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Environmental Justice in Telecoupling Research

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1 Introduction

In the 1980s, Vietnam was one of the few Asian countries involved in the global coffee market, but its contribution was minimal. However, by the late 1990s it had become the second largest producer and exporter of one of the most important coffee varieties (i.e. Robusta), after Brazil. Vietnam's coffee boom was accompanied by a rapid process of land-use change in the country's central highlands, particularly during the 1980s and 1990s. Originally populated by the indigenous K'ho peoples, the highlands were later colonised by the Vietnamese Kinh, who arrived in the region after

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the Vietnam War (1955–1975), incentivised by government economic reforms that subsidised agricultural expansion and export-oriented crops during the 1980s. This resulted in large-scale forest conversion, increasing soil erosion and water pollution, and a loss of access to land for the indigenous K’ho, thus benefitting the Kinh. Both the regional and national agrarian economies grew exponentially with rising levels of farmers’ income, at the cost of indebtedness to intermediaries and financial institutions (Hardy 2003; De Koninck 2006). Vietnam’s coffee boom also involved costs and benefits elsewhere. For example, an increased share of the world’s coffee market buffered against the historical volatility of the crop’s price, which is mostly determined by climatic shocks in producing countries. Conversely, an increased share of the global Robusta market also stimulated an increase of global competition, which, coupled with specific demographic and economic conditions, resulted in higher levels of poverty and abandonment of coffee cultivation elsewhere, for example, in Mexico (Eakin et al. 2009).

This case of changing patterns in coffee production and trade serves as a clear example of why justice matters in the study of telecoupled systems. In understanding the relationships between sending, receiving and spillover systems—through specific flows of coffee beans, money and information—and focusing on agents, causes and effects (see Chaps. 2 and 19), questions of justice inevitably come to the fore. For example, who has benefitted or lost the most from the changing geographies of the world’s coffee market over the last three decades? Which flows of benefits across and within systems—for example coffee beans, land rights, farm income, money from trade—were derived or altered from such new geography and how have these benefits been distributed? Which environmental impacts have resulted from the expansion or contraction of coffee production, and who has borne them?

One could also ask: How are the terms of the coffee trade negotiated, and whose interests and views are ignored? Who should be involved in the design of strategic policy interventions to sustain rural livelihoods in Mexico, or to acknowledge and address the impacts of environmental change in Vietnam, both nationally and internationally? Which criteria and rules should govern these decision-making process? These are some questions related to issues of *participation*. When unravelling procedural

aspects questions of *recognition* also emerge. For example, to what extent were the values and culture of various actors involved in land-use management and coffee planting recognised in the highlands' land-use change processes, or in the protection of the terms of exchange in Mexico's coffee trade?

These questions demonstrate that justice issues are important for telecoupling research, but as we will show below, they remain marginal in empirical analyses of telecoupled systems. To make telecoupling research more sensitive to justice issues, this chapter overviews the historical and theoretical foundations of environmental justice and suggests practical ways for telecoupling research to incorporate these foundations, whilst also identifying the challenges of doing so. We refer to environmental justice rather than to justice in general for three reasons. First, land- and resource-use dynamics are commonly found at the core of telecoupled systems, and such dynamics entail a (re-)distribution of property rights and environmental management approaches that can be considered by some actors unfair and detrimental to their well-being. Second, telecoupled systems usually result in environmental impacts that affect both humans and non-humans, across different spatial and temporal scales. These effects on well-being and ecosystems encourage social actors to seek compensation or to advocate for the restoration of formerly existing rights and environmental conditions. Third and finally, both environmental justice and telecoupling research deal with the management of and the interactions between coupled human-environment systems and the resulting effects of such processes, which make it possible to integrate both frameworks.

The remaining of this chapter is structured as follows. Section 2 reviews the origins of environmental justice thought and shows how it has over time transcended the study of *distribution* issues to now encompass the study of *recognition* and *participation* issues, at multiple scales and multiple contexts of environmental problems. Section 3 reviews empirical literature on telecoupled systems to illustrate how such literature has dealt with issues of distribution, recognition and participation. Section 4 sketches the analytical and practical challenges that the operationalisation of environmental justice in telecoupling research might involve. Section 5 concludes the chapter.

2 Environmental Justice: From Distribution to Recognition and Participation

In 1982, residents of Warren County, North Carolina, mobilised against the project of building a landfill for contaminated soils in their largely African-American community. The civil rights leader Benjamin Chavis coined the term “environmental racism” to describe the deliberate exposure of ethnic minority communities to environmental risks (Lazarus 2000). This event is often considered the origin of the environmental justice scholarship and activism (Fig. 11.1). Several studies later confirmed the disproportionately high number of toxic facilities in the United States (e.g. landfills, incinerators and industrial zones) located in areas with a majority of black, *latino* or other immigrant populations (Bullard 1994; Agyeman et al. 2003).

Environmental justice thus emerged as a social movement promoted by those affected by toxic facilities, led by social organisations and academics who mobilised concepts of social justice and equality in the access to a safe environment and the equal protection of all communities (Pulido 2017). In 1991, delegates from different grassroots movements adopted

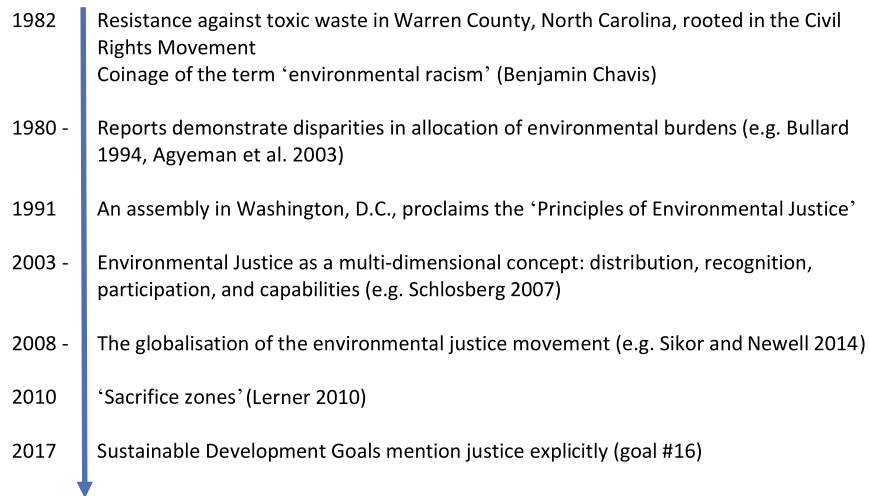


Fig. 11.1 Timeline of milestones in the recent history of environmental justice

17 “Principles of Environmental Justice” in Washington, D.C. This political agenda would progressively enter the environmental regulations and policies promoted by the US Environmental Protection Agency, which currently defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, colour, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies,” where fair treatment means “no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies.”¹

Distribution has always been at the core of environmental justice scholarship and activism, yet both have evolved to incorporate other pillars of social justice in their analyses and demands, namely the recognition and participation of subjects of justice. By subjects of justice, we mean those who can make legitimate claims related to environmental and social harms in telecoupled systems and whose rights are taken into consideration in a given governance setting. These can include individuals, communities and even nature if an ecological justice perspective is also embraced. Ecological justice considers nature a moral entity for which the pillars of justice also apply (Baxter 2004; Schlosberg 2007).

Recognition appears important when the voice of those affected by a particular environmental or social outcome resulting from the (change in) management of land and natural resources is ignored, misrepresented or nullified, so it is not heard or recognised in decision-making processes (Martin et al. 2016). Indigenous communities, women or children are often found in lack of recognition. Lack of recognition can be linked to the ignorance of and disrespect for such groups’ often exploited economic position, knowledge, language and claims by geographically, politically, economically and/or culturally distant actors and institutions (Fraser 1997). This is a major challenge in Africa, where approximately two-thirds of the recent global land grabs have taken place due to a lack of legal recognition of customary land rights (Kabia 2014).

A strategy to address the lack of recognition is to demand direct and meaningful participation in decision-making processes. Participation thus requires that the rules and criteria underpinning decision-making processes are not biased against specific groups or individuals and that

these rules and criteria are both understood and perceived as legitimate by all participants. This request for participation, and fair and legitimate procedure, is frequent among community members or activists. However, today it remains rare; for instance, indigenous peoples participating directly in international institutions concerned with international trade or environmental governance, specifically in discussions over equitable benefit-sharing (De Jonge 2011). Where they do participate, their agency remains weak (Schroeder 2010).

Lack of recognition and participation can ultimately undermine the capabilities of those who are not being recognised as subjects of justice and thus are being excluded from decision-making processes. For example, if a large-scale deforestation process occurs on public or privately owned lands where indigenous peoples had customarily lived for years, and these peoples are not recognised as key affected actors and therefore unable to make decisions over the scale or the righteousness of the deforestation process, their food security, livelihoods, culture and well-being may be negatively impacted. If they did not find similar forests to live nearby, they might face the risk of disappearing, either figuratively or physically. This image is captured in Steve Lerner's (2010) portrayal of "sacrifice zones," where peoples from areas persistently exposed to environmental damage take action to try to avoid being forgotten.

Nowadays an increasing number of environmental and land-use related issues have been analysed through the lens of environmental justice, including mining, monoculture crops, water management, waste management, air pollution and public health. For example, the practice of biodiversity conservation in protected areas where indigenous peoples live should be sensitive to the fact that the economic benefits that protected areas generate for the affected local populations are often lower than the benefits derived from other activities, such as agriculture or logging. Inattentive conservation strategies may result in unequal development opportunities and spatial economic unfairness (Dawson and Martin 2015). Conservation practice also requires embracing the cultures and traditions of protected area inhabitants and to merge these with the scientific knowledge underpinning protected area management (Rodríguez et al. 2013). In rural China, villagers claim for their land rights to protect

their livelihoods from government-driven land grabs, in a context of banned private ownership but increased land value (Grammaticas 2013). Pastoralists all around the world observe with despair how traditional tenure arrangements were disregarded in the global land acquisition rush (Elhadary and Abdelatti 2016), while indigenous peoples have been struggling for decades to recover their lands after they were seized for industrial and mining development initiatives (Overbeek et al. 2012). These examples illustrate that many environmental and land-use conflicts have distributive implications and reflect struggles over recognition and participation. The following section shows how the empirical literature on telecoupled systems has addressed matters of environmental justice to date.

3 Environmental Justice: Evidence from Telecoupling Literature

In order to identify to what extent empirical research on telecoupled systems has either explicitly integrated an environmental justice approach or implicitly engaged with the different conceptual dimensions of environmental justice, we searched for academic articles published until October 3, 2018. These were selected through Scopus, Web of Science, Google Scholar and Mendeley's catalogue of academic literature. Eighty-six academic articles were found by searching for "telecoupling" in either the article's title, abstract or keywords.

After reading the articles, we excluded those that only referred to telecoupling or telecouplings theoretically and did not use empirical findings from specific cases. Applying these criteria returned 48 journal articles, which were codified based on the following questions: (1) Does the article integrate justice in its analysis and, if so, how? (2) Does it address issues of distribution, recognition and/or participation and, if so, how? Additionally, data were collected regarding the type of methodology employed in the article. Finally, we reviewed if references were made to environmental impacts and/or whether the article embraced the notion of ecological justice more specifically (see digital repository²).

The reviewed articles ranged from local to global-scale analyses, dealing with anything from international trade in metals to ecosystem services provided by migratory species. Only three papers explicitly integrated justice into their analytical approach, while the rest referred to justice only implicitly: 35 articles used key terms related to distributive justice, while only 14 addressed recognition and 17 addressed participation. With respect to research methods, 25 of the reviewed papers were based only on quantitative data, three were only based on qualitative data, six used mixed methods and the remaining 14 were based on a review of documents and data sets, including peer-reviewed articles and grey literature. Purely quantitative papers did not address recognition and participation.

Table 11.1 presents keywords extracted from the reviewed articles, found to be associated with implicit accounts of environmental justice. These keywords were identified by scanning each article for words associated with distribution, recognition and participation concerns addressed in the article. We acknowledge that the words identified in Table 11.1 overlap between different dimensions of justice to some degree, which suggests that the various dimensions are often interlaced in the articles reviewed, and therefore cannot be entirely collapsed into each other. The table mirrors the many elements in existing empirical telecoupling research that can be addressed by environmental justice, thus representing the potential for integration.

An example in the use of keywords related to environmental justice approach is Eakin et al. (2017), who analyse food system governance and use terms such as “livelihood disruption,” “social exclusion,” “national food sovereignty” and “fair trade” (related, for example, to issues of distribution), “multi-stakeholder governance” and “asymmetries of influence” (related, for example, to issues of participation), and finally “accountability” and “human rights” (related, for example, to issues of recognition). Another example is Zimmerer et al. (2018), who identify the key challenges and opportunities faced by smallholders in telecoupled systems, and they implicitly address distribution with relation to “land grabbing” and “unfavourable terms of trade.” They also briefly refer to the “low capacity” to influence national and international economic policies and underscore the need to pay attention to “the needs and capacities of

Table 11.1 Keywords related to dimensions of justice in the reviewed articles

Distribution	Participation	Recognition
Fairness, winners, losers, hidden costs, economic equity, responsibilities, imbalances, displacement, access, livelihood, land grabbing, insufficient income, replacement, food insecurity, socio-economic well-being, dependencies, opportunities, unequally distributed, inequalities, compensation, food security, vulnerability, footprint, social exclusion, needs, poverty, social equity, concentrated, monopolisation, distribution, costs and benefits, positive and negative effects, land conflicts, health impacts, disadvantaging, asymmetries, disproportionately, privileged, marginalisation, externalisation, redistribute, advantageous, disadvantageous, unequal exchange, discrepancies, mismatches, unfavourable, marginal	Control, influence, hierarchy, multi-stakeholder, asymmetries, power distribution, ability, accountability, corruption, patron/client, agency, non-transparent, participation, exclusion, all-affected principle, deliberations, power-dynamics, collaborative, inequality, representation, voices, opportunities, consultation, illiteracy, inclusion, advocacy, dictate rules, fair, recourse, rights, dispositions	Cultural importance, (un)recognised, entitlement, identity, traditional livelihoods, cultural values, human rights, traditions, cultural norms, social status, symbolic meanings, place dependence, gender, customary rights, recognition, community, informal rights, attention

smallholders,” which, in justice terminology, are issues that can be associated with participation and recognition respectively.

As noted above, only three of the 48 articles reviewed explicitly integrate telecoupling and justice in their analysis. Oberlack et al. (2018) integrate telecoupling with the concept of “network of action situations” to capture the dynamics of polycentric governance. They propose a framework to diagnose action situations, which depending on the given

research objective potentially include elements of justice. They apply this framework to the case of a transnational biofuel investment in Sierra Leone and identify “increased inequalities within communities” as an analytical focal point (Oberlack et al. 2018, 7). Through this analytical interest they explicitly integrate the three dimensions of justice: distribution, participation and recognition. Six action situations are identified that affect community inequality and together make up the polycentric system. Zimmerer et al. (2018) draw on several case studies of smallholder telecouplings to identify challenges and opportunities for increased fairness. While not explicitly referring to the various dimensions of justice, they highlight the importance of addressing justice when studying the impacts of global socio-economic and environmental changes, since “environmental and social justice issues directly affect the majority of the world’s smallholder populations” (Zimmerer et al. 2018, 12). Lastly, Schröter et al. (2018) use various examples to create a typology of inter-regional ecosystem flows. They establish a set of principles to guide governance arrangements for these flows, which are largely based on the three dimensions of justice: “equitable intra-generational distribution,” “fair procedures” and “recognition” (Schröter et al. 2018, 238).

Many of the reviewed articles address the distribution of environmental benefits and burdens by analysing trade relationships. Their findings are closely related to the notion of “ecologically unequal exchange” (Hornborg and Martinez-Alier 2016). Xiong et al. (2018) use this term in their study of international trade in metals, in which they demonstrate that countries of the global North are frequently net importers of embedded emissions and net exporters of value added. Similarly, Kastner et al. (2015, 832) analyse land-use effects of the European Union’s consumption of biomass products in terms of their embodied human appropriation of net primary production (eHANPP) and observe that “the EU benefits disproportionately in monetary terms from agricultural trade whereas ecological impacts of trade, in terms of eHANPP, occur to a disproportionately large share outside the EU.” However, there are examples in the reviewed cases that demand close attention to the analysis of distributive mechanisms and outcomes to avoid falling easily for the narrative that importing countries necessarily shift environmental burdens to those exporting primary goods. For example, Sun et al. (2018) show that

by importing large amounts of soybeans, China has shifted domestic cultivation from nitrogen-fixing soybeans to other crops that require large inputs of nitrogen fertiliser. This has led to increased nitrogen loads, which now threaten to intensify the pollution of the country's water bodies, soils and the atmosphere.

Conflicting views on distributive outcomes can be found depending on the analytical scale. Gasparri et al. (2016) describe the emerging soybean frontier in Southern Africa as an example of what they call "south-south telecouplings." The role of countries such as Brazil and Argentina in knowledge and technology transfers or infrastructural improvements for soy expansion in Southern Africa can be interpreted as a breaking up of core-periphery dynamics described in dependency theory, towards more multipolar constellations and therefore to a more equitable distribution of value extracted from global production processes among countries. Yet at the local scale, as mentioned by Gasparri et al. (2016), the soybean frontier in Southern Africa is likely to replicate similar dynamics of landownership concentration and conflict salient in the South American region.

While featured less frequently in the reviewed articles, issues of recognition and participation are also present in various publications. Bagstad et al. (2018, 5) estimate the ecosystem services provided by a migratory species at different locations and admit that their monetary estimate "does not address the cultural importance of pintail harvesting for indigenous communities." By treating the harvest of a migratory bird as a monetary equivalent of store-bought chicken, the methodology is not designed to account for the specific cultural value a given ecosystem service has for indigenous communities. Interestingly, the same issue of recognition that the authors address with respect to their own methodology is then also found in current policy-making: the authors observe that subsistence harvest "is currently unrecognised in harvest policy deliberations" (Bagstad et al. 2018, 7) due to its relatively minor monetary value compared to sports harvest.

Eakin et al. (2017) reflect on the importance of being sensitive to recognition and participation when devising governance mechanisms for telecoupled food systems. Discussing the case of maize production dynamics in Mexico and the United States, they argue that the deep

cultural and symbolic significance of maize in Mexico has not been recognised in the governance arrangements after the implementation of the North American Free Trade Agreement. Specifically, the US farm and energy policy with its strong implications for corn prices in Mexico does not consider this cultural attachment, and Mexican smallholders have had no influence in the sectoral governance mechanisms that have been dominated by large commercial producers.

In summary, environmental justice has only been explicitly integrated into three telecoupling-focused articles to date. Many other publications have implicitly addressed matters related to the different dimensions of justice, with distributive issues being more predominant. Environmental impacts within and across systems are addressed in many of the papers reviewed, but we found no explicit attention to the concept of ecological justice. In the following section, we discuss how to further mainstream environmental justice thinking in telecoupling research and reflect upon the challenges that such mainstreaming might entail.

4 Discussion

The evolution of environmental justice movements and scholarship (Sect. 2) is similar to land system science and telecoupling in particular (see Chaps. 2, 3 and 4). Land system science research originally focused on proximate explanations of land-use manifestations, similar to the early focus of environmental justice on locally unwanted land uses and distributive issues (Freudenberg and Steinsapir 1991). The concept of telecoupling explicitly addresses both proximate and distant drivers of land use and can focus on multiple types of flows (e.g. material, information, financial) within each of the considered social-ecological systems. Environmental justice is currently similarly focused on the analysis of the causes, effects and connections of environmental problems and struggles across scales (Aydin et al. 2017). This reflects that both approaches have a systemic and global view on social-ecological systems, which has transcended the study of a single system.

These parallel developments reveal a promising potential to integrate questions of environmental justice into telecoupling research. An initial

yet critical step in this direction would be to make environmental justice a central element of the telecoupling toolbox, rather than a secondary analytical approach. This would, in turn, imply adopting the language of environmental justice and an awareness that land-use and resource management processes involve more or less visible struggles over recognition, participation and distribution. Looking at telecoupled systems with the lenses of environmental justice can help to identify relevant questions. These questions can be adjusted to the nature of the study at hand, taking into account the system(s) boundaries and/or the flows chosen. This will influence which justice dimensions become relevant, which related questions matter, at which scale, and which subjects of justice and governance and legal frameworks are considered.

For example, interested in understanding how rising soy demand in China and Europe has changed rural livelihoods, Lima et al. (2011) document that soy farmers, labourers and non-soy farmers in specific regions of Brazil have a positive view of soy expansion, rooted in the fact that soy has translated in higher local incomes. The authors pay attention to the distribution of benefits derived from soy cultivation and commercialisation, which in this particular case appear to be distributed in a way perceived as fair by local agents. In contrast, Leguizamón (2016) describes how soy cultivation in Argentina's northern provinces has resulted in negative environmental and social costs mostly borne by small-scale farmers, cattle ranchers and indigenous peoples. The author underscores that these actors struggle for recognition as cost-bearers and as legitimate actors in the design of the country's agricultural development policy.

Interested in the indirect impacts of soy cultivation in other farming systems, da Silva et al. (2017) show that soy expansion in Brazil has affected domestic maize markets, leading to increased food insecurity and farmers' higher exposure to climatic risks. From a justice perspective, the authors highlight that the connection between soy and maize cultivation can have detrimental effects on food distribution resulting from escalating prices. Consequentially, these can be borne by distant actors, for example, in urban areas. Their research suggests that the network of actors to be recognised and accounted for in the distribution of the impacts of changing soy and maize cultivation patterns should be expanded to encompass those directly involved in resource management practices, in

related value chains and in the more distant locales where these crops are consumed and processed.

Finally, there are also justice considerations to have in mind when analysing receiving systems. Major global receiving systems are not just passive recipients of material flows. They often drive the changes through increasing material demands that could be managed so as to promote more just exchanges (Kastner et al. 2015). The acceptance of double standards in land-use management, the design and implementation of certification schemes for imported materials, and the lack of moderation of material consumption are all mechanisms that can be observed through the lens of environmental justice.

The necessary integration of environmental justice in telecoupling research, however, is not without challenges. An important one is to overcome what to date is an almost explicit focus on distributive justice, as shown in Sect. 3. This prevalence is perhaps related to the dominance of quantitative approaches that analyse material and financial flows in telecoupled systems. However, while quantitative data can shed light on distributive issues, qualitative data is often needed to examine and address participation and recognition issues. These data can, for example, capture the views of the agents ignored or marginalised in telecoupled systems as well as the extent to which decision-making processes have contributed to change their social or political status, improved or undermined their livelihoods, well-being and environment (Boillat et al. 2018). This claim for a stronger focus on recognition and participation issues aligns with Friis et al.'s (2016, 143–144) suggestion of mainstreaming political ecology in telecoupling research in order to shed light onto the social and political relations which explain the uneven control and access to resources in a given system, including relations based on gender, caste, and economic and political power, among others.

A final remark to be made is that environmental justice adds a normative element to telecoupling research, in the sense that processes of *recognition*, *participation* and *distribution* tend to be linked to moral principles. For example, which principles should govern a fair decision-making process related to the allocation of land resources, or the distribution of

specific flows? Should actors be *consulted*, *informed* or also *empowered*? How should the distribution of a given flow, or a given resource in telecoupled systems be governed, by the principle of *equality*, *merit* or *need*? What if these principles of fair procedure and distribution diverge between actors, including the researcher? Which is then the one that needs to be advocated for or deserve focus? In this regard, a researcher might prefer to approach the analysis of environmental justice without adopting any of these principles a priori and focus instead on describing the principles adopted and preferred by the subjects of justice identified, and show how these principles differ across subjects. An alternative is to approach the study of environmental justice in telecoupled systems with an a priori preferred set of principles and compare how these align or conflict with the principles governing justices observed. In summary, it is important to be aware that the relative nature of justice in telecoupling research remains an unexplored and complicated terrain, because it implies working across different cultural norms and moral systems at different scales.

5 Conclusions

This chapter has shown why questions of environmental justice matters in telecoupling research. It has been argued that the land-use processes that underpin telecoupled systems often generate or reproduce social injustices that deserve attention and scrutiny. These injustices might concern recognition, participation or distribution issues and most probably a combination of these three dimensions. Our review of literature on empirical cases of telecoupled systems indicate that distributive concerns are the most commonly addressed to date, while recognition and participation figure less prominently. Even when addressed, most of the empirical literature does not refer to these issues as environmental justice considerations and it has not systematically adopted an environmental justice lens in the research process.

Centrally adopting the language of justice in telecoupling research can contribute to devise justice-related questions according to the system

and the flows of analytical concern. However, integrating environmental justice in telecoupling research is by no means an easy task. A critical reflection on the focus of the research must precede the research design. A key message from the discussion in this chapter is that raising concern related to injustices does not in itself generate an understanding of their causes, nor of the means to redress them. Integrating environmental justice in the study of telecoupled systems requires careful consideration of the analytical approach and the combination of different methods.

The normative dimension of environmental justice politicises telecoupling research. However, doing so might also increase the societal relevance of the research process. An environmental justice lens can move telecoupling research beyond a broad description of a complex world towards an in-depth normative approach that reflects upon the injustices that result from these complexities. Together, environmental justice and telecoupling can make up a strong framework for analysing a hyper-connected world and offer a detailed picture of its related social and ecological challenges.

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Notes

1. See US Environmental Protection Agency. “Learn About Environmental Justice,” accessed October 16, 2018. <https://www.epa.gov/environmentaljustice/learn-about-environmental-justice>.
2. See reviewed references listed on the digital repository of Universitat Autònoma de Barcelona, <https://ddd.uab.cat/record/199238>.

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