which qualitative measurement aspects are included is the roadmap for a systematic evaluation created by Shi et al. (2016). The roadmap consists of four research needs to ‘change the socio-spatial distribution of risks, vulnerabilities and adaptive capacity’ and uses the evaluation tool in a qualitative means of examination, in the format of a questionnaire (Shi et al., 2016).

1. Broadening participation in adaptation planning
2. Expanding adaptation to rapidly growing cities and those with low financial or institutional capacity
3. Adopting a multilevel and multiscale approach to adaptation planning
4. Integrating justice into urban design processes

Example: monitoring just resilience – European Environment Agency (based on presentation from Mattern – Just Transitions Dialogue 12/10/2022)
The European Environment Agency and the European Topic Centre for Climate Change Adaptation are currently working on developing indicators to monitor just resilience. They are making efforts to bring out justice aspects in adaptation processes with evidence and data. Indicators are searched for in order to better inform EU and Member State adaptation policies. Indicators would enable progress reporting at EU and Member State levels and would help to prepare input for future EU funding schemes. The work resulted in guidance for EU and national level.

The past decade has shown how complex the setting of indicators for climate adaptation is, and in particular also for justice. To avoid being lost in the many available sets of indicators, the EEA reviews policies to see which policies require justice indicators and investigates causal relationships that lead to injustice in climate adaptation. This involves, for example, the distribution of benefits and burdens of adaptation. The idea is that the EEA thus focusses on indicators that can be supported with reliable data sources. The EEA sees its role as one that ensures that the scoping of justice indicators remains policy- and practice-relevant, and that supports practitioners with practical overviews of causal relationships that are known between climate change impacts / adaptation actions. The work is expected to be published at the beginning of 2023 (Lager et al. 2023).

Pending challenges with regards to monitoring
The Just Transitions dialogue (12 October 2022) showed the need to build bridges between vulnerable groups and also between departments and justice pioneers, since everyone holds a piece of the complex puzzle. It was recommended that city and national administrations should move away from the focus on assets and technologies to deal with climate change, to move towards the focus on vulnerable groups (and people in general) and processes. Meaningful stakeholder consultation should be part of adaptation planning, from the start to the climate risk assessment to the development of indicators and measures.

Zooming out to the policy level, the differences in knowledge about justice between sectors is striking and needs to be addressed. Agriculture, water management and health sectors are relatively well covered, while little is known about rural populations that are increasingly cut off from public services due to climate change. Vulnerable populations do not have a strong voice, and nobody is reporting on their behalf. Researchers could have a very valuable contribution if they would take a broader overview approach rather than focusing on for example a sector, to watch out more systematically for injustices that are overlooked and underreported. A call to the academic community!

Overview of the operational framework

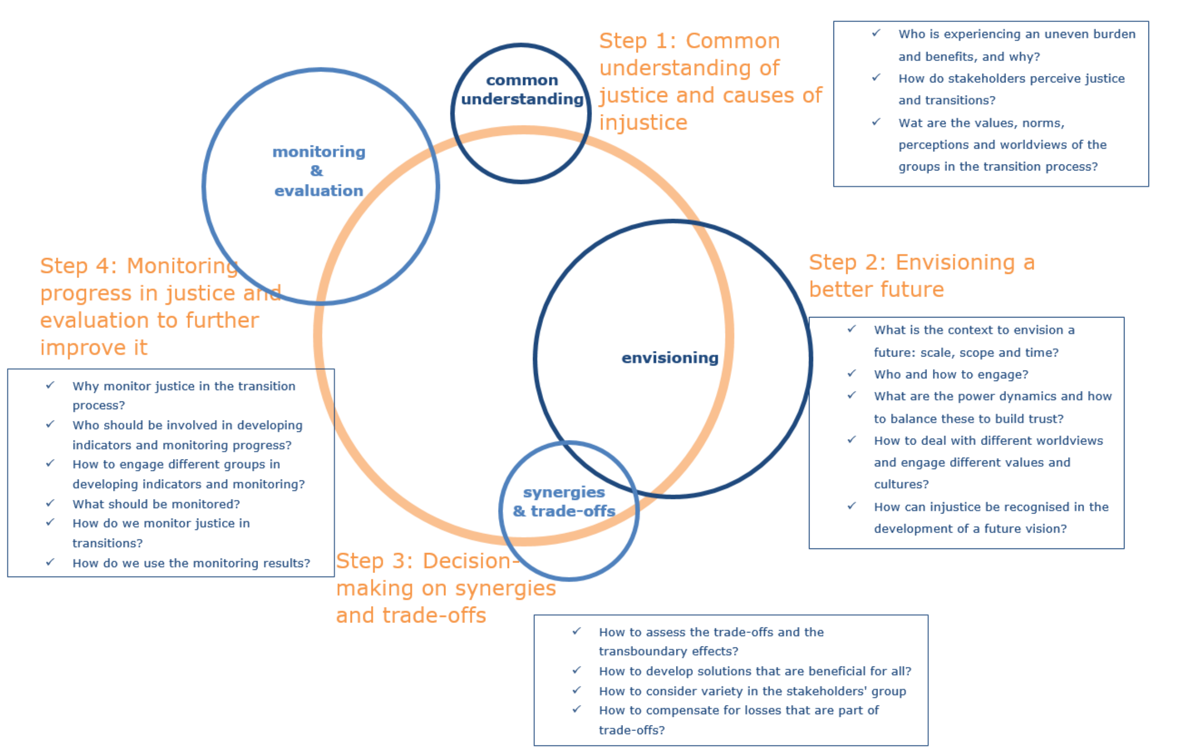


Figure 25 *Operational framework to put justice into transition practice*

6 Knowledge gaps in just transition discourse and future research questions

During the analysis of literature and case studies, but certainly also during the Just Transitions dialogues, we identified pending knowledge gaps. These gaps can inform the research agenda for the coming years and are explored in the following questions to provide further insight on how to promote justice in transition processes.

6.1 Justice in transitions

One of the conclusions of this report is that justice is context dependent and socially constructed. Different groups may view justice in different ways. Therefore, the research questions to be explored include the following:

- How is justice socially constructed?
- How can these different social constructs be made explicit in transition processes?
- What are the consequences of these different interpretations in the transition processes?
- What can be done in case of no consensus?

Furthermore, when marginalised groups experience injustice, it remains unclear how these groups can contribute their voice to ongoing decision-making processes, particularly when stakeholders in the driver seat benefit from the current mechanisms that result in injustice.
The research questions to explore this imbalance include the following:

- How can marginalised groups and other stakeholders bring the justice topic into a constructive dialogue and process that results in the transformative changes in underlying mechanisms of injustice?
- How can marginalised groups be empowered to take a role in just transition processes?
- How can transition processes reduce resistance to inclusion?
- What forms of emerging agency can be observed from excluded people or segments of society?
- What forms of resistance and conflict take place in situations of transformation, and how can they be addressed?

Furthermore, there is also a general lack of data and figures that reveal the injustice of specific marginalised groups. The research question regarding this is as follows:

- How can the injustice of marginalised groups be assessed?

In ongoing transition processes, it is important to explore how justice can be better integrated. The research questions are as follows:

- What are the leverage points in a transition process that help integrate justice in transitions? For example, for the food system transformation: What are key gender justice leverage points and game changers for food system transformation, and how can these be identified and taken forward in transition processes?
- If we explicitly identify justice as a core element of the transition process, what are the implications?

Overall, there are many topic-based justice movements, such as climate, health, economic and energy justice. These movements are related to underlying social mechanisms of injustice that come from class, race and gender divisions. The question is as follows:

- How can the different justice movements work together to deliver a more transformative version of justice that addresses underlying injustice mechanisms?

6.2 Recognition justice

As seen in this report, recognition justice is a precondition in each just transition process. However, we must also factor in the recognition of people who are not present at the beginning of the transition process. This

question is especially pertinent when people are working on intergenerational justice – the recognition of rights of future generations.
The research question is:
- How does recognition justice take place continuously over time and in different spaces?

In our world dominated by market values and the globalised economy paradigm, the following research questions also emerge:
- How can we step out of the existing/predominant worldview and recognise values of people with other worldviews?
- How do we recognise inherent values of nature vs. the marketisation of nature?
- What is the political economy around more just and fair food systems, who gains and who loses from adopting certain values in decision-making?

There are different cultures; some have a strong communitarianism perspective, and some a more individualism-based perspective. The research question is as follows:
- How do these cultures react to transition, and how can we recognise communities vs. individuals?

6.3 Procedural justice

Procedural justice is about meaningful participation. However, often when working with marginalised groups such as the youth are educated and informed about transition dynamics, but they are not connected. There are still some pending knowledge gaps with regard to operationalising procedural justice. The emerging research questions include the following:
- What is meaningful participation for different marginalised groups? What works and what doesn't?
- What are effective strategies to bring marginalised groups in transition processes (such as youth and women in CCA processes or climate-smart processes and efforts towards climate justice)?
- How are values and norms integrated in the operationalisation of procedural justice?

6.4 Restorative justice

Restorative justice is about healing past injustices. This comes with a few research questions:
- What happens if parties are unwilling to accept accountability and participation in the process to enable restorative justice by healing and restoring relationships?
- In the case of cross-border injustice, what can be considered a community, and which relationships should be healed in order to achieve restorative justice?
- Since both the victim, the offender and the community need to play an active role in restorative processes and engage with each other in a meaningful way, how can restorative processes be initiated for injustices in which the cause of harm is disconnected from its impacts (the harm done) in time and space, and therefore the offenders from the victims?
- How can restorative justice help ameliorate the foreseen harm done that crosses generations and, therefore, plays a role in intergenerational justice?
- To what extent (and how) can restorative justice address and restore systemic disadvantages?

Several injustices are the result of poor human-nature relationships, where nature is not recognised or included in decision-making processes. To overcome this challenge, site-specific human-nature information is needed. The research questions are as follows:
- How can we integrate human-nature relationships into solving problems of injustice? What scientific evidence can support this process?
- How can the environment and its non-human constituents be given a voice in restorative processes?

6.5 Distributional justice

The distributional justice discourse is common in justice studies and dialogues with an established understanding of its focus on the equitable distribution of benefits and costs. However, justice-based considerations need to go further and develop a comprehensive approach that incorporates key elements in intergenerational, restorative and recognitional justice in transition processes.

There is also a need to consider distributive justice from a multilevel perspective, jointly integrating the sharing of costs and benefits at the level of individuals as well as at the community or even international level. There is also a need to explore the multiple implications of distributive justice transitions with contextual empirical reflections.

6.6 Interrelations between justice and interdisciplinarity

There are many research communities that work with the term ‘justice’. The questions here challenge us to do further interdisciplinary research on this topic of just transition. These questions include the following:

- How do we determine an interdisciplinary definition of just transition?
- Who sits at the table to define just transition? Where is the voice of marginalised groups?
- How do different types of justice relate to each other in practical transition processes?

6.7 Operationalisation of justice

When scaling justice and bringing it to the national or global level, the research question is the following:

- What are effective strategies for scaling climate justice practices at the local level across regions and globally? What are the do’s and do not’s?

The question still remains as to whether justice emerges automatically by having community groups and business changing behaviour or that governing bodies need to be more directing, integrating and fostering justice? This is a crucial question for each type of transition: How do we foster change and, in this case, just change? The research question is therefore as follows:

- What is the role of government versus voluntary action to integrate justice in transitions?

Operationalising justice also includes specific capacities. The research question for local governments is the following.

- What competences do local governments need to achieve ethically justifiable and socially just responses to climate change, and what does effective local governance for social justice look like?

In addition, when justice is pursued, specific trade-offs will have to be made, for instance, with regard to the environment and economic gains. The research question is therefore:

- What are (if any) trade-offs and synergies between Food System goals that are needed to achieve sustainable use of resources (biodiversity) and social justice?
- What are the requirements for a policy, strategy or programme design that supports climate justice?

6.8 Reflection on the role of researchers in knowledge creation

As scientists, we are often part of transition processes. Therefore, it is good to reflect on our own role in facilitating justice. When we are working on the concept of just transitions, as well as supporting implementation initiatives and practitioners, the questions related to the research approach include the following:

- How can we contribute to a just transition? What can scientists do to make the voices of marginalised groups heard?
- How do we interact with marginalised groups in the most effective way?
- How do we create knowledge and how does this contribute to injustice or justice in transitions?
- How can we work on developing the concept of a just transition while actively engaged with partners?

7 Conclusions and recommendations

Acknowledging the need for more just transitions, this project aimed to build an operational framework that people could use while putting justice into transition practices. The project has started from reviewing scientific literature that would have been helpful, while scoping the research in the context of climate change and food security.

We believe that the operational framework demonstrates the key elements that matter when one tries to improve transition processes and aims to put justice into practice. The key elements are identified in scientific literature, in just transition practices and in the dialogues. To make sure that the operational framework is useful for people in different types of transitions, we have decided to work with key questions that related to these elements. This allows for an operational framework that is flexible to contexts. Several conclusions can be drawn from our work and several recommendations can be made.

Test and enrich the operational framework
The set of questions will help to raise awareness on the justice dimensions in transition processes. Ideally, people would convene around the table and jointly discuss how they view the answers to the different questions. They would listen to each other, find common ground and accept differences. This is the ideal situation. However, power dynamics are inherent to transitions. And while acknowledging that many power dynamics take place in transition and acknowledging that some groups are not willing to talk with each other around these key questions, the questions are expected to still be useful to enable the search for ways to make sure that transition processes become more just. To test this assumption, the next step should be to test the operational framework in transition processes. The results of such tests should be used to further elaborate the operational framework. We therefore consider this as the operational framework just transitions version 2022.

We have also concluded that there exist already several frameworks to guide transitions. Justice does not require in this case a fully new framework, but the justice element can be integrated into existing transition frameworks in order to make sure that justice is better considered. We therefore recommend that people that work with transition frameworks, should harvest the key elements from the operational framework and integrate it in their frameworks.

Need for learning and exchange
We also concluded that a lot has been written in scientific literature on the concepts and the theory of justice. However, practical and operational findings are limited. On the other hand, we have concluded that many groups of people are seeking for more justice in different types of transitions, in the EU as well as globally. We found that having dialogues between science and practice is very helpful in order to bridge the existing gap. This has been helpful to build the foundations of the operational framework that we aimed to build. For further testing and elaboration of the operational framework, we highly recommend continuing with dialogues in order to harvest the richness of different disciplinary perspectives and in order to build a joint understanding about the operationalisation of justice in transition practices.

Science to analyse just transition practices to support better understanding
In line with these conclusions, we also recommend that scientific research should be oriented to analysing empirical practices of just transition to gain a much better understanding of which interventions to increase justice are most effective. It would also help to know better which conditions have to be met in order to result in more just transitions. Also in the operational framework 2022, there are still some elements that are lacking evidence and would benefit from more in–depth analysis. Furthermore, the research questions of the research agenda can guide future research projects.

Last but not least, we concluded, in particular during the Just Transitions dialogues, that just transition is not merely an approach or a method. It is also a mindset and a skill that should be acquired by everyone in the transition process.

References

Adger, W.N., Vulnerability.(2006) Glob Environ Chang 16 (3): 268–281. *PubMed*│ *CrossRef*│ *Others*.

Adger, W.N., Agrawala, S., Mirza, M.M.Q., Conde, C., O'Brien, K., Pulhin, J., Pulwarty, R., Smit, B. and Takahashi, K., 2007. Assessment of adaptation practices, options, constraints and capacity. ML Parry, OF Canziani, JP Palutikof, PJ van der Linden and CE Hanson,(Eds.) Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

Airriess, C.A., Li, W., Leong, K.J., Chen, A.C.C. and Keith, V.M., 2008. Church-based social capital, networks and geographical scale: Katrina evacuation, relocation, and recovery in a New Orleans Vietnamese American community. *Geoforum*, *39*(3), pp.1333-1346.

Alexander, K. and Ryan, A., 2012. Using a social functionalist framework to understand responses to projected sea level rise and managed retreat policies in Australia.

Althor, G., Watson, J.E. and Fuller, R.A., 2016. Global mismatch between greenhouse gas emissions and the burden of climate change. *Scientific reports*, *6*(1), pp.1-6.

Ambrey, C., Byrne, J., Matthews, T., Davison, A., Portanger, C. and Lo, A., 2017. Cultivating climate justice: Green infrastructure and suburban disadvantage in Australia. *Applied Geography*, *89*, pp.52-60.

Anguelovski, I., Connolly, J.J., Masip, L. and Pearsall, H., 2018. Assessing green gentrification in historically disenfranchised neighbourhoods: a longitudinal and spatial analysis of Barcelona. *Urban geography*, *39*(3), pp.458-491.

Archer, D., Almansi, F., DiGregorio, M., Roberts, D., Sharma, D. and Syam, D., 2014. Moving towards inclusive urban adaptation: approaches to integrating community-based adaptation to climate change at city and national scale. *Climate and Development*, *6*(4), pp.345-356.

Argyris, C., & Schön, D., 1978*. Organizational learning: A theory of action perspective*, Reading, Mass: Addison Wesley.

Atteridge, Aaron & Strambo, Claudia. (2020). Seven principles to realize a just transition to a low-carbon economy, Stockholm Environmental Institute

Baker, E.J., 1991. Hurricane evacuation 70eighbour. *International journal of mass emergencies and disasters*, *9*(2), pp.287-310.

Baptiste, A.K., Foley, C. and Smardon, R., 2015. Understanding urban 70eighbourhood differences in willingness to implement green infrastructure measures: a case study of Syracuse, NY. *Landscape and Urban Planning*, *136*, pp.1-12.

Barnett, J. and O'neill, S., 2010. Maladaptation. *Global environmental change*, *20*(2), pp.211-213.

Barrett, S., 2013. The necessity of a multiscalar analysis of climate justice. Progress in Human Geography, 37(2), pp.215-233.

Bennett, N.J., Blythe, J., Cisneros-Montemayor, A.M., Singh, G.G., Rashid Sumaila, U., 2019. Just transformations to sustainability. *Sustainability.* 11(14) 3881.

Besthorn, F.H., 2004. Restorative justice and environmental restoration—Twin pillars of a just global environmental policy: Hearing the voice of the victim. *Journal of Societal and Social Policy*, *3*(2), pp. 33-48.

Beukers L., and de Koning E. 2022. Mogelijke toepassing van de Generatietoets bij NGF-voorstellen. SRA Consulting.

Bhopal, K. and Deuchar, R. (eds.), 2016. *Researching marginalized groups*. New York: Routledge.

Braverman, I., 2008. Everybody loves trees: Policing American cities through street trees. *Duke Envtl. L. & Pol'y F.*, *19*, p.81.

Breil, M., Downing, C., Kazmierczak, A., Mäkinen, K., Romanovska, L., Terämä, E. and Swart, R.J., 2018. Social vulnerability to climate change in European cities–state of play in policy and Practice,(ETC/CCA Technical Paper; No. 2018/1), EEA–European Environment Agency.

Breil, M., Zandersen, M., Pishmisheva, P., Pedersen, A.B., Romanovska, L., Coninx, I., Rogger, M. and Johnson, K., 2021. *'Leaving No One Behind' in Climate Resilience Policy and Practice in Europe Overview of Knowledge and Practice for Just Resilience*. European Topic Centre on Climate Change impacts, vulnerability and adaptation (ETC/CCA) Technical Paper 2021/2.

Brink, E. and Wamsler, C., 2018. Collaborative governance for climate change adaptation: mapping citizen–municipality interactions. *Environmental Policy and Governance*, *28*(2), pp.82-97.

Brouwer, R. and Van Ek, R., 2004. Integrated ecological, economic and social impact assessment of alternative flood control policies in the Netherlands. *Ecological economics*, *50*(1-2), pp.1-21.

Bulkeley, H., Edwards, G.A. and Fuller, S., 2014. Contesting climate justice in the city: Examining politics and practice in urban climate change experiments. *Global Environmental Change*, *25*, pp.31-40.

Bullard, R.D. ed., 2007. *Growing smarter: achieving livable communities, environmental justice, and regional equity*. Mit Press.

Bryan, B., Goodman, M., & Schaveling, J. (2006). Systeemdenken. Academic Service

Cadieux, K.V. and Slocum, R., 2015. What does it mean to do food justice?. *Journal of political ecology*, *22*, p.1.

Cahill, B. and Allen, M.M., 2020. Just transition concepts and relevance for climate action: A preliminary framework. CSIS/CIF Just transition Initiative.

Cardoza N., 2021. The fight for social change. https://the-ard.com/2021/12/09/equity-not-equality-is-needed-for-social-change/

Ciplet, D. and Roberts, J.T., 2017. Climate change and the transition to neoliberal environmental governance. *Global Environmental Change*, *46*, pp.148-156.

Cledenning, J., Dressler W.H., Richards, C., 2016. Food justice or food sovereignty? Understanding the rise of urban food movements in the USA. In Agricultural Human Values. 33. 165-177.

Coastadapt, 2017. What is adaptation to climate change? Coastadapt. https://coastadapt.com.au/overview-of-adaptation. (Accessed on November 26, 2021)

Comtesse, H., Ertl, V., Hengst, S.M., Rosner, R. and Smid, G.E., 2021. Ecological grief as a response to environmental change: a mental health risk or functional response?. *International journal of environmental research and public health*, *18*(2), p.734.

Concilio, G., Karimi, M. and Rössl, L., 2021. Complex Projects and Transition-Driven Evaluation: The Case of the easyRights European Project. *Sustainability*, *13*(4), p.2343.

Connolly, J.J., 2018. From systems thinking to systemic action: Social vulnerability and the institutional challenge of urban resilience.

Crowley A., Moxon D. 2017. *New and innovative forms of youth participation in decision-making processes.* Council of Europe.

CHOICE for Youth and Sexuality and YouAct, 2017. The Flower of Participation.

Cucca, R., 2019. *Taking contextual differences into account in green gentrification research: the case of Vienna*, pp.46-58.

Davies, G., 2020. Climate change and reversed intergenerational equity: The problem of costs now, for benefits later. *Climate Law*, *10*(3-4), pp.266-281.

Davison, A. and Kirkpatrick, J.B., 2014. Risk and the Arborist in the Remaking of the Australian Urban Forest. *Geographical Research*, *52*(2), pp.115-122.

De Koning, S., de Haas, W., de Roo, N., Kraan, M. and Dijkshoorn-Dekker, M., 2021. *Tools for transitions: An inventory of approaches, methods and tools for stakeholder engagement in developing transition pathways to sustainable food systems* (No. C001/21). Wageningen Marine Research.

De Melo, V.P., Taumaturgo, Í., Jhunior, R.D.O.S. and Uchôa, M.T., 2020. The Concept of Justice in Stakeholder Theory: A Systematic Literature Review. *BASE-Revista de Administração e Contabilidade da Unisinos (ISSN: 1984-8196)*, *17*(3), pp.429-455.

Dennig, F., Budolfson, M.B., Fleurbaey, M., Siebert, A. and Socolow, R.H., 2015. Inequality, climate impacts on the future poor, and carbon prices. *Proceedings of the National Academy of Sciences*, *112*(52), pp.15827-15832.

De Vries, D.H. and Fraser, J.C., 2012. Citizenship rights and voluntary decision making in post-disaster US. *Int. J. Mass Emerg. Disasters*, *30*, pp.1-33.

Dijkshoorn-Dekker, M.W.C., van Alphen, M.A., Eweg, A.Y., Coninx, I., de Rooij, L.L., Likoko, E.A., Harding, T.J., Koopmanschap, E.M.J., Mekonnen, D.A., Reemer, T.B. and Termeer, E.E.W., 2022a. Just Transitions.

Dijkshoorn-Dekker, M.W.C., van Alphen, M.A., Termeer, E.E.W., Coninx, I., de Rooij, L.L., van Ree, M., Casu, F.A.M., Likoko, E.A., Harding, T.J., Koopmanschap, E.M.J. and Reemer, T.B., 2022b. *Just Transitions In practice*. Wageningen Economic Research.

Dow K., 1992. Exploring differences in our common future (s): the meaning of vulnerability to global environmental change. Geoforum 23(3):417–436.

Dow, K. and Cutter, S.L., 2000. Public orders and personal opinions: Household strategies for hurricane risk assessment. *Global Environmental Change Part B: Environmental Hazards*, *2*(4), pp.143-155.

Duncan J., Carolan M., Wiskerke J.S.C., 2020. Routledge Handbook of sustainable regenerative food systems. Routledge. London. 478p.

EC–European Commission, 2019. Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions–The European Green Deal. *Document 52019DC0640*, *640*.

Eisenman, D.P., Cordasco, K.M., Asch, S., Golden, J.F. and Glik, D., 2007. Disaster planning and risk communication with vulnerable communities: lessons from Hurricane Katrina. *American journal of public health*, *97*(Supplement_1), pp.S109-S115.

Elder, K., Xirasagar, S., Miller, N., Bowen, S.A., Glover, S. and Piper, C., 2007. African Americans' decisions not to evacuate New Orleans before Hurricane Katrina: A qualitative study. *American Journal of Public Health*, *97*(Supplement_1), pp.S124-S129.

Elzen, B., Haas, W. de, Wigboldus, S., Bos, B. Dijkshoorn – Dekker, M. 2020. *Transition Pathways - Contours of an Analytical Framework.* Wageningen Research, Report WPR-839.

Eriksen, S.H., Nightingale, A.J. and Eakin, H., 2015. Reframing adaptation: The political nature of climate change adaptation. *Global Environmental Change*, *35*, pp.523-533.

European Commission, 2021. Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the regions. Forging a climate resilient Europe – the new EU Strategy on Adaptation to Climate Change. Brussels, European Commission. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0082&from=EN (accessed 26 November 2021)

FEMA, 2015. Hazard mitigation assistance guidance. FEMA, Washington, D.C.

Forsyth, M., Cleland, D., Tepper, F., Hollingworth, D., Soares, M., Nairn, A. and Wilkinson, C., 2021. A future agenda for environmental restorative justice?. *The International Journal of Restorative Justice, 4 (1)*, pp.17-40.

Fraser, N., 1998. Social justice in the age of identity politics: Redistribution, recognition, participation, WZB Discussion Paper, No. FS I 98-108, Wissenschaftszentrum Berlin für Sozialforschung (WZB), Berlin

Fraser, N., 2010.Scales of justice. Reimagining political space in a globalizing world. Columbia University Press.

Gamper-Rabindran, S. and Timmins, C., 2011. Hazardous waste cleanup, 73eighbourhood gentrification, and environmental justice: Evidence from restricted access census block data. *American Economic Review*, *101*(3), pp.620-24.

Glennie, C. and Alkon, A.H., 2018. Food justice: Cultivating the field. *Environmental Research Letters*, *13*(7), p.073003.

Global Center on Adaptation, 2019. What does climate adaptation and resilience look like? GCA. https://gca.org/what-does-climate-adaptation-and-resilience-look-like/ (Accessed on December 22nd, 2021)

Goering L., 2021. The impact of local climate adaptation – and why it is important for all of us. WEFORUM. https://www.weforum.org/agenda/2021/01/climate-change-transboundary-mitigation-adaptability/ (accessed on December 23, 2021)

Graham, S., Barnett, J., Mortreux, C., Hurlimann, A. and Fincher, R., 2018. Local values and fairness in climate change adaptation: insights from marginal rural Australian communities. *World Development*, *108*, pp.332-343.

Hardy, R.D., Milligan, R.A. and Heynen, N., 2017. Racial coastal formation: The environmental injustice of colorblind adaptation planning for sea-level rise. *Geoforum*, *87*, pp.62-72.

Heckert, M. and Rosan, C.D., 2018. Creating GIS-based planning tools to promote equity through green infrastructure. *Frontiers in Built Environment*, *4*, p.27.

Heffron R.J., and McCaulley D., 2018. What is the 'Just Transition'? Geoforum, 88. Pp.74-77.

Heynen, N., Perkins, H.A. and Roy, P., 2006. The political ecology of uneven urban green space: The impact of political economy on race and ethnicity in producing environmental inequality in Milwaukee. *Urban Affairs Review*, *42*(1), pp.3-25.

HLPE, 2017. Nutrition and food systems. A report by the High Level Panel of Experts on Food Security and Nutrition. Committee on World Food Security.

Holland, B., 2017. Procedural justice in local climate adaptation: political capabilities and transformational change. *Environmental Politics*, *26*(3), pp.391-412.

Honneth, A., 1996. *The struggle for recognition: The moral grammar of social conflicts*. MIT press.

Hourdequin, M., 2016. Justice, recognition and climate change. *Climate justice and geoengineering: Ethics and policy in the atmospheric 74eighbourhoo*, pp.33-48.

IDLO (2021),Climate Justice: A Rule of Law Approach for Transformative Climate Action. International Development Law Organization.

IFAD, 2021. Framework for the analysis and assessment of food systems transformation. IFAD/WUR.

IPCC, 2019. Annex to the Special Report: Global Warming of 1.5 °C -Glossary. IPCC. https://www.ipcc.ch/sr15/chapter/glossary/ (accessed December 22nd, 2021)

Isaacs, W.N., 1993. Taking flight: Dialogue, collective thinking, and organizational learning. *Organizational Dynamics* 22(2), pp. 24–39.

IUCN, 2019. Ecosystem-based adaptation. https://www.iucn.org/resources/issues-briefs/ecosystem-based-adaptation (accessed December 23, 2021)

Jafino, B.A., Kwakkel, J.H. and Taebi, B., 2021. Enabling assessment of distributive justice through models for climate change planning: A review of recent advances and a research agenda. *Wiley Interdisciplinary Reviews: Climate Change*, *12*(4), p.e721.

Jessup, B., 2014, Environmental Justice as Spatial and Scalar Justice: A Regional Waste Facility or a Local Rubbish Dump Out of Place? McGill International Journal of Sustainable Development Law and Policy, Vol. 9, No.2, 2014, pp.69-107.

Juhola, S., Glaas, E., Linnér, B.O. and Neset, T.S., 2016. Redefining maladaptation. *Environmental Science & Policy*, *55*, pp.135-140.

Kaljonen, M., Kortetmäki, T., Tribaldos, T., Huttunen, S., Karttunen, K., Maluf, R.S., Niemi, J., Saarinen, M., Salminen, J., Vaalavuo, M. and Valsta, L., 2021. Justice in transitions: Widening considerations of justice in dietary transition. *Environmental innovation and societal transitions*, *40*, pp.474-485.

Kalpavriksh, 2017. Alternatives Transformation Format: A Process for Self-Assessment and Facilitation towards Radical Change. https://vikalpsangam.org/wp-content/uploads/migrate/Resources/alternatives_transformation_format_revised_20.2.2017.pdf

Koch, N., 2020. Deep listening: Practicing intellectual humility in geographic fieldwork. *Geographical Review*, *110*(1-2), pp.52-64.

Krause, D., Stevis, D., Hujo, K. and Morena, E., 2022. Just transitions for a new eco-social contract: analysing the relations between welfare regimes and transition pathways. *Transfer: European Review of Labour and Research*, *28*(3), pp.367-382.

Kravchenko, M., Pigosso, D.C. and McAloone, T.C., 2020. A trade-off navigation framework as a decision support for conflicting sustainability indicators within circular economy implementation in the manufacturing industry. *Sustainability*, *13*(1), p.314.

Kuhl, L., Kirshen, P.H., Ruth, M. and Douglas, E.M., 2014. Evacuation as a climate adaptation strategy for environmental justice communities. *Climatic Change*, *127*(3), pp.493-504.

Kurbalija J., 2021. Can an empty chair save COP26? https://www.diplomacy.edu/blog/can-an-empty-chair-save-cop26/

Kwon, C.K. and Nicolaides, A., 2017. Managing diversity through triple-loop learning: A call for paradigm shift. *Human Resource Development Review*, *16*(1), pp.85-99.

Lager et al., 2023. Just Resilience: Towards measuring justice and equity for climate adaptation in the EU. Scoping paper. ETC/CCA. European Environment Agency. Copenhagen.

Lawless, S., Song, A.M., Cohen, P.J. and Morrison, T.H., 2020. Rights, equity and justice: A diagnostic for social meta-norm diffusion in environmental governance. *Earth System Governance*, *6*, p.100052.

Lewis B., 2021. Human rights duties towards future generations and the potential for achieving climate justice. In Netherlands Quarterly of Human Rights. 34 (3), pp. 206-226

Maantay, J., 2002. Mapping Environmental Injustices: Pitfalls and Potential of Geographic Information Systems in Assessing Environmental Health and Equity. *Environmental Health Perspectives,* 110, pp. 161-171.

Maher, J., 2018. A multiscale analysis of gender in climate change adaptation: Evidence from Malawi. In *Routledge Handbook of Climate Justice* (pp. 378-392). Routledge.

Mandarano, L. and Meenar, M., 2017. Equitable distribution of green stormwater infrastructure: A capacity-based framework for implementation in disadvantaged communities. *Local Environment*, *22*(11), pp.1338-1357.

Martin, A., Coolsaet, B., Corbera, E., Dawson, N.M., Fraser, J.A., Lehmann, I. and Rodriguez, I., 2016. Justice and conservation: The need to incorporate recognition. *Biological Conservation*, *197*, pp.254-261.

Martinich, J., Neumann, J., Ludwig, L. and Jantarasami, L., 2013. Risks of sea level rise to disadvantaged communities in the United States. *Mitigation and Adaptation Strategies for Global Change*, *18*(2), pp.169-185.

Mary Robinson Foundation – Climate Justice. (n.d.). Principles of Climate Justice. Retrieved from https://www.mrfcj.org/principles-of-climate-justice/

Mascarenhas-Swan, M., 2017. The case for a just transition. In *Energy Democracy* (pp. 37-56). Island press, Washington, DC.

McCabe, S., 2021. The People's Transition: Community Led Development for Climate Justice. Federation for European Progressive Studies/TASC. Feps-tasc the peoples transition – 2020.pdf (feps-europe.eu)

McCauley, D. and Heffron, R., 2018. Just transition: Integrating climate, energy and environmental justice. *Energy Policy*, *119*, pp.1-7.

Mohai, P., Pellow, D. and Roberts, J.T., 2009. Environmental justice. *Annual review of environment and resources*, *34*, pp.405-430.

Moore, J., 2020. Approaches to transition. NESC Secretariat Papers. Paper No. 20. http://files.nesc.ie/nesc_secretariat_papers/No_20_Approaches_to_Transition.pdf

Mortimer, M.J. and Kane, B., 2004. Hazard tree liability in the United States: uncertain risks for owners and professionals. *Urban Forestry & Urban Greening*, *2*(3), pp.159-165.

NCCDH, 2021. Glossary of Essential Health Equity Terms. https://nccdh.ca/glossary/entry/marginalized-populations

Newburn, D.A. and Alberini, A., 2016. Household response to environmental incentives for rain garden adoption. *Water Resources Research*, *52*(2), pp.1345-1357.

Newell, P., Mulvaney, D., 2013. The political economy of the 'just transition'. *Geographical Journal.* 179 (2) pp. 132-140.

Newell, P., Srivastava, S., Naess, L.O., Torres Contreras, G.A. and Price, R., 2021. Toward transformative climate justice: An emerging research agenda. *Wiley Interdisciplinary Reviews: Climate Change*, *12*(6), p.e733.

Nussbaum, M., 2011. Creating capabilities: the human development approach. Harvard University Press. 256p.

Okereke, C., 2010. Climate justice and the international regime. *Wiley interdisciplinary reviews: climate change*, *1*(3), pp.462-474.

Padilla, E., 2002. Intergenerational equity and sustainability. *Ecological Economics*, 41(1), 69– 83.

Pai, S., Harrison, K., Zerriffi, H., 2020. A systematic review of the key elements of a just transition for fossil fuel workers. Clean Economy Working Paper Series.

Pelling, M., 2003. The vulnerability of cities. Natural disasters and social resilience. Routledge. 224 p.

Peschl, M.F., 2006. Triple-loop learning as foundation for profound change, individual cultivation, and radical innovation: Construction processes beyond scientific and rational knowledge.

Pettygrove, M. and Ghose, R., 2018. From 'rust belt' to 'fresh coast': Remaking the city through food justice and urban agriculture. *Annals of the American Association of Geographers*, *108*(2), pp.591-603.

Pineda-Pinto, M., Nygaard, C.A., Chandrabose, M. and Frantzeskaki, N., 2021. Mapping social-ecological injustice in Melbourne, Australia: An innovative systematic methodology for planning just cities. *Land Use Policy*, *104*, p.105361.

Posthumus, H., Bosselaar, J., Brouwer, H., de Steenhuijsen Piters, C.B., Bodnár, F., Newton, J., Dhamankar, M., Dengerink, J., van Vugt, S., Visser, D. and de Roo, N., 2021. *The food systems decision-support toolbox: a toolbox for food system analysis*. Wageningen Centre for Development Innovation.

Prag, A., 2021. Understanding enablers of adaptation action: Learning from Malawi. World Forum on Climate Justice 2021, Glasgow.

Quarantelli, E., 1985. The need for clarification in definition and conceptualization in research. *Disasters and Mental Health-Selected Contemporary Perspectives*, pp.41-73.

Rakow, L.F., 2005. Why did the scholar cross the road? Community action research and the citizen-scholar. *Communication impact: Designing research that matters*, pp.5-17.

Rakow, L.F., Belter, B., Dyrstad, H., Hallsten, J., Johnson, J. and Indvik, K., 2003. The talk of movers and shakers: Class conflict in the making of a community disaster. *Southern Journal of Communication*, *69*(1), pp.37-50.

Renne, J.L., Jenkins, P., Sanchez, T.W. and Peterson, R.C., 2008. The National Study on Carless and Special Needs Evacuation Planning: Government and Non-Profit Focus Group Results.

Restorative Justice Project, 2019. Resource. Guide to Power Mapping. Resource_-Guide-to-Power-Mapping_.pdf (impactjustice.org)

Roberts, J.T. and Parks, B.C., 2007. A climate of injustice: global inequality. *North–South Politics, and Climate Policy, Institute of Technology, Cambridge, MA*.

Rogers C., 1980. A way of being. Houghton Mifflin. Pp. 116.

Roggema, R., Vermeend, T. and Van den Dobbelsteen, A., 2012. Incremental change, transition or transformation? Optimising change pathways for climate adaptation in spatial planning. *Sustainability*, *4*(10), pp.2525-2549.

Rotmans, J., Kemp, R., van Asselt, M.B.A., Geels, F., Verbong, G. and Molendijk, K., 2000. *Transitions and Transition Management: the case of a low-emission energy supply*, ICIS-Report, Maastricht.

Roy, S., Byrne, J. and Pickering, C., 2012. A systematic quantitative review of urban tree benefits, costs, and assessment methods across cities in different climatic zones. *Urban forestry & urban greening*, *11*(4), pp.351-363.

Rudolph, T.B., Ruckelshaus, M., Swilling, M., Allison, E.H., Österblom, H., Gelcich, S. and Mbatha, P., 2020. A transition to sustainable ocean governance. *Nature communications*, *11*(1), pp.1-14.

Scharmer, C.O., 2009. *Theory U: Learning from the future as it emerges*. Berrett-Koehler Publishers.

Scharmer, C.O., 2008. Uncovering the blind spot of leadership. *Leader to Leader*, *2008*(47), pp.52-59.

Shi, L., Chu, E., Anguelovski, I., Aylett, A., Debats, J., Goh, K., Schenk, T., Seto, K.C., Dodman, D., Roberts, D. and Roberts, J.T., 2016. Roadmap towards justice in urban climate adaptation research. *Nature Climate Change*, *6*(2), pp.131-137.

Shokry, G., Connolly, J.J. and Anguelovski, I., 2020. Understanding climate gentrification and shifting landscapes of protection and vulnerability in green resilient Philadelphia. *Urban Climate*, *31*, p.100539.

Siders, A.R., 2019. Social justice implications of US managed retreat buyout programmes. *Climatic change*, *152*(2), pp.239-257.

Smaal S.A.L., Dessein, J., Wind, B.J., Rogge E., 2021. Social justice-oriented narratives in European urban food strategies: bringing forward redistribution, recognition and representation. Agriculture and Human Values. 38. Pp. 709-727.

Steele, W., MacCallum, D., Byrne, J., Houston, D., 2012. Planning the climate-just city. *International Planning Studies,* 17(1). Pp. 67-83.

Schlosberg, D., 2004. Reconceiving environmental justice: global movements and political theories. *Environmental politics*, *13*(3), pp.517-540.

Shi, L., Chu, E., Anguelovski, I., Aylett, A., Debats, J., Goh, K., Schenk, T., Seto, K.C., Dodman, D., Roberts, D. and Roberts, J.T., 2016. Roadmap towards justice in urban climate adaptation research. *Nature Climate Change*, *6*(2), pp.131-137.

Simmons, J. and Lovegrove, I., 2005. Bridging the conceptual divide: lessons from stakeholder analysis. *Journal of Organizational Change Management*.

Sovacool, B.K., Linnér, B.O. and Goodsite, M.E., 2015. The political economy of climate adaptation. *Nature Climate Change*, *5*(7), pp.616-618.

Sovacool, B.K., Burke, M., Baker, L., Kotikalapudi. C.K., Wlokas, H., 2017. New frontiers and conceptual frameworks for energy justice. Energy Policy. 105. Pp 677-691.

Spence, P.R., Lachlan, K.A. and Griffin, D.R., 2007. Crisis communication, race, and natural disasters. *Journal of Black Studies*, *37*(4), pp.539-554.

Spinney, J., 2020. Transitions: Methodology and the marginalisation of experience in transport practice. In *Handbook of Urban Mobilities* (pp. 265-276). Routledge.

Staddon, S., Byg, A., Chapman, M., Fish, R., Hague, A. and Horgan, K., 2021. The value of listening and listening for values in conservation. *People and Nature*.

Sweetman, C. and Ezpeleta, M., 2017. Introduction: Natural resource justice. *Gender & Development*, *25*(3), pp.353-366.

Swieringa, J., and Wierdsma A., 1992. *Becoming a Learning Organization: Beyond the Learning Curve.* Wokingham: Addison-Wesley

Taebi, B., Kwakkel, J. H., & Kermisch, C., 2020. *Governing climate risks in the face of normative uncertainties.* WIREs Climate Change, e666

Tate, E., Strong, A., Kraus, T. and Xiong, H., 2016. Flood recovery and property acquisition in Cedar Rapids, Iowa. *Natural Hazards*, *80*(3), pp.2055-2079.

Taylor, C., 1994. The Politics of Recognition. A. Gutmann (Ed.), Multiculturalism (pp. 25-74).

Temper, L., Walter, M., Rodriguez, I., Kothari, A. and Turhan, E., 2018. A perspective on radical transformations to sustainability: resistances, movements and alternatives. *Sustainability Science*, *13*(3), pp.747-764.

Timmermann, C., 2021. Adapting agriculture to a changing climate: a social justice perspective.

Thrift, E. and Sugarman, J., 2019. What is social justice? Implications for psychology. *Journal of Theoretical and Philosophical Psychology*, *39*(1), p.1.

Tosey, P., Visser, M. and Saunders, M.N., 2012. The origins and conceptualizations of 'triple-loop' learning: A critical review. *Management learning*, *43*(3), pp.291-307.

Tyler, T.R., 2003. Procedural justice, legitimacy, and the effective rule of law. *Crime and justice*, *30*, pp.283-357.

UNDP, s.d., Community based adaptation. UNDP, https://www.adaptation-undp.org/community-based-adaptation. (Accessed on December 22nd, 2021)

Van Berkum, S., Dengerink, J. and Ruben, R., 2018. *The food systems approach: sustainable solutions for a sufficient supply of healthy food* (No. 2018-064). Wageningen Economic Research.

Vargo, J., Stone, B., Habeeb, D., Liu, P. and Russell, A., 2016. The social and spatial distribution of temperature-related health impacts from urban heat island reduction policies. *Environmental Science & Policy*, *66*, pp.366-374.

Wahlström, M., Wennerhag, M. and Rootes, C., 2013. Framing 'the climate issue': Patterns of participation and prognostic frames among Climate Summit Protesters. *Global Environmental Politics*, *13*(4), pp.101-122.

Wang, X. and Lo, K., 2021. Just transition: A conceptual review. *Energy Research & Social Science*, *82*, p.102291.

Werners, S.E., Wise, R.M., Butler, J.R., Totin, E. and Vincent, K., 2021. Adaptation pathways: A review of approaches and a learning framework. *Environmental Science & Policy*, *116*, pp.266-275.

West, J. and Worliczek, E., 2019. Operationalising knowledge on and for societal transformations in the face of climate change. *White Paper to the JPI Climate Governing Board*.

Whitfield, S., Apgar, M., Chabvuta, C., Challinor, A., Deering, K., Dougill, A., Gulzar, A., Kalaba, F., Lamanna, C., Manyonga, D. and Naess, L.O., 2021. A framework for examining justice in food system transformations research. *Nature Food*, *2*(6), pp.383-385.

Wigboldus, S.A., Eldik, Z.C.S. van, Vernooij, D.M., 2021. Transition pathways and transitions to sustainability – A critical exploration of perspectives, typologies, and agendas; Discussion paper. Wageningen Research, Report WPR-910.

Wilde-Ramsing, J., Booth, K., Vanpeperstraete, B. and van Huijstee, M., 2021. Responsible disengagement from coal as part of a just transition.

Williams, J.M., 2018. Spatial Justice as Analytic Framework, A dissertation submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy (Political Science) in the University of Michigan.

Whyte, K.P., 2011. The recognition dimensions of environmental justice in Indian country. *Environmental Justice*, *4*(4), pp.199-205.

Wolsko, C., Ariceaga, H. and Seiden, J., 2016. Red, white, and blue enough to be green: Effects of moral framing on climate change attitudes and conservation behaviors. *Journal of Experimental Social Psychology*, *65*, pp.7-19.

World Bank, 2023., Just transition for all: the World Bank Group's support to countries transitioning away from coal. https://www.worldbank.org/en/topic/extractiveindustries/justtransition

World Health Organisation, 2012. Environmental Health Inequalities in Europe; Assessment Report; World Health Organization (WHO): Bonn, Germany.

Young, I.M., 1990. Justice and the politics of difference. Princeton University Press

Ziervogel, G., Pelling, M., Cartwright, A., Chu, E., Deshpande, T., Harris, L., Hyams, K., Kaunda, J., Klaus, B., Michael, K. and Pasquini, L., 2017. Inserting rights and justice into urban resilience: A focus on everyday risk. *Environment and Urbanization*, *29*(1), pp.123-138.

Case 1 – Birmingham Food System Strategy
Birmingham City Council (n.d.). Food revolution. Retrieved from: https://www.birmingham.gov.uk/info/50279/food_revolution (Accessed: 23/11/2022)

Case 2 – India Solar Farms
Kelkar, U., Poojary, V., Hingne, A., (2022). Including the landless in just and equitable energy transition. Dialogue presentation. WUR Just Transition Dialogue: Just Transitions: How to manage social impacts? June 8 2022.

Narayan, Poojary, Jain & Kelkar (2022 forthcoming). Just transition to a low-carbon world: the case of utility-scale solar in semi arid southern India. In Arora-Johnsson, Michael & Srivastava (eds.) Engenering Just Transitions: Dilemmas for India's Policy. Routledge.

Pratap, A., Priya P. & Arundhati M. (2020). Powering Ahead: An assessment of the socio-economic and environmental impacts of large-scale renewable energy projects and an examination of the existing regulatory context. Heinrich Boell Stiftung India. Retrieved from: https://in.boell.org/en/2020/08/31/powering-ahead (Accessed: 23/11/2022)

Rao, B. (2019). A case study on one of the world's biggest solar parks: Pavagada in Karnataka and the lessons to learn and (un)learn from the scrutiny. The Energy Finance Conference-India. Chennai: Indo-German Centre for Sustainability, IIT-Madras. Retrieved from: https://www.cenfa.org/wp-content/uploads/2019/09/Bhargavi-S.Rao_Pavagada-Solar-park.pdf (Accessed: 23/11/2022)

WRI India (2021). India: A Large-scale Solar Park on Drought-prone Agricultural Land. Retrieved from: https://www.wri.org/update/india-large-scale-solar-park-drought-prone-agricultural-land (Accessed: 23/11/2022)

Case 3 – Colombia: the energy transition and the extractive sector
Balza, L., De Los Rios, C., Guerra, A., Herrera Prada, L. & Manzano, O. (2021). Unravelling the Network of the Extractive Industries. Retrieved from: https://publications.iadb.org/en/unraveling-network-extractive-industries (Accessed: 24/11/2022)

CIPAME (2022). Centro de Innovación e Investigación para el Desarrollo Justo del Sector Minero Energético de Colombia. Available at: https://cipame.org/ (Accessed: 23/11/2022)

Corral-Montoya, F., Telias, M. & Malz, N. (2022). Unveiling the political economy of fossil fuel extractivism in Colombia: Tracing the processes of phase-in, entrenchment, and lock-in. *Energy Research & Social Science*, 88, 102377, pp. 2214-6296. https://doi.org/10.1016/j.erss.2021.102377

EITI (2020). Empowering communities in EITI implementing countries to participate in the oversight of the extractive sector. EITI. Retrieved from: https://eiti.org/documents/empowering-communities-eiti-implementing-countries-participate-oversight-extractive (Accessed: 24/11/2022)

Gencsu, I., Picciariello, A., Quevedo, A. (2022). Phasing out fossil fuel subsidies in Colombia: a crucial step towards a just energy transition. ODI Working Paper. Retrieved from: https://odi.org/en/publications/phasing-out-fossil-fuel-subsidies-in-colombia-a-crucial-step-towards-a-just-energy-transition/ (Accessed: 24/11/2022)

Rubiano, M.P. (2022). How Colombia plans to keep its oil and coal in the ground. 17 November 2022. Retrieved from: https://www.bbc.com/future/article/20221116-how-colombia-plans-to-keep-its-oil-and-gas-in-the-ground (Accessed: 24/11/2022)

WRI (2021). Colombia's Early Plans for Green Jobs and Just transition. Retrieved from: https://www.wri.org/update/colombias-early-plans-green-jobs-and-just-transition (Accessed: 23/11/2022).

Case 4 – Glasgow: Glasgow City Region Adaptation Strategy and Action Plan

Climate Change and Marginalised Communities Workshop Contributors (2020). Climate change, marginalised communities and considered debate within Scotland's climate emergency. *Scottish Geographical Journal*, 136:1-4, pp. 41-48. DOI:10.1080/14702541.2020.1834335

Climate Ready Clyde (2021a) Social Impact Assessment to support Just and Inclusive Adaptation. Retrieved from: http://climatereadyclyde.org.uk/wp-content/uploads/2021/06/05-SIA-Summary-Report.pdf (Accessed: 24/11/2022).

Climate Ready Clyde (2021b) Glasgow City Region Climate Adaptation Strategy and Action Plan. Retrieved from: http://climatereadyclyde.org.uk/adaptation-strategy-and-action-plan/ (Accessed: 24/11/2022)

Case 5 – Mosaic Governance Approach in Urbanplanen, Copenhagen

Buijs, A. E., T. J. Mattijssen, A. P. Van der Jagt, B. Ambrose-Oji, E. Andersson, B. H. Elands, and M. Steen Møller. (2016). Active citizenship for urban green infrastructure: fostering the diversity and dynamics of citizen contributions through mosaic governance. *Current Opinion in Environmental Sustainability,* 22:1-6. doi: 10.1016/j.cosust.2017.01.002.

Gulsrud, N, Raymond, C.M., & Shahrad, A. (2020). Best practice techniques for engaging and listening to diverse voices in the planning and management of urban green infrastructure. Zenodo. https://doi.org/10.5281/zenodo.3675387

Raymond, C.M., Buijs, A., Rodela, R., Gulsrud, N., Stålhammar, S., Lehtilä, K., Haaland, C., McLachlan, T., Diduck, A. (2021). Mosaic governance: A multi-method approach for engaging diverse groups in the planning of green spaces and meeting spots. VIVA-PLAN Project Comprehensive Report, Sweden. DOI:10.5281/zenodo.5520132

Viva Plan (n.d.). Available at: https://www.viva-plan.eu/ (Accessed: 24/11/2022).

Case 6 – Aboriginal and Torres Strait Islander communities in Australia and climate change impacts

Earth Systems and Climate Change Hub (2021). National First Peoples Gathering on Climate Change 2021. Available at: https://nespclimate.com.au/nfpgcc/ (Accessed: 24/11/2022)

Future Earth (2022). A National Strategy for Just Adaptation. Retrieved from: https://futureearth.org/2022/09/16/future-earth-australia-launches-new-vision-for-equitable-climate-adaptation/ (Accessed: 24/11/2022)

Green, D., Alexander, L., Mclnnes, K., Church, J., Nicholls, N., & White, N. (2010). An assessment of climate change impacts and adaptation for the Torres Strait Islands, Australia. Climatic change, 102(3), 405-433.

Our Islands Our Home (2022). Media: Press releases, media and contact information. Available at: https://ourislandsourhome.com.au/media/ (Accessed: 24/11/2022)

Petheram, L., Zander, K. K., Campbell, B. M., High, C., & Stacey, N. (2010). 'Strange changes': Indigenous perspectives of climate change and adaptation in NE Arnhem Land (Australia). Global Environmental Change, 20(4), 681-692. https://doi.org/10.1016/j.gloenvcha.2010.05.002

The Australian Climate Case (2022). The Torres Strait is the frontline of the climate crisis. Available at: https://australianclimatecase.org.au/ (Accessed: 24/11/2022)

Williamson, B. (2022). Caring for Country means tackling the climate crisis with Indigenous leadership: 3 things the new government must do. 1 June 2022. Retrieved from: https://theconversation.com/caring-for-country-means-tackling-the-climate-crisis-with-indigenous-leadership-3-things-the-new-government-must-do-183987#:~:text=Indigenous%20peoples%20have%20been%20leading,our%20ongoing%20connection%20to%20Country (Accessed: 24/11/2022)

Case 7 – More just export credits
Axelsson, S. (2021). A fossil fuel free Sweden is within reach. 12 July 2021. Available at: https://climatechampions.unfccc.int/a-fossil-fuel-free-sweden-is-within-reach/ (Accessed: 24/11/2022)

Cicero & IISD (2021). Swedish Export Credit Corporation (SEK) Sustainability Bond Framework Second Opinion. 7 December 2021. Retrieved from: https://www.sek.se/app/uploads/2021/12/Ciceros-Second-Opinion-december-2021.pdf (Accessed: 24/11/2022)

Europe Beyond Coal (2021). Overview: National coal phase-out announcements in Europe: Status January 2021. Retrieved from: https://beyond-coal.eu/wp-content/uploads/2021/01/Overview-of-national-coal-phase-out-announcements-Europe-Beyond-Coal-January-2021.pdf (Accessed: 24/11/2022)

Hale, T., Klasen, A., Ebner, N., Krämer, B., & Kantzelis, A. (2021). Towards Net Zero export credit. BSG Working Paper Series. Retrieved from: https://www.bsg.ox.ac.uk/sites/default/files/2021-07/BSG-WP-2021-042_0.pdf (Accessed: 24/11/2022).

Klasen, A., Wanjiru, R., Henderson, J., & Phillips, J. (2022). Export finance and the green transition. Global Policy, 13(5), 710-720.

SEK (2021). We must discuss the impact of Swedish export on the climate. 21 December 2021. Available at: https://www.sek.se/en/debate/we-must-discuss-the-impact-of-swedish-export-on-the-climate/ (Accessed: 24/11/2022)

Shishlov, I., Censkowsky, P., & Darouich, L. (2021). Aligning Export Credit Agencies with the Paris Agreement. Perspectives Climate Research, Freiburg. Retrieved from: https://www.perspectives.cc/public/fileadmin/Publications/21-07-06_Paris_Alignment_of_ECAs.pdf (Accessed: 24/11/2022)

United Nations Climate Change (2021). End of Coal in Sight at COP26. 4 November 2021. Retrieved from: https://unfccc.int/news/end-of-coal-in-sight-at-cop26 (Accessed 24/11/2022)

Case 8 – Poland - Post Coal Rybnik 360
Koch, N. (2020). Deep listening: Practicing intellectual humility in geographic fieldwork. *Geographical Review*, *110*(1-2), 52-64.

Sadura, P. (2021). A research report on the narratives of Rybnik's inhabitants. Retrieved from: https://www.climate-kic.org/wp-content/uploads/2021/11/Rybnik-360-Deep-Demonstration_Full-Report_Deep-Listening-phase-of-the-project_Przemyslaw-Sadura-19.11.2021.pdf (Accessed: 24/11/2022)

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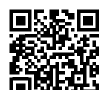

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