

Transport Research Arena (TRA) Conference

## Social Justice at the Centre of Sustainable Projects Evaluation

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### Abstract

This article puts into the spotlight a discussion on the transition towards climate change, by placing social justice at the centre of sustainable mobility projects evaluation. Until now, policies that seek to tackle climate change have disregarded the social component of sustainability. By undertaking a thorough literature research, we bring the discussion of Just Transition forward. Moreover, we examine climate actions through different perspectives which have been implemented at different levels: national, regional, or at local level. Through the previous analysis, we call for another vision of project appraisal in terms of just transition model.

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### 1. Introduction

Climate change is one of the most critical issues to tackle today as it is foreseen to have detrimental social, environmental and economic impacts in the near future. If “business-as-usual” is to continue without any changes, studies have found that food, welfare, and industrial production will cease in the next decade (Herrington, 2021). Climate scientists are unequivocal: a transition away from our current system is needed (Ferguson, 2015). This transition to climate-neutral and environmentally sustainable societies requires major transformation to, amongst others, the energy and mobility systems which form the basis of our industrialised societies.

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However, deliberate transformations towards environmental sustainability will inevitably bring about socio-economic consequences (Bennett et al., 2019), and there exists also a danger that such transformations, especially in energy and transport, will occur in an exclusionary manner or (re)produce inequitable outcomes across space and time (Blythe et al., 2018). We observe today a “double injustice” of climate change, where the groups that have contributed the least to climate change are simultaneously the most likely to suffer from it and the less able to cope with its consequences such as rising sea-levels and extreme weather (Gough, 2011; Otzelberger, 2014). It is therefore crucial that, on top of addressing the challenges associated with the technical innovations in energy and transport needed in this transition, the societal aspect needs to be considered to make sure that the costs, risks, and benefits associated are fairly distributed. Both these aspects - technical and social - must be considered interdependently, as arrangements that are beneficial for one may not be beneficial for the other (Fox, 1995). Because of this interlinkage, the practices and co-evolution of the different entities lead to dependencies and resistance to change (Geels, 2012).

To better understand the trade-offs of sociotechnical transitions, including in energy and transport sectors, scholars and policymakers align in calling for more consideration to social justice, which is a core notion of many transition plans, actions, or reports such as the European Green Deal, the Sustainable Development Goals (SDGs) (e.g., SDG 1, 3, 5, 9, 11), the latest Intergovernmental Panel on Climate Change (IPCC) report, or the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP). At European level, just before the COVID-19 pandemic outbreak, it was clear that the goal of the Green Deal was to “leave no one behind” for the transition to be fair and just.

However, to this day, considerations of justice are underrepresented both within the sociotechnical literature (Eames & Hunt, 2013) and on the ground, where many environmental sustainability decisions are still being made without considerations for the rights or perspectives of people (Friedman et al., 2018). This lack of consideration, both theoretical and practical, has led to a gap in the tools and methodologies that exist for addressing intra- and inter-generational equity, equality, gender impacts and justice concerns in transitions.

## 2. Background

Climate change objectives and justice objectives are not necessarily implying the same steps and policies. This is the main break-through of this discussion paper: a structured approach to address the different aspects of justice in any type of climate change initiative is necessary, especially in energy and transport, to find the right balance between climate change goals and justice goals.

To do so, we present the Just Transition (JT) framework. The strength of the framework resides in its critical perspective on transition through the integration of social justice and climate as well as environmental concerns (McCauley & Heffron, 2018). Although the term was first coined by global trade unions in the 1980s (McCauley & Heffron, 2018), the JT has been recently advocated by the energy, transport, environment and climate scholar communities. Overall, JT can be seen as a sociotechnical transition that would achieve the twin goals of human well-being and sustainability (Heffron and McCauley 2018; Clarke and Lipsig-Mummé 2020; Atteridge and Strambo 2020; Allwood 2020; Swilling et al., 2016).

This framework considers three aspects of social justice: recognition justice, procedural justice and distribution justice – also referred to as the “triumvirate of tenets” (McCauley et al., 2013). It is believed that, by bringing these three aspects of social justice together, the challenges of transition can be better assessed and addressed in decision-making processes (Bennett et al., 2019). **Distribution justice** roots from the environmental justice movement and identifies the uneven allocation of benefits and burdens and their associated responsibilities (Walker, 2009). This tenet has a spatial and a temporal focus meaning that the consequences of a specific element are being analysed through their distribution both in space and in time (Wood & Roelich, 2020). **Recognition justice** is the recognition of the rights of all individuals in society. A lack of recognition can lead to the misrecognition or distortion of people’s views (McCauley et al., 2013). **Procedural justice** refers to the equitable involvement of all stakeholders in a non-discriminatory fashion (Walker, 2009). It states that all groups of society are to be able to access and take part in decision making processes, (Jenkins et al., 2016). Procedural justice enables to achieve just outcomes through three mechanisms: local knowledge mobilisation, greater information disclosure and better institutional representation (Jenkins et al., 2016). While this framework has already been applied to the energy domain (see Jenkins et al., 2016), we aim to investigate a variety of domains such as mobility and industrial transformation, **to deliver a better**

### **understanding of the trade-offs and synergies between climate action, climate-change impacts and equity and justice considerations.**

Furthermore, as with other normative policy concepts, such as Quadruple Helix (QH) and Responsible Research and Innovation (RRI), policy implementation challenges related to aligning the normative ambitions of social justice (as conceptualized in the different justice requirements and included in guidelines, statements, policy briefs etc.) with policy implementation in real life settings is of key importance (Novitzky et al. 2020).

The key contribution of this discussion paper is to advance into a more responsible and socially inclusive transition towards climate neutrality by discussing the positive and negative impacts in a structured manner, where stakeholders are aware of the important role they play for achieving justice for sustainable transition. For this sake we make use of transdisciplinary expertise, academia and research institutions, NGOs, and local, regional and national administrations, along with representatives of civil society and citizens across Europe and beyond, to achieve substantial impacts agreed in the COP21, the SDGs and the European Green Deal.

Our ambition and motivation with this paper is to continue this work with the development of a concrete tool that will guide policy makers, and all actors involved in climate transition strategies, specially in energy and transport, in developing policy options and measures that are “just by design” (Novitzky et al., 2020). To do so, this research assesses real life sociotechnical transition (STT) initiatives in energy and transport (innovation and technology substitution processes) from a social justice perspective. The proposed work is expected to undergo a systemic research and innovation pathway that takes it from the idea to the application (i.e., deployment to end-users). The process starts with in-depth literature analysis (systemic review undertaken by using Covidence or similar software) and desktop research to fully incorporate state-of-the art in justice theories and their application(s) in policy, and sociotechnical transitions specifically. This will be followed by a Semi-structured Interviews method survey to address issues related to emerging socio technical imaginaries based on the typology of ‘meanings’, ‘knowings’, ‘doings’, and ‘organisings’. Then, a series of stakeholders’ workshops where participatory instruments for co-creation allow us to elicit novel ideas and validate others obtained in desk research. Workshops will involve concrete cases and reflect on findings related to the in-depth literature analysis. There will also be an elaboration of a policy brief and toolbox development. This is the path that brings us from the idea to the application.

### **3. Methodological framework and results**

The adopted methodology for this discussion paper centres around (1) a strong framework combining theories of sociotechnical transitions, justice, citizens and stakeholder engagement and social responsibility in innovation; (2) an empirically substantiated set of indicators for analysing climate-transition.

The “Just Transition” conceptual model shaped in this article is based on (a) existing JT assessment frames; (b) RRI/social transition structures; (c) responsible governance ideals; (d) QH framework; and (e) key principles of climate transition and sustainable development. Creating a common vision for a just transition is critical for the just transition process itself but investigating the differences between the various visions of all societal stakeholders is of equal importance to understand how to facilitate an equitable and just transition.

Following the work on energy transition visions from Longhurst & Chilvers (2019), we highlight the necessity to investigate the sociotechnical imaginaries of the “just transition” from the quadruple helix angle, through an analysis of texts and policies published by academia; local, national and international government; business and industries; and civil society. By investigating the different sociotechnical visions of the just transition, the four dimensions developed by the authors (‘meanings’, ‘knowings’, ‘doings’, and ‘organisings’) will allow us to reveal their respective partialities, exclusions and sociopolitical dimensions, therefore not only mapping the technocratic vision of the concept, but also the ‘bottom-up’ alternatives to it. A consequent Sociocratic model of decision development is proposed: shifting from peer-to-peer approach within co-design sessions to a psychologically safe environment and productive decision QH model for just transition (Eckstein, J, 2016). The research of the ‘meanings’ of the imaginary has revealed how issues are defined and how imaginaries are framed; the investigation of the ‘knowings’ will highlight the cognitive resources and competencies envisioned in the imaginaries; the study of the ‘doings’ will expose the type of practices and technologies predicted; and finally the investigation of the ‘organisings’ will disclose the modes of governing conceived in these imaginaries. The investigation of these elements, shedding light on possible tensions or

exclusions between different imaginaries, is of particular importance to gain insight into socio-economic and socio-political barriers that impede a just transition towards climate neutrality.

To better understand the trade-offs and synergies between climate action and equity and justice considerations, existing climate change policies should be assessed through this co-produced framework of just transition. By investigating the elements taken into consideration by existing climate change policies at local, national and international level, and comparing them with the co-produced framework of just transition, areas of tensions and controversies will be identified. The mapping and visualisation of these different sociotechnical visions ('climate oriented' vs 'just transition') is necessary to anticipate possible future socio-economic and socio-political barriers between the implementation of climate policies and social justice objectives. Results in terms of components of an emerging just transition imaginary as well as the results of the analysis and experimentation in empirical component of the research has been compiled into a self-assessment model and online instrument that will incorporate a set of questions (and potential example answers) to assist different stakeholders understand, reflect on and anticipate actions and processes that are both climate oriented and just.

The Experimentation phase of this JT theoretical framework has as its main unit of observation the Engagement Cases (EC) to build up the Just Transition model of analysis (Table 1).

Table 1. Empirical components of the J4ST Engagement Cases

Case	Component	
<b>E1: Mobility Agency Vienna, Austria (AT) (Mobilitätsagentur Wien)</b>		
	Status	Ongoing 2013-2025
	Description	The Mobility Agency is closely connected with the responsible municipal departments of the city of Vienna. By campaigns, events and service offers, the citizens are supported and nudged towards using active forms of mobility like biking or walking. The Mobility Agency is the contact point for all those who have suggestions for improvement or who would like to voice criticism. It acts as an interface between the population and the administration and has made it its task to introduce innovative concepts for active mobility. The initiative has been funded by the Viennese municipality since 2013 and ongoing, based on the Urban Mobility Plan for 2025 by the City of Vienna. With the funding tool of the "mobility fund" the Mobility Agency Vienna enables climate friendly initiatives like "Cool Streets" (urban infrastructures to cool down air in summer) and funds electric cargo bikes. The funding is bound to four principles: local impact in the district, sustainability and long-term impact, compatibility and accessibility. Besides the funding Mobility Agency Vienna provides services for and with citizens to enable active and more sustainable mobility and climate friendly urban infrastructures.
	Hypothesis	A mobility agency close to its citizens to manage questions, petitions, and inconveniences found in the city by the population. This agency seeks to increase social participation and acceptability of measures towards sustainability through active mobility. By funding specific projects that help citizens to transfer to active mobility the mobility agency Vienna pushes climate friendly activities in different forms all around the city.
	Justification	These measures benefit the population as a whole, not only due to less private transport but also thanks to less pollution. However, it is recognized that children, pregnant women and the elderly are more sensitive to the health impacts of various air pollutants, with the impacts on children's cognitive development having lifelong implications. Active mobility is promoted by the mobility agency. It seeks to support vulnerable groups and increase accessibility. Projects that are directed towards mobility-impaired people, children and disadvantaged people from the district are explicitly rated higher in funding schemes.

Case	Component	
<b>E2: Low Emissions Zones, Vilnius (LI)</b>		
	Status	Ongoing 2020-2025
	Description	Vilnius is the largest city of Lithuania and a fastest growing capital. The real-time information about air pollution in the city is received from only 4 air quality stations. It is the main method for air quality assessment in Lithuania. Vilnius suffers from local pollution sources (heating of individual houses, cars' traffic), as well as pollutants emitted by Vilnius city transport and industry. For example, the average daily concentration of particulate matter (PM10) in air quality monitoring stations in Vilnius exceeds the limit value (50 µg/m3) for about 40 days per year. The Municipality has already started air quality control measures with the first 5 electro busses operating, the introduction of mobile warning systems for citizens for air quality, and a traffic regulation system in downtown for decreasing air pollution. Loop traffic is introduced in the city center, the visitors and residents can reach their homes, but they cannot cross downtown. Traffic will be arranged in four loops that cover entire historical center
	Hypothesis	Public health risks increase as the Air Quality Index rises. Therefore, a better diagnosis, monitoring, and controlling is needed. Similarly other processes regarding measuring impacts, finding solutions, communicating, and changing behaviour should be proposed seeking for a just transition regarding sustainability measures.
	Justification	These measures benefit the population as a whole, not only due to less private transport but also thanks to less pollution. However, it is recognized that children, pregnant women and the elderly are more sensitive to the health impacts of various air pollutants, with the impacts on children's cognitive development having lifelong implications. Moreover, people at risk of poverty and social exclusion and persons with disabilities.
<b>E3: Evaluation of the transport plan in Tel-Aviv (IL)</b>		
	Status	Ongoing 2020-2025
	Description	The development of the transportation system in Tel Aviv in recent decades has been based mainly on roads and highways while investment in the mass transit system has started only in recent years. As a consequence, to the lack of investment in public transportation systems, Israeli citizens were incentivized to increasingly purchase and use private motor vehicles. That resulted in a declining use of public transport over time and increasing levels of traffic congestion in spite of major road expansions. Recently, large investments in public transport have been planned, including 3 BRT lines and three new metro lines to reduce car usage. Additional measures including increased cycling infrastructure are developed.
	Hypothesis	To achieve a real sustainable mobility, the transport plan considers sustainability and equity criteria since its conception in order to move towards a just transition
	Justification	These measures benefit the population, not only due to less private transport but also thanks to less pollution. However, it is recognized that children, pregnant women and the elderly are more sensitive to the health impacts of various air pollutants, with the impacts on children's cognitive development having lifelong implications. Moreover, people at risk of poverty and social exclusion, elderly, children, persons with disabilities and in charge of mobility of care activities, frontline workers.

Case	Component	
<b>E4: Fostering sustainable mobility in the city of Valladolid (SP) with an equity and social approach: The AUVASA Local Public Transport Company, Valladolid (ES)</b>		
	Status	Ongoing 2020-2023
	Description	AUVASA is the local public transport company, which seeks to foster the link between public transport and active mobility. For that sake, they propose a Sustainable Urban Mobility Plan (SUMP) which will introduce different measures, such as more space for pedestrians, improving accessibility in neighbourhoods with hilly terrain, improving cycling infrastructure, providing permeability and connecting points of the existing network, and expanding the network of segregated bus lanes to improve the commercial speed of AUVASA. Moreover, they propose low traffic measures zones. The Company observes that after the pandemic outbreak a mobility transition should take place towards more sustainable transport modes and to support the citizens of the city. It is worth highlighting that, during the worst pandemic waves, AUVASA increased the provision of bus services, in order to support essential workers and the mobility of care.
	Hypothesis	Implementing sustainability measures bringing social common interest at the core of the policies
	Justification	These measures benefit the population, not only due to less private transport but also thanks to less pollution. However, it is recognized that children, pregnant women and the elderly are more sensitive to the health impacts of various air pollutants, with the impacts on children's cognitive development having lifelong implications. Moreover, people at risk of poverty and social exclusion benefit from these policies. Others are migrants, frontline/essential workers, people with disabilities, women who use more public transport due to chained trips and care work.

The Engagement cases allow for a more in-depth observation generating interactive and participatory dynamics as main tools of production of knowledge, and where the Just Transition toolkit will be applied. Due to the fact that they are ongoing projects and that a more detailed examination is needed, the sample of Engagement cases includes four examples. The Criteria to select these Engagement Cases (EC) was the following: Criterium #1: to be a Climate Transition Policy Initiative (in different areas). Criterium #2: Vulnerable part of society Target- groups engaged. Criterium #3: wide variety of stakeholders involved. Criterium #4: Time of action. Criterium #5: Context-sensitiveness.

#### 4. Conclusion, discussion, and future work

This article highlights the need to develop a concrete model of analysis that will guide policy makers, and all actors involved in climate transition strategies, in developing policy options and measures that are “just by design” as highlighted by Novitzky et al. (2020). It leaves many doors open for further research, as follows: Assessing real life sociotechnical transition (STT) initiatives (innovation and technology substitution processes) from a social justice perspective by (1) creating a real life based, empirically substantiated framework of JT assessment based on a theoretical reconceptualization of Just Transition and developing/selecting a set of indicators for the justness of an STT; (2) offering a set of awareness raising, intervention and policy implementation utensils targeted towards different societal actors and policy decision makers in STT processes.

A decision tool based on a set of questions ought to be created through a set of comparative analysis and indicators, based on a modified ‘phase gate’ approach aligned to the typical policy design and implementation process. While the main aim of the thinking tool is different from that of the ‘phase gate’, the gates provide a useful segmentation of the different elements of the policy implementation process and therefore areas of intervention for making the process

more just. The model of analysis will utilize four gates (Scoping, Planning, Development and Launch) coupled with a preliminary assessment framework based on (a) stakeholder inclusion and engagement; (b) anticipating social justice impacts; and (c) the potential for reflecting on and responding to social justice outcomes. The preliminary assessment model will be further informed and refined by the empirical programme.

The set of indicators of a JT policy implementation process and the preliminary questions created need to be taken back to the Main Engagement Cases and will be reflected upon in two workshops. The application of the evaluation and its results will be reflected upon in different workshops with stakeholders. The debate and co-elaboration will allow calibration of variables, values and thresholds contained in the the indicators. The purpose of the experimentation is to enhance the Evaluation tool with a real-case implementation, supported by a large variety of stakeholders providing their insights and specific viewpoint.

Furthermore, a Consensus Conference [CC] working with volunteering members of Main Engagement Cases to decide on pending and unresolved questions related to indicator development and thinking tool questions, is foreseen. This consensus conference promotes, facilitates and records exchanges between stakeholders and citizens engaged in just transition towards climate neutrality (Braun, Ravn, and Frankus 2020). The engaged stakeholders and citizens are free to alter potential consensus answers or reflect on anything they found to be substantial for the topic in question. Substantial education is involved on core questions related to the topic as well as preliminary findings of the quantitative and qualitative research. After the session, a consensus sheet and an impact or consensus statement is created and summarized the questions, remarks, issues discussed, and the consensual answers arrived at as well as the consensus in a narrative format, respectively. Stakeholders will involve NGO representation as well as lay people that may be instrumental to reflect on the questions discussed. The consensus conference will use the catalytic capacity of contention by encouraging expression of divergent views to initiate a nuanced debate about the nature of the just transition and its operationalization. The output of the CC will be taken to finalize indicators and thinking tool questions. The thinking tool will then be created as an online tool available to all citizens.

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