

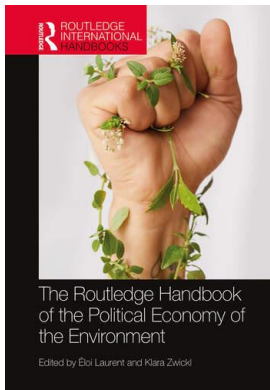
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The Routledge Handbook of the Political Economy of the Environment

Éloi Laurent, Klara Zwickl

Introduction

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Éloi Laurent, Klara Zwickl

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1

INTRODUCTION

Political economy of the environment in the century of ecological crises

Éloi Laurent and Klara Zwickl

What is political economy of the environment?

Before the 20th century, economics was not understood as a distinct discipline from political science. In fact, the most influential economic theorists of the late 18th and 19th century – including Adam Smith, David Ricardo, John Stuart Mill, and Karl Marx – considered themselves as political economists, emphasizing that, because economic and political processes and outcomes are closely connected, they should be studied jointly. The term “political economy” is said to have originated in France in the 17th century, a time and place where the role of the state in shaping national economies was decisive. The first book titled *Traité d'économie politique* was published by French mercantilist Antoine de Montchrétien in 1615, though some evidence points towards an even earlier use of the expression (Groenewegen, 1991).

Until the late 19th century, the two terms – economics and political economy – were largely used interchangeably. In his influential book *Principles of Economics*, published in 1890, Alfred Marshall provided a new definition of economics, separating it from other social sciences and from political processes. More specifically, Marshall (1920) introduced a theory of consumption and production based on the concepts of supply and demand and constraint optimization of households and firms. Furthermore, Marshall's contribution served as a starting point for neo-classical welfare theory founded on the concepts of consumer and producer surplus. Society is considered as the sum of individuals, who maximize their utility subject to a budget constraint, the only power considered being purchasing power, which determines the household's budget constraint. Political processes and distributional considerations, such as inequality in income, wealth, or influence, are no longer considered relevant for this new branch of economics.

With the development of neoclassical economics in the decades following Marshall's principles, political, distributional and institutional factors were increasingly neglected in economic theory. In 1932, Lionel Robbins provided a general definition of economics that is still used in many textbooks today that reflected this neglect: “the science which studies human behavior as a relationship between ends and scarce means which have alternative uses” (Robbins, 1972: 15). While the optimal use of scarce resources became the central focus of economic analysis, determining which groups in society were able to access these resources and at what costs to others or to the environment was gradually overlooked. Similarly, power disparities, which shape the allocation and distribution of scarce resources, were often omitted. They still are. In fact, in

purely competitive markets, power dynamics become irrelevant, or to quote Paul Samuelson, “in a perfectly competitive market it really doesn’t matter who hires who”, whether capital hires labor or labor capital (Samuelson, 1957: 894).

While the perfectly competitive market serves as the baseline for neoclassical economic models, several market failures have been identified by economists, including information asymmetries, externalities, market power, principal-agent problems, and public goods. Over the last decades, a large body of theoretical and empirical literature in various fields, such as behavioral economics, environmental economics, labor economics, and public economics, has presented compelling evidence for their existence and magnitude. In fact, these market failures are increasingly viewed as of such significance that they have come to describe the baseline, not its exceptions.

Modern behavioral microeconomic theory emphasizes that market failures arise because of incomplete contracts (Bowles, 2004). In some cases, such as in labor or credit markets, information asymmetries and principal-agent problems make it difficult to set up complete and enforceable contracts. For example, while employers can hire workers, due to a lack of information and principal-agent problems, they cannot exactly determine their work effort. Public goods, such as climate change mitigation, are underprovided because no single country can decide on the level of total global carbon emissions and therefore faces strong incentives to freeride on others.

When contracts are incomplete, it is power and norms that drive economic outcomes (Bowles, 2004). For example, the distribution of power between plant operators and local residents will decide on the magnitude of externalities resulting from industrial pollution in the neighborhood. In many cases, property rights can be reallocated so that negative externalities are internalized and public goods are no longer underprovided. Furthermore, plant operators can be mandated to install pollution mitigation equipment to improve local air quality. Another illustration is the “Tragedy of the Commons”, in which elusive or non-existent property rights lead to an overexploitation of a local environmental good. If an appropriate institutional structure can be set up, access to the good can be regulated and the resource can be preserved. Again, the distribution of power will decide if and how property rights are altered: the local environmental good either could be privatized or publicized and resource use determined by its owner or could be turned into a common where parties decide on its access and governance structure. The property rights of global climate could also be changed to solve the public goods problem, most obviously through a binding international agreement, but also, as the next best alternative, through measures such as carbon border adjustment, which as a first step would prevent carbon leakage to countries with no climate policy. Which policy measures will be taken is decided by power disparities within and between countries.

Because power is so central in determining not only political, economic, and social but also environmental outcomes, political economy is experiencing a revival. Over the last decades, numerous publications on “the political economy of” different subjects have emerged aiming at including power and political processes back into economic analysis. This handbook aims at contributing to this revival.

The notion of *political economy of the environment* was largely shaped by James K. Boyce’s landmark book (Boyce, 2002). The novelty of his approach is to investigate both current environmental challenges (such as climate change or air pollution) and current economic issues (such as development and globalization) through the lens of power inequality. He identifies the winners and losers from environmental degrading activities, as well as the dynamics between the two, by revealing how the winners are able to pursue their activities and what the consequences are for the losers. He distinguishes between five different dimensions of power: purchasing power, decision power, agenda power, value power, and event power. Purchasing power is defined, as in most economics textbooks, as the ability to purchase goods and services produced in

the economy. Decision power refers to the ability to decide on more or fewer environmental regulations. The distribution of agenda power refers to the capacity to determine which topics receive attention by politicians and the media, while value power affects how people's values and beliefs are shaped and shifted. Finally, event power refers to the ability to influence the events under which people then have to make decisions (Boyce, 2002: 8f, see Boyce 2019a for an updated synthesis on those themes and contemporary issues).

We define the political economy of the environment along these "Boycean" lines – as the field that analyzes the economic and social impacts of environmental degradation, the uneven distribution of environmental resources, benefits and damage, the social dynamics behind environmental outcomes, and the determination and implementation of environmental policy in the context of incomplete and imperfect information in economies where power inequalities abound. Political economy of the environment is thus concerned on the one hand with the effect of economic and power inequality on environmental dynamics, investigating how higher wealth and power disparities affect the distribution of environmental costs and benefits, as well as overall environmental outcomes. On the other hand, it examines the economic and social impact of environmental dynamics, analyzing differential vulnerability to environmental hazards and degradation along a plurality of justice criteria, both within and between countries. These topics are emerging as critical concerns in the current "decisive decade" of environmental policy, where the quest for sustainability and social justice are intertwined and interdependent.

Economic, social, and environmental inequality and their interactions are the core drivers and outcomes of the political economy of the environment and will therefore logically be the key focus of this volume, while its general framework is an integrated view of inequality and the environment, a view that standard economics has yet to acknowledge.

Inequality and the environment: from blind spots to linkages

In his *General Theory*, a book that laid the foundations of modern macroeconomic analysis and revolutionized economic policy, John Maynard Keynes made no mystery of his attachment to equality: "The outstanding faults of the economic society in which we live are its failure to provide for full employment and its arbitrary and inequitable distribution of wealth and incomes" (Keynes, 1936: 331). In making this forceful argument, Keynes found himself in a rare agreement with Arthur Cecil Pigou, who a few years earlier had highlighted the centrality of injustice in economic thinking: "Wonder, Carlyle declared, is the beginning of philosophy. It is not wonder, but rather the social enthusiasm which revolts from the sordidness of mean streets and the joylessness of withered lives, that is the beginning of economic science" (Pigou, 1920). Pigou and Keynes, together, echoed David Ricardo or John Stuart Mill, who, along with scores of their colleagues, thought that inequality was the key issue of economic analysis. Yet they were at odds with the evolution of their discipline, which, as aforementioned, was shifting away from distributional considerations, dis-embedding itself from its ethical cradle.

The economics of inequality has made a noted comeback in the last 15 years, which stands in contrast with its eclipse from academic and policy debates between the late 1970s and early 2000s. No text better embodies this comeback of inequality economics than Thomas Piketty's *Capital in the 21st Century*, which carefully and powerfully documented the contemporary rise in income and wealth inequality while achieving academic recognition and attaining global fame (Piketty, 2014). And yet, it is striking that for a book first published in French in 2013 by an economist in his early 40s, fewer than 1% of *Capital's* pages are devoted to environmental issues. Piketty, who has probably contributed to educating several generations of students, academics, and policymakers on the reality of inequality, appears largely blind himself to ecological

crises in plain sight (the follow up to *Capital in the 21st Century*, *Capital and Ideology*, published in 2020, has the same proportion of pages devoted to environmental issues, Piketty, 2020).

To put it simply, it seems that economics has finally opened its eyes to inequality only to close them to environmental challenges. And yet environmental economics is at least 150 years old and rich of at least three ages that have followed each other since Stanley Jevons published his founding work on the economics of energy in 1865¹: resource economics, externality economics, and sustainability economics (Laurent, 2020). We have therefore gone through three ages of environmental economics for a century and a half, eras punctuated by countless publications that have not cancelled each other out in succession but juxtaposed, superimposed, and often mutually enriched one other to shed light on the major ecological issues of our time. And yet, at the dawn of the decisive decade to preserve the biosphere, economics still largely disregard the environment.

The vast majority of professional economists ignore environmental issues, in the double sense of unfamiliarity and indifference. When they do care, it is usually to downplay their impact and to suggest remedies that might worsen environmental damage, such as accelerating economic growth or monetizing ecosystem services. There is no doubt that there are thousands of economists around the world, some writing in this handbook, who are genuinely concerned with ecological problems and are working constructively to understand and remedy them (whether in economics departments, think tanks, or organizations such as the Intergovernmental Panel on Climate Change [IPCC] or the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services [IPBES]). However, it also clear that they represent a small minority in the vast field of economic research and decision-making (a meager 4% of professional economists registered on the Ideas/RePEc database), even while humanity enters the third and critical decade of the “century of the environment” (according to the words of Harvard natural scientist Edward Wilson).

The 2018 Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel, jointly awarded to William Nordhaus and Paul Romer, somewhat paradoxically illustrates this point (Laurent, 2020). Before the 2018 award, Elinor Ostrom was the only recipient to have been honored indirectly for her contribution to environmental economics (“for her analysis of economic governance, especially the commons”): a single winner, for 51 prizes awarded to 84 individuals during half a century, a century during which environmental issues (such as air pollution, climate change, degradation of ecosystems, and the destruction of biodiversity, just to name a few) have literally jumped out in the eyes of public opinion.

The 2018 award was therefore welcome in principle. William Nordhaus, widely regarded by the profession as one of the world’s two most influential climate economists,² was honored “for integrating climate change into long-run macroeconomic analysis”. However, this “integration” turns out to be seriously flawed. Boyce (2019b) demonstrates that the increase in global average temperature that would accompany the “optimal” price of carbon recommended by the Nordhaus model (known as “DICE”) is 3.5 °C by 2100 and continues to rise afterwards. The DICE model therefore recommends a temperature that is twice that of the scientific consensus patiently developed over three decades, with this recommendation being made based on a very fragile methodology, explicitly questioned by the IPCC.³ Is the unfortunate episode of the 2018 economics prize isolated or does it reflect a deeper problem? In an attempt to shed light on this question, we can first turn to the study recently published by Andrew Oswald and Nicholas Stern (Oswald and Stern, 2019) aimed at assessing the place of environmental issues in academic publications in economics. Out of 77,000 articles published in the 10 most influential journals in the discipline, exactly 57 were devoted to climate change, that is, less than 0.1%. According to another account, it appears that out of 44,000 articles published since 2000 in 50 leading

journals, 11 were devoted to the decline in biodiversity, again in the order of 0.1% (Goodall and Oswald, 2019). We can then combine these bibliometric data (which relate to the volume of publications) with other indicators reflecting their degree of recognition or disciplinary impact.

Of the 20 articles considered in 2011 as the most important in a century of existence of the *American Economic Review* by eminent representatives of the discipline, none deals with environmental issues (Arrow et al., 2011). Of the 100 most cited economists listed by Ideas/RePEc, not one is an environmental economist. Of the 100 most cited works listed by Ideas/RePEc, not one deals with environmental economics. Out of the 70 most cited articles in the five most influential academic journals in economics over the period 1991–2015 (i.e., 1% of articles), none deals with environmental issues (Linnemer and Visser, 2016). As has been said, around 2% of the Bank of Sweden's economics prizes were awarded to environmental economists. Similarly, the John Bates Clark Medal, considered the most prestigious recognition just after that of the Bank of Sweden, was awarded to only one environmental economist out of 41 recipients: Kenneth E. Boulding (recognized for his rich and diverse work 60 years ago), again around 2%.

This lack of interest of contemporary economics in environmental issues is all the more damaging given that the ecological transition is now a social science issue (i.e. a social-ecological transition), whereas the hard sciences have largely worked to reveal the extent and urgency of ecological crises. We now need to quickly change attitudes and behaviors to prevent human well-being from self-destructing over the coming decades, an urgency made clear in 2020, a year where ecological shocks, from COVID-19 to climate, have visibly threatened humanity. In other words, it is social sciences, including economics, that hold the key to the problems that the hard sciences have revealed because they are the disciplines of human change. Yet, the vast majority of economists are still missing in action when they are needed most.

Although it is clearly overambitious, we believe that there are ways to turn this unfortunate situation around and we hope that this handbook can contribute to this positive turn.

First, it might be useful to admit that the rules of the human household (such as economic growth) cannot be imposed on the laws of the great natural household (such as climate). In other words, there is, in reality, no economy without environment, whereas, as we have just seen, there is today so little focus on environment in economics.

Then, it might be useful to articulate social issues and ecological challenges to better underline the complementary relationship between human well-being and the preservation of the biosphere. In other words, it might be useful to work on the link between social and natural systems, combining social justice and environmental sustainability to show that it is socially beneficial to mitigate our ecological crises and ecologically beneficial to mitigate our social crises.

It is therefore important to develop a new approach to economics, more lucid about its failures and internal limits, more open to understanding other forms of knowledge, and therefore more socially useful. In short, a sustainable political economy calibrated for the 21st century, bounded upstream by biophysics and downstream by ethics (Laurent, 2020).

This revolution also means reforming environmental economics itself, which is still too focused on mainstreaming ecological crises for decision makers relying on the neoclassical economics framework and toolbox: markets, prices, equilibria. The current destruction of the biosphere, coupled with its social causes and consequences, actually offer a chance to go back to the key question of economic analysis, the one dear to Ricardo, Mill, Keynes, and Pigou and so many others: justice, which is a response to power.

In short, economics should pay much closer attention to environmental challenges, and environmental economics could benefit from a more careful consideration of the role of inequality. It could then play an essential role in advancing the “just transition”. This is precisely what this handbook is about.

The purposes, structure, and substance of this handbook

By gathering work from leading and cutting-edge scholars, this handbook intends to make four original contributions to the field of political economy of the environment.

First, it aims at revisiting essential concepts and methods of environmental economics in the light of their political economy. This introduction has just started a discussion on the past and future of the discipline in a critical time for ecological crises. In chapter 2, “Political Economy of the Environment: A Look Behind and Ahead”, James K. Boyce goes further in framing the discussion of the relationship between inequality and the environment. He explores evidence indicating that power disparities affect not only the distribution of environmental costs, but also their magnitude. The latter can be explained by the fact that in societies with larger income, wealth, and power disparities, it becomes easier for the beneficiaries of pollution to impose the costs upon others. Boyce then discusses four normative criteria used in the field of political economy of the environment to decide on environmental policy objectives: efficiency, safety, sustainability, and justice. While neoclassical economists are only concerned with efficiency, the other three criteria can generate quite different policy implications, and moreover can supplement and reinforce each other.

Second, this handbook aims at introducing readers to recent theoretical and empirical advances in key issues of political economy of the environment with a special focus on the relationship between inequality and environmental degradation (Part 1). In chapter 3, “The Sustainability-Justice Nexus”, Éloi Laurent focuses on the links between justice and sustainability and more precisely between the inequality and ecological crises. The chapter briefly reviews the available empirical evidence on inequality and ecological crises and details the transmission channels of the inequality crisis to environmental degradation. He finally provides a novel typology of environmental justice, distinguishing between procedural, recognitive, and distributive justice, and illustrates them with respect to different environmental hazards, including air pollution, noise and chemical pollution, and exposure to socio-ecological disasters.

In chapter 4, “A Socio-Metabolic Perspective on (Material) Growth and Inequality”, Anke Schaffartzik and Fridolin Krausmann analyze disparities in global material extraction, which they consider both the consequences of as well as the prerequisite for globally unsustainable patterns of economic growth. They present an ecological socio-metabolic perspective, according to which society cannot only be understood in terms of social relations, but it is also dependent upon material and energy inputs, as well as output of wastes and emissions. After presenting the key concepts of social metabolism, they analyze its changes over time and derive patterns of metabolic inequality as one key aspect of international socio-ecological inequality.

In chapter 5, “The History of Environmental and Energy Economics through the Lens of Political Economy”, Antoine Missemer highlights the value of mobilizing a political economy perspective when writing the history of environmental and energy economics. Through the examples of the emergence of the concept of natural capital in the 1900s and of the first experiments to measure energy-growth decoupling in the 1920s, his chapter shows how political economy is able to renew our understanding of past paradigms, ideas, and theories related to natural resources and the environment. Not only can political economy provide insights on the context and motives surrounding the emergence of concepts and models, it may also lead the historian to reconsider his or her research questions as he or she discovers that energy and environmental issues conceal true distributional, social issues. In other words, theoretical and conceptual contributions apparently limited to the sole field of environmental and energy economics can be illuminated in a new light through the lens of political economy.

Third, with this handbook, we want to open the field to its critical global and regional dimensions. Global issues, such as the environmental justice movement and inequality and climate change, as well as regional issues, such as agriculture systems, air pollution, natural resources appropriation, and urban sustainability, are presented.

In chapter 6, “Global Environmental and Climate Justice Movements”, David N. Pellow gives an overview of stylized facts and trends in global environmental inequalities and environmental conflicts. He presents the critical environmental justice framework, which he co-developed, addressing some shortcomings in existing environmental justice studies, including the importance of understanding multiple dimensions of inequality, as well as their intersections; the need to understand environmental disparities at multiple spatial scales; and a critical reflection of the role of state power in shaping and reinforcing environmental inequality. He then applies this critical environmental justice framework to climate justice movements.

In chapter 7, “Global Inequalities and Climate Change”, Céline Guivarch and Nicolas Taconet synthesize recent works on the links between climate change and inequality to show how climate change impacts and mitigation affect inequalities, both between countries and between individuals. They first analyze inequalities in exposure and vulnerability to climate change and then study inequality in the contribution to greenhouse gas emissions between countries and individuals. Finally, they show how inequality can shed light on the fairness of actions to fight climate change.

In chapter 8, “Natural Disasters, Poverty and Inequality: New Metrics for Fairer Policies”, Stéphane Hallegatte and Brian Walsh develop a framework to reassess the well-being losses associated with natural disasters. They first present stylized facts on the impacts of natural disasters on poverty and show how poverty conversely exacerbates natural disaster impacts, and then they develop a new disaster risk management strategy, which considers the fact that poor people are not only disproportionately affected by natural hazards, but also lose more in relative terms when they are affected. While previous disaster risk assessments have focused on asset losses, including three components – hazard, exposure, and vulnerability – the authors instead focus on well-being losses and include a fourth component, socioeconomic resilience. They illustrate the importance of the latter by presenting some results from a multi-metric assessment of disaster risk in the Philippines, finding that different measures of disaster risks – asset declines, poverty increases, well-being declines, and effects on socioeconomic resilience – suggest different priorities for policy interventions.

In chapter 9, “Contracts and Dispossession: Agribusiness Venture Agreements in the Philippines”, Alfredo R. M. Rosete investigates under which conditions voluntary agribusiness partnerships between smallholders and agribusiness firms in the Davao region of the Philippines can lead to the loss of smallholders right to their land. He first gives an overview of agribusiness partnerships in the context of land reform in the Philippines and presents his theoretical framework, in which property rights are understood as a set of abilities over an asset. He argues that rather than the types of contracts, it is the configuration of rights in a contract that will determine whether smallholders are threatened by dispossession. He then presents some insights from his fieldwork in different locations of the Davao region and compares cases where smallholders were able to maintain effective control over their land to cases that resulted in dispossession of their land.

In Chapter 10, “Natural Resources, Climate Change and Inequality in Africa”, James C. Murombedzi shows that the use and governance of natural resources are among the most central of issues for the daily lives of the majority of Africans: patterns of rural resource use are fundamental to rural and national economies, as well as to local and global concerns about sustainability. Resource degradation through unsustainable use patterns as well as climate change

have resulted in a global environmental and developmental emergency whose impacts include increasing concentration of wealth and growing poverty and inequality. He argues that the use and control of natural resources has historically generated inequality in Africa and that climate change and the responses to it have exacerbated these inequalities. The dominance of the market, representing corporate interests over social and environmental interests, is clearly socially, economically, and environmentally unsustainable. Instead of the current production system that emphasizes market mechanisms to allocate the costs and benefits of nature, Murombedzi calls for a social structure of accumulation that places economic justice over profit and, more practically, institutes an inclusive, sustainable model for growth.

In chapter 11, “From Western Pennsylvania to the World: Environmental Injustice and the Ethane-to-Plastics Global Production Network”, Diane M. Sicotte examines environmental injustice produced in one strand of the global production network that manufactures plastics using ethane, a gas liquid found in natural gas. Record quantities of ethane are currently being produced in the ethane-rich Marcellus Shale region in Western Pennsylvania. Low gas prices and debt financing have increased incentives for the petrochemicals industry to invest in infrastructures that enable cheap ethane to be transformed into profitable plastic. Ethane is produced from fracked natural gas, and fracking has generated both distributional and procedural injustice in communities near natural gas wellheads. Environmental injustice is also generated at the sites where high-pressure ethane transmission pipelines are currently being built, at LNG export terminals where ethane is exported, and at the fence line of the petrochemical plants where ethane is transformed into plastic resins. More than a third of plastics are made into packaging and other disposable items, and the industry intends to increase production of disposable plastic items. This plan rests upon the fiction that increased recycling of plastics, and not source reduction, is the solution to widespread pollution with plastic garbage. In the US, plastic waste is either disposed of in marginalized communities or exported to poorer nations, causing global threats to health and safety as well as distributional injustice. Examining this global production network illustrates the political economic context behind the increasing production and use of unsustainable products and how the profitability of unsustainable practices is supported by negative externalities visited upon less powerful groups of people.

In chapter 12, “Latin America Caught between Inequality and Natural Capital Degradation: A View from Macro and Micro Data”, Juan-Camilo Cardenas explores the relationship between inequality and the possibilities of environmental sustainability in the Latin American region. Given that the region is both rich in natural resources and at the same time ridden with environmental conflicts and that it suffers from deep problems with respect to inequality and social exclusion, the chapter explores how these extremes offer some extra challenges for the region to create an inclusive and sustainable path for the future. Data from a recent survey conducted in seven countries are also presented, which offer some insights into the interactions between prosocial preferences and pro-environmental attitudes and behaviors and how to tackle the double challenge of stopping environmental degradation while reducing inequality.

In chapter 13, “Air Quality Co-benefits of Climate Mitigation in the European Union”, Klara Zwickl and Simon Sturn assess the role of positive spillovers of climate mitigation on public health through air quality improvements in the EU. Since carbon emissions simultaneously release global greenhouse gases and local co-pollutants, carbon mitigation can provide substantial air quality improvements. These so-called air quality co-benefits have two implications for EU climate policy: first, considering co-pollutant damages along with those from greenhouse gases raise the total damages from fossil fuel combustion, this consequently calls for a higher carbon price. In fact, if air quality co-benefits are large, carbon mitigation can be justified independently of its climate goals. Second, co-pollutant damages have been found to

vary across sectors and space, suggesting more stringent climate policies in sectors and locations with high co-benefits.

In chapter 14, “Designing Urban Sustainability: Environmental Justice in EU-funded Projects”, Ian M. Cook and Tamara Steger analyze how European Union-funded projects can support environmental justice in urban sustainability initiatives. They collect data from EU-funded projects focusing on urban sustainability and/or social justice and provide examples of how some projects have promoted approaches to inclusivity through enabling new networks and the co-construction of knowledge across different groups in society, including civil society institutions working with deprived urban communities. They also address some shortcomings in achieving urban environmental justice goals through EU-funded projects, namely the fact that many EU projects only last a few years, while the reduction of structural inequalities requires persistent, long-term measures.

Fourth and finally, this handbook wants to show how novel analysis can translate into new forms of public policy that require institutional reform and new policy tools (Part 2). Ecosystems preservation, international climate negotiations, and climate mitigation policies all have a strong distributional dimension that chapters in this part point to. Pressing environmental policy such as carbon pricing and low-carbon and energy transitions entail numerous social issues that also need to be accounted for with new analytical and technological tools.

In chapter 15, “From the Welfare State to the Social-Ecological State”, Éloi Laurent argues for a necessary and possible metamorphosis from the welfare state of the 20th century into a social-ecological state freed from growth and aiming at full health calibrated for the 21st century. The chapter first retraces the genealogy of the social-ecological state to then clarify its philosophy, its perceived need of economic growth, its various functions and, as an illustration of its necessary generalization to all levels of governance, its application to urban policy.

In chapter 16, “Promoting Justice in Global Climate Policies”, Michel Bourban shows that global inequalities raised by climate change lead to multiple injustices and adopts a climate justice perspective to assess the degree of (un)fairness of current mitigation and adaptation policies and to propose institutional reforms that would make them fairer. The chapter explains in what sense political economists and normative political theorists could join efforts to promote climate justice, despite the historic tensions between their two fields. It then details mitigation policies and explains why current nationally determined contributions (NDCs) are unfair. It also proposes a roadmap for a just energy transition that would implement a price-signal approach complementing the pledge-and-review approach that dominates climate negotiations. The chapter then moves to adaptation policies and highlights that adaptation finance transfers to vulnerable countries are currently insufficient. It also supports the promotion of democratization processes in vulnerable societies to avoid a trade-off between two influential criteria guiding the allocation of adaptation finance: vulnerability and good governance. The conclusion sketches a research agenda for future interdisciplinary research on climate justice.

In chapter 17, “Carbon Pricing and Climate Justice”, James K. Boyce argues that there is only one way to guarantee that we keep fossil fuels in the ground to the extent needed to meet the 1.5–2 °C warming target of the Paris Agreement: imposing hard limits on the amount of fossil carbon allowed to enter our economies and thence the earth’s atmosphere. But, he states, this would be almost certain to raise fuel prices, perhaps quite substantially. A robust and effective carbon price – implemented by means of a carbon tax, a carbon cap, or a combination of the two – will indeed have major distributional impacts that must be addressed for reasons of both economic equity and political sustainability. He proposes that carbon dividends are one way to do so. Carbon pricing, he argues, should be implemented as a complement, not an

alternative, to other policies to advance the clean energy transition, including public investment and smart regulations.

In chapter 18, “Political Economy of Border Carbon Adjustment”, Paul Malliet and Ruben Haalebos observe that if the issue of climate change should lead the international community to act jointly in order to tackle it, diverging levels of effort take place in reality. While pricing carbon is recognized as the cornerstone economic policy to shift emissions efficiently and has been implemented unilaterally in several jurisdictions, this desynchronization between world countries in the implementation of such policies can lead to pervasive effects, such as carbon leakage, which can be countered by taxing imported emissions through border carbon adjustment. This leads to redistributive effects among final consumers that are different from those induced by domestic carbon pricing schemes and that can, when associated to a revenues recycling scheme, lower the burden of carbon pricing policy on households and eventually limit the share of net contributors to a carbon pricing policy.

In chapter 19, “Political Economy of Forest Protection”, Alain Karsenty starts by observing that converting forest ecosystems to other land uses entails major negative consequences for the climate, biodiversity, and human well-being. He observes that several international initiatives have emerged to address these issues but that, so far, none of these initiatives has succeeded in curbing deforestation and the conversion of natural ecosystems to artificialized areas. Diagnoses of the “forest crisis” are generally correct, but they often overlook major political economy issues, such as the fact that governments are not benevolent institutions acting for the common welfare of their people and that urban elites have little interest in the fate of forest-dependent people, who are not that numerous and are often voiceless. Endeavors to tackle the forest crisis without questioning the unabated global demand for biomass, energy and agricultural land, and the rules of international trade seem illusory. Results-based payments have to be rethought, he argues, without tying one’s hands with an automatic payment procedure based on an unverifiable level/reference scenario. The only meaningful criterion being the coherence of public policies that potentially have impacts on forests, he pleads for an agenda merging food security and forest protection.

In chapter 20, “Informing the Political Economy of Energy and Climate Transitions: Modeling Tools, Pathways Design Frameworks and Analytical Challenges”, Patrick Criqui and Henri Waisman show that measures adopted to reduce greenhouse gas emissions will have major impacts on human activities, with heterogeneous effects according to national circumstances and differential impacts on various sectors, activities, and categories of households. Climate mitigation is therefore not a question of pure economics but of political economy, involving the resolution of conflicts of interest. They argue that a careful attention to redistributive effects is required when designing low emission development strategies and selecting policy instruments and measures. Their chapter starts by analyzing the emergence of research communities and models investigating the economic and social dimensions of energy and climate policies and discusses the use of economic models in climate debates and negotiations. The chapter further highlights the strengths and limitations of conventional economic modelling approaches to argue how a new modelling paradigm, based on national decarbonization scenarios, progressively emerged in the lead-up to the Paris Agreement, and discusses how this new paradigm is relevant to inform the political economy dimensions of climate action. The chapter finally presents key insights from recent literature investigating the major implications of the carbon neutrality objective as codified in the Paris Agreement. According to the authors, the magnitude of these impacts calls for new approaches and new solutions and opens new research avenues for the economic analysis of climate policies.

In chapter 21, “Diagnostics and Policy Tools to Measure and Mitigate Environmental Health Inequalities”, Julien Caudeville defines environmental health inequalities (EHIs) as health hazards disproportionately or unfairly distributed among the most vulnerable social groups or territories, which are generally the most discriminated, poor populations and minorities affected by environmental risks. However, he notes, constructing methods and tools to help orient public policies in order to reduce territorialized EHI requires the evaluation of phenomena not always easy to apprehend and the reliability and representativeness of information that usually demand statistical processing. He goes on to present the European institutional and scientific contexts in which EHI characterization operates. The connection between the environment and health in public policies in Europe is reviewed to address the need of integrating data from environmental health tracking information systems, as means of characterizing the exposure of populations living in a territory. To enhance mitigation of EHI and prevention of health inequalities in the scientific exposome concept emergence context, an environmental health methodological framework is presented using different examples to identify a common taxonomy for conceptualizing and operationalizing environmental exposures as an important step towards articulating a science of environmental health disparities.

In chapter 22, “Building on the Right to Know: Data Interlinkage and Information Intermediation for Environmental and Corporate Regulation”, Richard Puchalsky, Michael Ash, and James K. Boyce give a detailed overview of how environmental inequalities in air pollution exposure and other environmental risks can be empirically assessed in the United States, using facility-level data collected by the US Environmental Protection Agency (EPA), including the Toxic Release Inventory, as well as the Risk Screening Environmental Indicators, and the Greenhouse Gas Reporting Program. They give a detailed explanation of how these data are collected and which steps are necessary to use them for empirical environmental justice analyses. They also present some helpful methods to link different databases, a task not performed by the EPA, and present some results on the top toxic air polluting companies as well as the top greenhouse gas emitting companies in the US. Finally, they discuss the use of these data in academic research and for public intermediation.

In the handbook’s conclusion, “New Frontiers in the Political Economy of the Environment”, we put forward the notion of social-ecological frontiers and outline four new frontiers which are currently emerging in the field political economy of the environment, which are not sufficiently covered in this volume. These include first, the emerging contradiction between the reality of digital transition and the necessity of ecological transition; second, socio-ecological analysis for urban environmental justice; third, the development of a broad framework to understand the distributional effects of environmental policies; and fourth, a conceptual understanding of public views and attitudes towards environmental conservation.

Notes

- 1 More precisely on the economic consequences for the British economy of the supposed depletion of coal, coal which was in 2020 the second largest source of energy in the world and the first energy source of greenhouse gases.
- 2 Along with Martin Weitzman, who ended his life in August 2019.
- 3 IPCC, Climate Change 2014. Synthesis Report, 2014, p. 79.

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