MAPPING AND INSTITUTIONALIZING SOCIAL-ECOLOGICAL INEQUALITIES FOR A JUST TRANSITION IN EUROPE

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RESUME

Dans cet article, nous proposons un nouvel outil de visualisation et de conception des politique publiques : la « boussole de la justice sociale-écologique » qui peut servir de cadre multidimensionnel pour évaluer l'état des inégalités socio-écologiques et contribuer à favoriser une transition juste en Europe et au-delà. Il vise principalement à guider les décideurs politiques et les autres parties prenantes dans la conception de programmes cohérents de transition juste, alors que cette thématique prend de l'ampleur dans l'Union européenne.

MOTS CLES

Inégalités, justice sociale-écologique, transition juste, Union européenne, climat

JEL

I31, Q58

ABSTRACT

In this paper, we propose a new visualization and policy tool: the 'social-ecological justice compass' which can serve as a multi-dimensional framework for assessing the state of social-ecological inequalities and help foster the just transition in Europe and beyond. It is intended to guide policy-makers and other actors in the design of comprehensive and consistent policy packages for a just transition as this agenda is gaining momentum in the European Union.

KEYWORDS

Inequality, social-ecological justice, just transition, European Union, climate

JEL

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Social–Ecological Transitions

It is now widely accepted that ecological transitions, in their different dimensions (mitigation, adaptation) and areas (climate-energy, biodiversity and ecosystems, resources), arise from social dynamics and entail social impacts (representations, social relations, trust, cooperation, inequalities, participation, resistance, etc.). This intersection of ecological transitions and social issues is now manifest in numerous academic works and public policy initiatives, but it is still far from producing consensual, useful and operational knowledge for policymakers and citizens. The SET (Social-Ecological Transitions) initiative was precisely launched in February 2024 at Sciences po with the aim of encouraging collaborations between researchers working at the frontier of social and environmental issues, beyond disciplinary or institutional boundaries to advance this knowledge.

SET PAPERS n°1

Mapping and Institutionalizing Social-Ecological Inequalities for a Just Transition in Europe

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Abstract / highlights

In this paper, we propose a new visualization and policy tool: the 'social-ecological justice compass' which can serve as a multi-dimensional framework for assessing the state of social-ecological inequalities and help foster the just transition in Europe and beyond. It is intended to guide policy-makers and other actors in the design of comprehensive and consistent policy packages for a just transition as this agenda is gaining momentum in the European Union.

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Introduction: From Social-Ecological Inequalities to Just Transition Policies

Since its inception thirty years ago in the international trade unions' world (Henry et al., 2020), the concept of just transition has found an increasingly prominent place in political agendas and discourses at all levels (Wang & Lo, 2021). The concept was notably taken to the international fora in 2015 by the International Labour Organization (ILO) with its Guidelines for a just transition, which led to the inclusion of the just transition imperatives in the Paris Agreement the same year, and the signature by a coalition of nations of the COP 26 Just Transition Declaration in 2021. At the EU level, these imperatives, which are reflected in the Green Deal under the "leaving no one behind" headline, have started to be operationalized through the 'Social Climate Fund' and the 'Just Transition Mechanism'. The notion of a just transition has also begun to permeate the policy arenas in member states as evidenced by recent developments such as the establishment of Just Transition Commissions in Scotland and Ireland, the creation of the Just Transition Institute in Spain and the launching of the Estates General for a just transition in Belgium.

While the just transition has recently gained political momentum (with the Belgian Presidency of the Council of the European Union making it one of its priorities in the first semester of 2024 and the creation of a Commission vice-president in charge of this agenda), it is necessary to broaden its conceptual scope within the EU just transition policy framework. Indeed, although the embryonic policy operationalization of the just transition in the Green Deal goes beyond the original acceptance of protecting workers from environmental policies (Wilgosh et al, 2022), this operationalization remains too limited, at three levels:

- The EU Just transition policy framework tends to center on climate mitigation policies. However, the other domains of environmental policy such as climate adaptation, biodiversity protection and restoration, pollution control, resources and waste management, also entailimportant justice concerns, and should therefore be addressed as part of a just transition project (Fransolet and Vanhille, 2023; Bauler et al., 2021). For instance, in terms of biodiversity, the degradation or destruction of an ecosystem generates injustice for human communities whose well-being and capabilities depend on this ecosystem (i.e. mangroves in South East Asia that harbor marine life), but also for the non-human entities that constitute it – provided that the intrinsic value to nature is recognized, as suggested in this paper. If poorly designed, biodiversity protection or restoration policies implemented to tackle this injustice can in turn generate other forms of injustice. This has been notably documented for the creation of national parks which favor the practices of a minority of users from the upper social classes to the detriment of the more modest populations, whose practices are deemed harmful and are subject to greater regulation (Deldrève and Candau, 2014), but also for urban greening policies leading to speculation, higher rents and the eviction of low-income tenants, referred to as "environmental gentrification" (Immergluck and Balan, 2018; Haase et al., 2017).
- The EU just transition policy instruments are mainly conceived as additions to environmental policies aimed at compensating (most often financially) vulnerable workers and households for anticipated socially adverse effects of these policies (Sabato and Vanhille, 2024). Yet, the just transition can no longer be understood solely under a compensatory logic and needs to be considered as a broader *social-ecological* transition project aimed at addressing in an

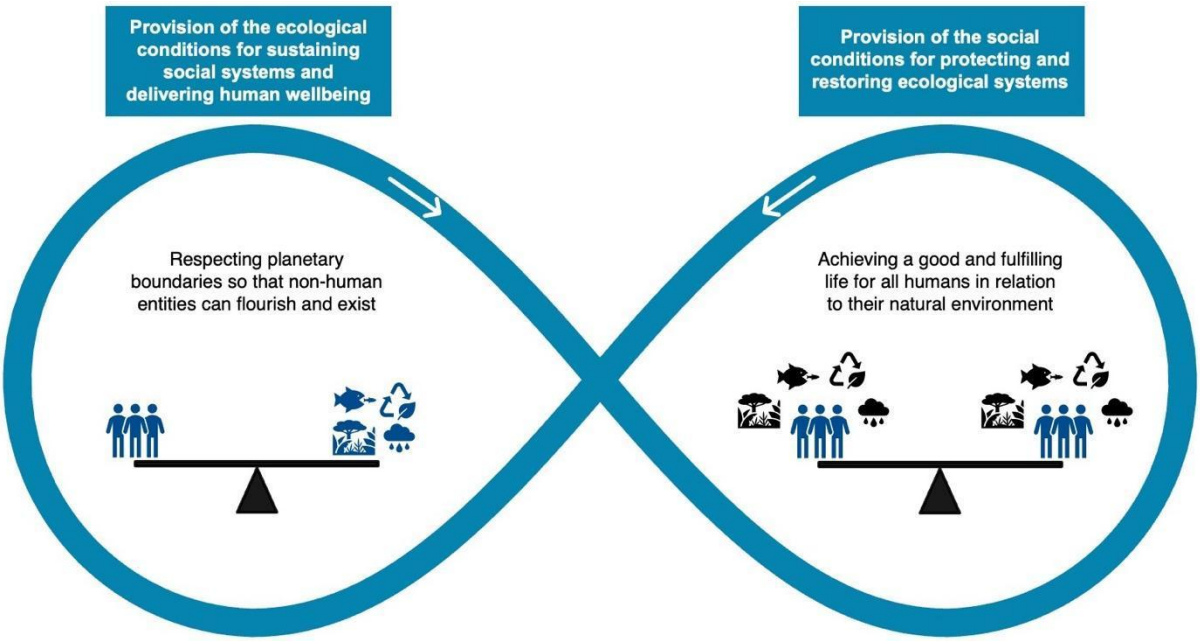
integrated way persisting social inequalities and poverty and accelerating ecological degradations (Laurent, 2023b; Fransolet and Vanhille, 2023; Bauler et al., 2021). Such an integrated approach is essential considering the inextricable link between social and ecological challenges: Wealth and power inequalities contribute to environmental degradation (Laurent, 2009; Chancel, 2019; Boyce, 1994), which, in turn, disproportionately affects the most vulnerable ones, thus exacerbating existing social inequalities (FAO, 2024; IPCC, 2022). In this integrated perspective, compensation for households affected by the impacts of the new emissions trading systems for transport and buildings planned under the EU Just Transition Mechanism is, for instance, necessary, but clearly insufficient to address these social and ecological challenges. Such challenges indeed require "to be dealt with in a more comprehensive, i.e., transformative, fashion" (Brand 2022, p. 37) addressing their common root causes, namely a system oriented towards perpetuate economic growth and based on the exploitation and domination of a part of humanity and nature (Brand, 2022 ; Pope et al., 2021).

- The EU policy operationalization of just transition, which is mainly based on a distributive approach to justice, puts little emphasis on procedures and rights to participate in decision-making on environmental policy (Armeni, 2023). Nevertheless, meaningful, and continual participation of all actors concerned in decision-making processes is a condition for ensuring a just transition. Unjust decision-making processes that fail to consider the plurality of perspectives, needs and values are indeed at the root of distributive injustice (Scheidel et al., 2023; Schlosberg, 2007), which can result in strong resistances from social groups who considers themselves prejudiced (Williams and Doyon, 2019).

The EU just transition project thus requires to be broadened into a ***holistic social-ecological transition project deployed on all fronts of the twin crises of social inequalities and environmental degradation, based on and informed by a deepening of democracy*** (Laurent, 2023b ; Fransolet and Vanhille, 2023).

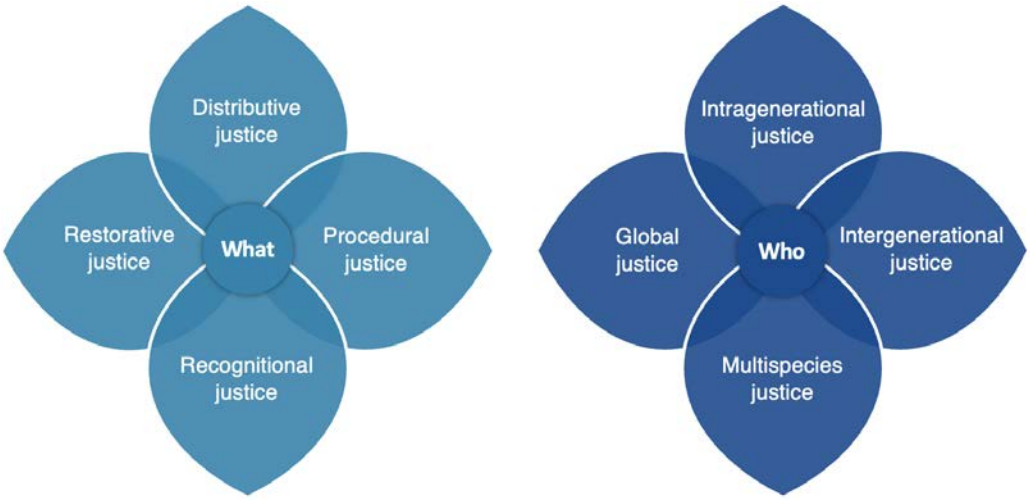
This definition is sustained by a principle of social-ecological justice defined as "the right of human and non-human worlds to live and flourish together in their environments free from social and ecological destruction and degradation" (Yaka 2019, p.11). Highlighting the interdependence and co-evolution of ecological and social systems (Gunnarsson-Östling and Svenfelt, 2018), the emerging social-ecological justice model goes beyond the current dominant anthropocentric conception of justice by integrating *justice for nature* with *justice between different humans in relation to their natural environment* (Yaka, 2019) (Figure 1).

Figure 1. Social-ecological justice and the interdependence of natural and social systems (credit: the authors)



Thus defined, social-ecological justice entails four dimensions (distributive, procedural, recognition and restorative, see for e.g.: Abram et al., 2022), which can be applied to relationships between individuals and social groups within the same generation (intragenerational justice), different generations (intergenerational justice) belonging to different nations and states (global justice), but also between the human and the non-human domains of the living world (multi-species justice) (Gunnarsson-Östling and Svenfelt, 2018 ; Pope et al., 2021). The following figure (Figure 2) illustrates the multidimensional scope of action – i.e., the 'what' – and the extended community of subjects who can claim justice – i.e., the 'who' – associated with the social-ecological justice model (Pope et al., 2021), and the box below (Box 1) provides a more detailed presentation of this model.

Figure 2. The action scope ('what') and the community of justice ('who') of social-ecological justice (credit: the authors)



Box 1. The 8 dimensions of the Social-Ecological Justice Model

The four dimensions of justice encapsulated in the social-ecological justice model sustaining our conception of just transition can be defined as follows:

- **Distributive justice** focuses on guaranteeing fair allocation to all parties (Forsyth, 2014). It notably entails fairness in the distribution of environmental amenities, resources, nuisances and risks, the contributions to environmental degradation, and the impacts of environmental policies (Jenkins et al., 2016; Emelianoff, 2008).
- **Procedural justice** focuses on guaranteeing fair decision-making processes. It involves transparent information disclosure by government and businesses, meaningful participation of all actors concerned in the development and implementation of policies, alongside access for all to civic space to protest and courts to challenge institutional decisions (Gupta et al., 2023; Jenkins et al., 2016).
- **Recognitional justice** focuses on the acknowledging plural needs, values, and perspectives in the social, political and scientific realms (Jenkins et al., 2016; Schlosberg, 2007), while paying particular attention to those from marginalized and vulnerable(lized) groups (Ballet et al., 2015; Sovacool et al., 2017).
- **Restorative justice** is invoked once an injustice occurred and focuses on repairing past damages at the individual and community levels, on restoring the dignity of the victims, but also on preventing future damages (Gupta et al., 2023; Abram et al., 2022).

Each of these four dimensions of justice can be applied to four types of relationships, as illustrated below with the example of distributive injustice associated with climate change:

- **Intragenerational justice**: Within the same region, the poorest households tend to contribute the least to climate change (see for e.g.: Lévay et al., 2021), but suffer the most from its consequences due to enhanced exposure, greater sensitivity and/or lower adaptive capacity to climate risks (Rufat et al., 2015).
- **Intergenerational justice**: Due to the greenhouse gases emitted in the present, in the future, the children of today and the generations yet to come will be exposed to more severe and frequent climate risks than current generations (Ryan et al., 2021).
- **Global justice**: On a global scale, the countries that have historically contributed the least to current climate change, including the least developed countries and the Small Island Developing States, are disproportionately affected by its adverse consequences (IPCC, 2022).
- **Multispecies justice**: As unprecedented climate change is largely caused by human activity (IPCC, 2023), other species and ecosystems are increasingly threatened by its consequences (IPCC, 2022).

To turn this theoretical framework into operational policy, a consistent set of just transition policies needs to be designed based on a mapping of social-ecological inequalities. The remainder of this paper is thus devoted to two main tasks. It first introduces an original tool for assessing social-ecological inequalities aimed at supporting policy-makers and other actors in the elaboration of just transition policy mixes: the 'social-ecological justice compass' (Section 1). The paper then illustrates the application of this tool by developing on this basis a mapping of a) social-ecological inequalities associated with climate change in the EU (Section 2), and b) just transition policies that could be implemented to address these inequalities (Section 3). The paper concludes with avenues for institutionalizing and democratizing social-ecological inequalities and just transition policies in the EU.

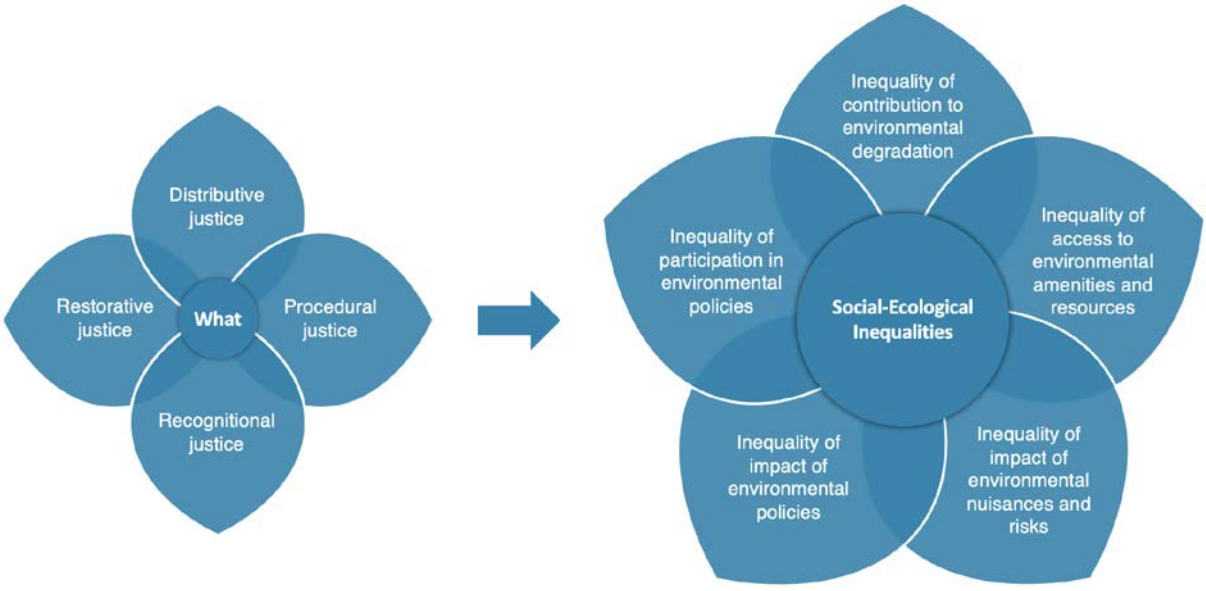
1. The Social-Ecological Justice Compass

In this paper, we propose a new visualization and policy tool: the 'social-ecological justice compass' which can serve as a multi-dimensional framework for assessing the state of social-ecological inequalities and help foster the just transition in Europe and beyond. It is intended to guide policy-makers and other actors in the design of comprehensive and consistent policy packages for a just transition. The design of such policy packages indeed presupposes the most exhaustive possible

understanding of the broad array of social-ecological inequalities that translate into social-ecological injustices. An inequality is here understood as a difference between subjects of justice "whose systematic character has been deduced from an empirical device" (Laurent, 2023a), while an injustice implies a normative point of view of the situation of inequality, for instance the fact that an inequality affects the well-being and capabilities of one of the subjects of justice concerned, which, from the perspective of the capabilities theory of justice, appears unjust. In line with the model of social-ecological justice outlined in the introductory section, this analytical framework thus intends to identify and document, in a systematic way, the multiple forms of social-ecological inequalities that affect the well-being and capabilities of humans and non-humans in and beyond the territory considered, today and in the longer term.

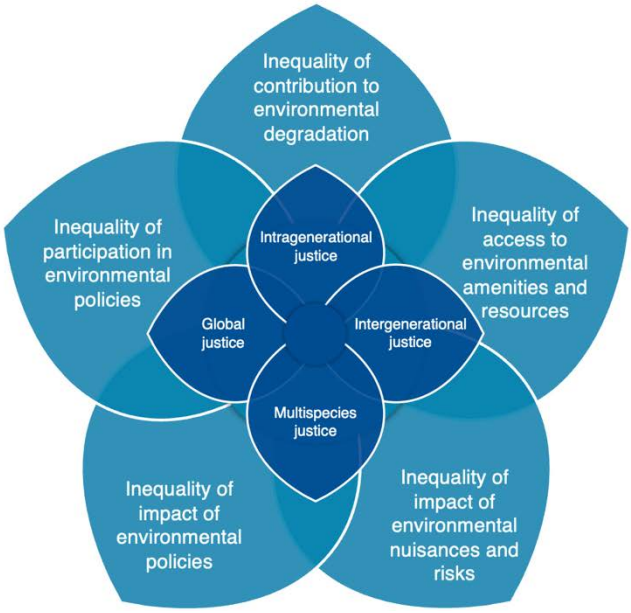
Starting from the four dimensions reflecting the 'what' of social-ecological justice mentioned above (distributive, procedural, recognition and restorative), the framework distinguishes five main types of social-ecological inequalities (Figure 3). They include 1) the unequal contribution to environmental degradation, 2) the unequal access to environmental amenities and resources, 3) the unequal impact of environmental nuisances and risks, 4) the unequal impact of environmental policies, and 5) the unequal participation in environmental policies.

Figure 3. From social-ecological justice to social-ecological inequalities (credit: the authors)



These five types of inequalities derived from the well-established typologies of environmental inequalities conceptualized in the literature (Laurent, 2023a; Laigle, 2018; Emelianoff, 2008). Compared to these contributions, one of the main novelties of our framework is that it extends these inequalities, usually limited to relations between social groups and individuals (Yaka, 2019), to relations between the human and the non-human domains of the living world. The social-ecological justice compass indeed considers each of the five types of inequalities through the prism of the four 'who' of social-ecological justice previously mentioned, i.e.: intragenerational justice, intergenerational justice, global justice, and multi-species justice (Figure 4).

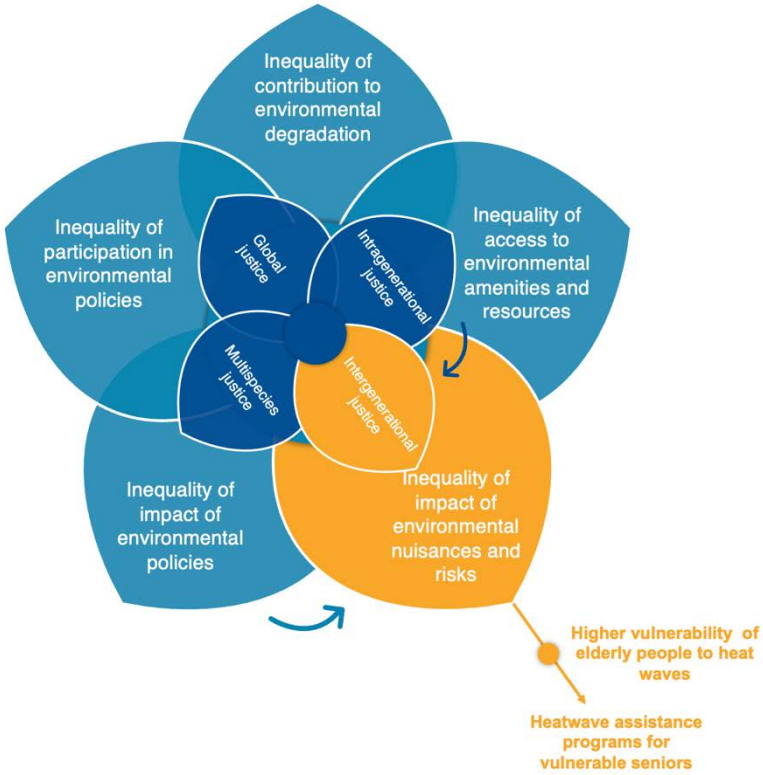
Figure 4. The social-ecological justice compass (credit: the authors)



Altogether, the framework thus encompasses 20 categories of social-ecological inequalities, corresponding to all possible combinations between the five dimensions of social-ecological inequalities (the 'what') and the four relationships to which they can be applied (the 'who') (Figure 5). The objective is to identify and collect a relevant set of indicators for each of these categories, so as to provide the most comprehensive overview possible of the state of social-ecological inequalities in the area considered.

In turn, this mapping of social-ecological inequalities can serve as a basis for designing a comprehensive and consistent just transition policy framework. As illustrated in the figure below (Figure 5), the purpose is indeed to systematically define, for each social-ecological inequality documented, a (mix of) policy instrument(s) to be implemented to address it. The zone in orange on Figure 5 represents the combination of 'what' and 'who' of social-ecological inequalities considered. In this example, the focus is on the unequal impact of environmental nuisances and risks between different generations. The higher vulnerability of the elderly to heatwaves is identified as an example of such inequalities, and heatwaves assistance programs for elderly are presented as an example of a just transition policy that could be implemented to combat this inequality. The blue arrows show that by rotating the outer wheel ('what') and the inner wheel ('who'), we can explore other combinations of 'what' and 'who' of social-ecological inequalities. For example, if the inner wheel ('who') were rotated to the left, the focus would be on inequality of impact of environmental nuisances and risks between different social groups within the same generation. If the outer wheel ('what') were rotated to the right, the focus would be on inequality of impact of environmental policies between different generations. By this way, we can systematically analyze the 20 categories of social-ecological inequality included in the framework.

Figure 5. Illustration of how to use the social-ecological inequality compass (credit: the authors)



Our social-ecological justice compass can be used for mapping social-ecological inequalities and just transition policies on a territory-wide scale (e.g., city, region, country…) or in a specific area within a territory (e.g., climate change, energy, food, mobility…). The rest of the text illustrates the application of the compass by taking the case of climate change in the EU.

2. Mapping Social-Ecological Inequalities associated with Climate Change in the EU

In this section, we show an example of application of social-ecological justice compass by developing, based on it, a mapping of social-ecological inequalities associated with climate change in the EU. This mapping is presented in a matrix crossing the five dimensions of social-ecological inequalities (the 'what') with the four relations they can be applied to (the 'who') (Table 1). Each of the 20 boxes of the matrix is filled with one emblematic example of social-ecological inequality linked to the climate crisis in Europe. This exercise, which is intended to be illustrative, does, of course, not aim at offering an exhaustive overview of the state of these multiple and intertwined social-ecological inequalities.

Table 1. Mapping social-ecological inequalities associated with climate change in the EU (credit: the authors)

	Intragenerational	**Intergenerational**	**Multispecies**	**Global**
Inequality of contribution to environmental degradation	Carbon footprint of the top 10% world population (50%)	Consumption of carbon budget (90% of 1.5° carbon budget consumed in 2023)	Higher contribution of human factors (GHG emissions from human activities) in current unprecedented global warming, compared to natural factors (solar and volcanic)	Higher share of Global North in cumulative global CO_2 emissions since industrial revolution (68%)
Inequality of access to amenities and environmental resources	Higher vulnerability of households at risk of poverty (68,5%) and social housing tenants (41,5%) to energy poverty, compared to the rest of the population in Belgium (20,6%)	Higher vulnerability of the elderly to energy poverty in the Global North	Engineered natural carbon sinks detrimental to biodiversity (Total Bateke Plateau offset)	Higher share of people without access to electricity in Sub-Saharan Africa (80%), compared to the rest of the World (10%)
Inequality of impact of environmental nuisances and risks	Enhanced vulnerability of socio-economic deprived communities living in dense urban areas to heat waves in the EU	Higher vulnerability of elderly people to heat waves in the EU	Ocean acidification and subsequent destruction of marine life due to human CO_2 emissions	Higher impact of global climate change in Small Island States (i.e.: sea level rise)
Inequality of impact of environmental policies	Social regressivity of carbon taxation for low-income rural residents (yellow vests revolt)	Low Emission Zones' impacts on job accessibility for car-dependent working-age people (night-shift workers, workers living in areas not served by public transport)	Unintended impacts of onshore wind developments policies on birds, bats and natural habitats	Carbon leakage associated with carbon pricing policies
Inequality of participation in environmental policies	Reproduction of class, gender and race inequalities in climate citizens assemblies through power asymmetries	Failure to include the voices of children and future generations in climate citizens assemblies and other democratic forums	Failure to include the voices of non-human entities in climate citizens assemblies and other democratic forums	Power asymmetries between most vulnerable countries and most responsible for climate change in UNFCCC

3. Mapping Just Transition Policies in the Area of Climate Change in the EU

Once the mapping of social-ecological inequalities has been drawn up, the next step is to develop a just transition policy framework to address these inequalities. In this context, each social-ecological inequality identified as part of the mapping constitutes a specific policy intervention point for a just transition, i.e., "a particular area where the application of appropriate policy instruments would likely facilitate transformative change" towards social-ecological justice (Kanger et al., 2020). The idea is thus to define, for every social-ecological inequality documented, a (mix of) policy instrument(s) that could be implemented to tackle it. The policy instruments to address social-ecological inequalities can be of different types, including 'command and control' instruments, economic instruments, service and infrastructure instruments, voluntary agreements as well as communication and diffusion instruments (Kaufmann-Hayoz and Gutscher, 2001; Vedung, 1998). They can be defined for a specific level of power (e.g., international, EU, national or local) or in a multi-level perspective considering the interactions between different power levels.

In the table hereunder (table 2), we illustrate this approach by defining a set of just transition policies based on the mapping of social-ecological inequalities associated with climate change in the EU outlined in the previous section (Table 1). In this context, we take into account different levels of power. As for the mapping of social-ecological inequalities, the aim is not to be exhaustive, but to demonstrate the use of the tool with illustrative examples.

Table 2. Mapping just transition policies to tackle social-ecological inequalities associated with climate change in EU (credit: the authors)

	Intragenerational	**Intergenerational**	**Multispecies Justice**	**Global Justice**
Inequality of contribution to environmental degradation	Climate wealth tax	Investissement by current generation in resilient and zero carbon infrastructures, including simulations and scenarios	Ensuring the transition to gross zero CO_2 emissions	Negotiation on the distribution of the remaining global carbon budgets based on equity, responsibility and capacity during COPs
Inequality of access to amenities and environmental resources	Guarantee a universal minimum income sufficient to meet existential needs Participatory energy renovation of social housing Ban on energy-leaky houses coupled with support measures for low-income homeowners and tenants	Ban on energy-leaky houses coupled with support measures for elderly homeowners and tenants Slow heat awareness campaigns targeting seniors	Biodiverse reforestation; Preservation and restoration of the Amazon through the PPCDAM	Financing the deployment of renewable energy and power grid in Sub-Saharan Africa through the UNFCCC Green Climate Fund
Inequality of impact of environmental nuisances and risks	Equitable greening and de-densification of deprived urban neighborhoods	Policy to combat isolation of elderlies Creation and annual updating of local registers of people vulnerable to heatwaves, including isolated elderly people	Restoration and regeneration of affected marine habitats and ecosystems through the Kunming-Montreal Global Biodiversity Framework Prevention of future damage by ensuring the transition to net zero CO_2 emissions	Financing the deployment of NBS to prevent coastal erosion in Small Island States through the UNFCCC Green Climate Fund
Inequality of impact of environmental policies	Social-ecological taxation of GHG emissions based on income, wealth and place of residence with recycling of revenues in subsidies for poorer households to buy low-carbon equipment (housing and mobility)	Investment in adequate, affordable and decarbonized public transport, and in cycling and pedestrian infrastructures to ensure that all workers have access to alternatives to the combustion-powered car	Obligation to draw up biodiversity sensitivity maps to inform site selection for a wind power project and the definition of potential mitigation requirements	Consolidation and extension of the EU Carbon Border Adjustment Mechanism

Inequality of participation in environmental policies	Measures to mitigate power asymmetries in climate citizens assemblies (e.g.: highlighting the views of the most disadvantaged participants, over-representation of vulnerable social groups…)	Hybrid forums enabling meaningful participation of all the actors concerned, including representative of future generations, in decision-making processes about climate change	Hybrid forums enabling meaningful participation of all the actors concerned, including representative of non-human entities (e.g., threatened species, forests, oceans...)	Innovative legal tools binding powerful States to their climate target insofar as they affect vulnerable countries

Conclusion: Institutionalizing and Democratizing Social-Ecological Inequalities for a Just Transition

In order to support the design of comprehensive and consistent policy packages for a just transition, we have proposed in this paper the 'Social-Ecological Justice Compass', a tool for assessing, in a systematic way, the state of the multiple forms of social-ecological inequalities that affect the well-being and capabilities of humans and non-humans in and beyond the territory considered, today and in the longer term. We have illustrated its application through the development of a mapping of social-ecological inequalities and just transition policies in the area of climate change in the EU.

Considering the illustrative and therefore non-exhaustive nature of this mapping, we invite policy-makers and other actors involved in the just transition to make the tool their own, and develop more in-depth analyses for different areas and territories. The 'Social-Ecological Justice Compass', would indeed benefit from being adopted within political-administrative systems at all levels of governance. At the EU level, it could be particularly useful to support the missions of the European Just Transition Observatory, an institute "responsible for research, data collection, monitoring of stakeholder involvement and the development of a Just Transition Scoreboard", the creation of which was supported by the European Economic and Social Committee (EESC) and which should be established in 2025. In turn, the adoption of the tool within different public structures could contribute to institutionalizing just transition as a holistic social-ecological project.

Moreover, although the example of application of the 'Social-Ecological Justice Compass' proposed in this paper is based on desk research, it seems important to point out that the assessment of social-ecological inequalities and the definition of the just transition policies to tackle these inequalities should rest on inclusive participatory processes. The "double delegation" of *science to experts* and *politics to representatives* (Callon et al., 2001) is, indeed, showing its limits in the face of the high uncertainties and conflicting values (Funtowicz and Ravetz, 1993) inherent in complex societal challenges such as those to which the just transition intends to respond. It is thus necessary to open up the debate on social-ecological inequalities and just transition policies so as to apprehend the plurality of legitimate perspectives on the issue. This democratization of just transition could be achieved through the establishment of permanent "hybrid forums" (Callon et al., 2001), i.e.: open places of mutual learning and dialogue in which all the actors concerned are invited to express their views, including those who are usually not invited to participate in purely "expert"/technocratic

settings (ex.: ordinary citizens, marginalized or vulnerabilized social groups, futures generations, and non-human entities) (see Bauler et al., 2021). Thanks to its appropriability, the Social-Ecological Justice Compass is particularly well suited to facilitating and structuring exchanges as part of deliberative processes. It can become a useful tool to foster and disseminate just transition processes in Europe.

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