Chapter 1
Justification and Scope of the Book

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Academic schools are important institutions for consolidating and disseminating ideas. They can be defined as diffused communities held together by a collectively constructed body of knowledge, a shared worldview and a network of social relations. Identifying and delimiting academic schools might be a hard endeavor, since they are embedded in a fluid "state of spirit," which is context- and time-specific, and not always easy to systematize and communicate. However, we think that the notion (or metaphor) of "school" still makes sense to characterize the bonding elements that hold together and give coherence to the diverse ideas, debates and approaches represented in this book.

This book is the first self-reflective and systematic attempt to delineate the scope and boundaries of what we have called the "Barcelona school of ecological economics and political ecology." As stated above, any academic school is constituted by the intersection between a social network and a knowledge dimension. The former refers to the actors and organizations involved and their relations, while the latter has to do with the epistemic principles and methodological approaches that constitute content-wise bonding elements. As the book shows, the thematic scope of the Barcelona school is very broad, including contributions in social metabolism analysis, environmental valuation, ecological knowledge systems, environmental justice, management of the commons, (agro)biodiversity, climate and urban policies and degrowth. We think, however, that some core elements (that we call the pillars of the school) create the sense of a consistent body of knowledge that permeates all these subjects. The book is structured along these pillars.

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We want to stress that this compilation is not fully comprehensive. Many possible contributors, who would consider themselves as part of the school, unfortunately, have not been included in this volume, due to diverse reasons (lack of time, different sorts of agenda mismatches or just editorial mistakes). We apologize for any unintended absence. Nevertheless, our intention was to be as inclusive as possible, aiming to reflect the complexity and diversity of approaches that can be gathered together under the metaphorical umbrella of the "Barcelona school". We have used a broad criteria for inviting and including authors in this compilation, such as scholars that have spent some time working or studying in Barcelona and who were influenced by the academic contributions of J. Martinez-Alier. In the book, there is a high proportion of researchers who have completed their PhD at the Institute of Environmental Science and Technology (ICTA) of the Autonomous University of Barcelona (UAB), current post-docs or permanent researchers from this organization. The educational program at ICTA has played definitively a key role in the consolidation and dissemination of core approaches and ideas that represent the bonding elements of the Barcelona School. However, not all contributors have been passed directly by the UAB, though likely most of them have been influenced by the ideas developed there. The authors of the more than 30 chapters composing this book represent several generations of scholars that have contributed to the development of the school over the past 20 years. Though not all the authors that potentially belong to the school are present, we think that the number and composition of authors are representative of the social network that forms the basis of the school.

With regard to the content-wise bonding elements, we have identified three pillars that can be considered as the foundations of the school: (i) an emphasis on the biophysical dimension of the economic system, (ii) an interest in the political and historical aspects underlying the environmental performance of contemporary capitalism, and (iii) the study of alternative ways of knowing, valuing and organizing social life in order to achieve a fairer and more sustainable relationship with the environment, including the engagement with or support of activism.

The book aims to be a reading companion for students as well as both young and experienced scholars interested in becoming acquainted with the complex interactions between human societies and their natural environments, from a critical and socially engaged perspective. This compendium of contributions also has the objective to pay homage to the academic trajectory and work of Joan Martínez-Alier, who has played a decisive role in not only helping to set the conceptual foundations of the different branches of the school but also teaching and supervising students, as well as establishing learning bridges between the academia and civil society.

The book is divided into 6 parts. The second part deals with the analytical foundations of the school (key shared concepts and approaches). Parts three, four and five cover the main transversal threads (pillars) of the school: social metabolism analysis, environmental justice conflicts and activism mobilizing science. The sixth part shows a series of cutting-edge examples of the contributions of the school in policy analysis. Additionally, the book includes an introduction to the history, thematic evolution and social network that characterize the school as a research community, an overview from Joan Martinez-Alier, and words of recognition from other

prominent social scientists to Martinez-Alier's important contributions to the fields of ecological economics and political ecology.

Part two (epistemological foundations) sets the theoretical and historical basis of the Barcelona school. The part introduces key concepts and approaches for better understanding the remaining parts of the book. The first chapter, written by K. Farrell, covers the connections between the school's longstanding contributions to social metabolism studies and the work of pioneering scholars such as Nicholas Georgescu-Roegen. Georgescu-Roegen, who introduced core ideas of modern ecological economics, stressed two fundamental themes that are part of the overarching vision of the school: the biophysical constraints to the economic system and the need to define moral goals for guiding the organization of the social life and human-environmental interactions. A key issue for the second theme has been the recognition of the plurality of values that different societies attach to nature and social life. The second and third chapters of this part do justice to this epistemological stepping stone of the school. In the second chapter, C. Zografos addresses key theoretical and methodological tenets of the school's approach to environmental valuation, including paying attention to the diversity of languages of valuation. Different social groups might hold not only contrasting worldviews but also express those views using languages that often are not easily commensurable. In the third chapter, F. Demaria et al. systematize criticisms to the idea of sustainable development. By means of contesting the idea of limitless economic growth and linear human progress, the school comes close to the postulates of "post-development" approaches, which acknowledge the plurality of notions of what constitutes a "good life."

A critical discussion about what constitute legitimate knowledge and research is another epistemological foundation of the school. This discussion is covered in the last two chapters of the part. In the fourth chapter, V. Reyes-García makes a comprehensive review of the literature about non-Western forms of knowing and valuing nature. A concern for understanding and incorporating into decision-making non-Western ways of knowing is a key part of a research agenda that acknowledges the diversity of ways humans relate with the natural environment and one of the two sides of the activism mobilizing science approach of the school. The other side is covered in the final chapter of this part. Building on the experience of the "research and de-growth" movement, the chapter by G. Kallis discusses the challenges and opportunities of promoting new policy agendas for triggering socio-ecological transitions and the practice of academically informed activism for promoting changes both in individual practices and public policies.

The third part (on social metabolism) focuses on one of the foundational themes in ecological economics research, to which the Barcelona school has made seminal contributions: social metabolism. Namely, the material/energy profile of the economic process. Social metabolism analysis has a rather long history that can be traced back to early agrarian studies. The first chapter of this part, written by E. Tello and M. González de Molina, recounts these historical roots. In the second chapter of this part, M. Giampietro's deals with more recent developments in this field. More specifically, it draws an overview of MUSIASEM, a comprehensive framework for understanding, classifying and assessing the diversity of material and

energy flows that take place in contemporary societies at multiple scales and sectors. Another important vertex of the school's contributions has to do with the application of material flow accounting at the national scale and over time, in order to measure the unequal ecological trade that certain economies have historically been subject to, as illustrated in the third, fourth and fifth chapters of the third part of the book. In the third chapter, M. Pérez-Rincón makes a comprehensive literature review of material flow analysis in Latin America and the Caribbean. The fourth chapter, by J. Ramos-Martín and F. Falconí, focuses on the biophysical analysis of food systems. In the fifth chapter of this part, B. Saes discusses the concept of ecological unequal trade and analyses the advancement in the theory during the last three decades. The notion of social metabolism can connect ecological distribution conflicts and the limits to growth discourses. As illustrated in the sixth chapter of this part, by J. Silva-Macher, trade relations have determined to a large extent land use transformation in resource-exporting countries, often driving socio-environmental conflicts. As pointed out in the final chapter of this part, by A. Sorman, social metabolism thinking can also help to unveil the myths and realities behind the possibility to decouple growth from the material throughput of economic systems.

The fourth part (on environmental justice conflicts and alternatives) deals with the second pillar of the Barcelona school. Namely, it has to do with the empirical and conceptual work on environmental justice. Several of these contributions are derived from the Environmental Justice Atlas project. A key working hypothesis of this project is that the rise of material and energy throughput results in more ecological distribution conflicts. Building on this postulate, A. Scheidel's chapter examines the need for integrating biophysical and social dynamics for achieving a more nuanced and comprehensive understanding of socio-environmental conflicts. The second and third chapters of this part also belong to this research program. In the second chapter, D. Del Bene and S. Ávila introduce the Global Atlas of Environmental Justice (EJAtlas) as one of the examples of research projects of the Barcelona school and elaborate on how it has been developed as a novel tool for spatial, comparative and statistical political ecology. In the third chapter, M. Water et al. examine the role of the EJAtlas as a tool for "public political ecology" by describing how it is used in formal teaching. These efforts are currently one of the most visible examples of the longstanding commitment of the school to strengthen the relationship between science and activism.

The environmental justice program is in continuous evolution, including exchanges with other approaches, and this is reflected in the last three chapters of the part. In the fourth chapter, S. Villamayor-Tomas, G. García-López and G. D'Alisa connect with the commons scholarship by analyzing the interface between environmental justice movements and community-based natural resource management. In the fifth chapter of this part, I. Angelovsky connects with the urban environmental justice tradition by discussing the work around the "greening paradox" of urban environmental policies that disregard social inclusion concerns. In the final chapter of the part, J.F. Gerber reminds us of the intricate connections between ecological conflicts and a variety of other social conflicts, from a historical and degrowth

perspective. Each of these chapters proposes new frontiers for the Barcelona school, which involves re-politicizing older debates, with new perspectives and methods.

The fifth part (on science and self-reflected activism) addresses the third pillar of the Barcelona school, which is related to the postmodern take of science as a practice that needs to be understood in its own historical and political context and whose role needs to be continuously revised through self-reflection. Much of this understanding has to do with one of the previously mentioned epistemological foundations of the school: the importance of plurality of knowledge systems (e.g., chapter by V. Reyes-García) and of the political projects behind sustainability research (e.g., chapter by Kallis). In this spirit, the chapters of this part combine academic language with storytelling and self-reflection. In the first chapter of this part, M. Conde and M. Orta discuss the importance given within the school to "activism mobilizing science." They review key aspects of this approach in the scientific community and then illustrate it with three examples in different contexts. The importance given to "science within a political context" and self-reflection is tackled in the following three chapters. In the second chapter, S. Gorostiza systematizes the historical roots of the Barcelona school's research agenda, which can be traced back to anarcho-syndicalism and its influence on agrarian studies in the early twentieth century. In the third chapter, C. Cattaneo self-reflects on the commitment of the school with "theory in the making" and the connections between science and the lives we practice. In the fourth chapter of this part, S. Mingorria et al. discuss the strong connections between research and personal choices through a self-reflective account of the growing commitment in the school to gender studies and the role of women in science. The last chapter of this part, written by. B. Roy and K. Hanaček, discusses the limits of activist-academic interaction and the co-production of knowledge. It does so by advancing decolonial methods and theory within the school's research in environmental justice.

The last part of the book (on public policy applications) illustrates a variety of applications of the concepts and methodological approaches reviewed in the previous part to analyze the development and performance of public policies. This part addresses the variety of problemsheds and cultural contexts to which the school's approaches have been applied. A common thread that links all chapters within this part is the dismantling of policy myths, i.e., a reassessment of policy programs that tend to be praised for their (potential) success. The part opens with a chapter by N. Arizpe and D. Escobar, which critically assesses top-down policy approaches for agrobiodiversity conservation and highlights the importance of bottom-up processes led by local communities and environmental justice movements. Next, J. Roca and E. Padilla systematize and challenge the main economic premises on which mainstream climate change policies have been traditionally elaborated, including the common assumptions of economic models, the arbitrariness of discount rates, and issues dealing with (un)certainty and commensurability. The third chapter, by J. van den Bergh, also addresses the policy challenge of climate change by questioning widespread optimism about the contribution of cities to global reduction of greenhouse gas (ghg) emissions. Then I.Puig, in the fourth chapter, discusses the promise of the circular economy through a detailed analysis of waste management policies

at European and municipal levels. In the fifth chapter of this part, E. Gómez-Baggethun critically assesses the merits and pitfalls of universal basic income policies in the context of current debates about the future of paid work. The sixth chapter of the part, by F. Falconi and J. Oleas, discusses the development and difficulties of implementing innovative policy propositions aiming to reduce biodiversity loss in the Ecuadorian Amazon. Lastly, E. Corbera and S. Izquierdo-Tort undertake a discussion about the broad implications of payments for ecosystem services, a policy instrument that has received considerable attention among academic and policy circles during the past two decades, in terms of motivation, behavior and social mobilization for environmental protection.

We hope that the readers will enjoy going through this compilation of diverse, interesting and relevant contributions of the Barcelona school. Even though the compilation is not exhaustive, we think it is representative of the main ideas, methods and approaches that have been developed by the school. This book is the result of a large effort by contributors, editors and the publishing company. We want to thank all the persons involved for their engagement, commitment and patience. We expect that this book will contribute with innovative and interesting ideas and an engaged vision to tackle the big socio-environmental challenges we collectively face nowadays, at a planetary level.