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ENVIRONMENTAL MOVEMENTS AND POLITICS OF THE ASIAN ANTHROPOCENE: AN INTRODUCTION

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Two decades ago, several authors of the present book contributed to a collective publication on Asia's environmental movements in comparative perspective (Lee and So 1999).[1] As the editors pointed out (p. 15), while Western environmental movements developed in the context of advanced industrial economies and decades-old liberal democracies, their Asian counterparts emerged in either economically backward or newly industrializing countries, new democracies or authoritarian states. Distinct cultural and religious backgrounds have further shaped the specificities of environmentalism in Asia. The book therefore aimed to outline and compare the characteristics of Asia's environmental movements, and to examine their impact on the state, economy, and society—as well, of course, on environmental outcomes.

Around the same time, two other edited volumes attested to the effervescence of the academic attention to this range of topics in the context of East and Southeast Asia (Kalland and Persoon 1998; Hirsch and Warren 1998). The flourishing of bottom-up environmental activism reflected the quick pace of industrialization and an ascending position in the world economy. While social movements against industrial pollution in Japan started commenced in the late nineteenth century (Walker 2010; Stolz 2014), in the rest of Asia, similar movements did not appear until some hundred years later, starting with the "Four Asian Tigers" (South Korea, Taiwan, Hong Kong, and Singapore) in the 1970s; Thailand, the Philippines, and Malaysia in the 1980s; in China since the end of the 1990s; and still more recently in other countries, like Indonesia and Vietnam.

Our present collective volume examines how these popular protests engage with the environmental challenges in nine country-specific chapters, starting with Taiwan and Hong Kong for East Asia, then moving to Singapore, the Philippines, Indonesia, and Malaysia in maritime Southeast Asia, followed by Thailand, Vietnam, and Cambodia for the mainland area. The principal goal of the book is to present a qualitative assessment of how environmental movements have influenced the socio-politics of these countries and their environmental policies, and vice versa: how politics has influenced environmental movements.

The period covered focuses on the last two decades. Compared with the situation observed by Lee and So some twenty years ago, the state of the environment in the region—and indeed around the world—has not improved. On the contrary, the impact of anthropic activity on ecology had reached such a worldwide scope by the turn of the century that the epoch-marking term "Anthropocene" was introduced to describe it (Crutzen and Stoermer 2000). This neologism at first applied chiefly to the anthropogenic effects of global warming (or "global heating"[2]) on the earth system, whereas the emphasis is currently shifting to the massive extinction of animal and plant species. To give just two examples, tropical forests are on the eve of complete erasure, and plastic in the ocean will soon outnumber the fish. What is East and Southeast Asia's responsibility in this worldwide ecological crisis, and to what extent have environmental movements tried to cope with it?

Ever since East and Southeast Asia emerged as a powerful economic machine of global capitalism, in addition to their significant share in

the emission of greenhouse gases, the massive production of waste and the drastic depletion of natural resources have been particularly alarming (Harris 2005; Harris and Lang 2015). The causes are multiple, starting with the logging of primitive forests and their replacement by cash crops (rubber, soya, palm). In addition to industrial pollution, major contentious issues have been mining activities, agribusiness monocultures, and forcible evictions for big dam projects.

The countries studied in this volume present a diversity of responses to the Anthropocene, reflecting a range of socio-political contexts, from real or flawed democracies to authoritarian regimes. Each chapter thus provides an updated and concise description of environmental movements during the last two decades, incorporating the analysis in the larger context of the country's evolving relations between society and politics, and looking at how political changes—such as democratization, constitutional reform, or military coup—have affected environmentalism, as well as whether environmental mobilizations have influenced national politics. The environmental movements include a large variety of organizational characteristics (grassroots-based, professionally led, confrontational, technocratic, deliberative, or cooperative) and people: from rural populations (such as "the villagers" of central and northern Thailand), indigenous and aboriginal peoples (in Taiwan, Borneo, and Vietnam's Highlands) to wealthy urban middle-classes (not only in Taiwan, Hong Kong, and Singapore, but also increasingly in places like Peninsular Malaysia, Java, Bangkok, Hanoi, and Saigon).

Given the planetary character of the crisis, the literature on the Anthropocene usually emphasizes the urgent need for effective transnational solutions (e.g., Dryzek and Pickering 2019, pp. 73–77). Although we basically agree, we have a couple of caveats. As pointed out by McAdam and Boudet (2012, p. 69), a "mobilization may span a country, but it almost never takes place nationally". It is "always embedded in and shaped by a local community context". Similarly, so-called "global issues" always start with people from specific locations, before they are gradually scaled up. The "global actor" is a myth, and if the catchphrase "think globally, act locally" might remain inspiring for environmental activists, it does not help in the sociology of transnational mobilizations, for what we need is to closely analyse the linkage between different scales of collective action.

We therefore understand that each country's environmentalism has its own unique characteristics and trajectories, and that these

are worthy of attention. Keeping in mind the research agenda set by Lee and So (1999), we aim to provide a country-focused overview of the development of environmental movements in the region over the last two decades by profiling the main participants and opponents, depicting the main terrains of contention, assessing both achievements and weaknesses, and outlining the challenges ahead. By bringing these countries into comparative perspective, this volume aims to provide new theoretical insights into the changing interactions between social movements and political regimes in general, especially in the face of new challenges like the intensification of global warming and the other emergencies of the Anthropocene.

In this introductory chapter, we will first define what the Anthropocene epoch implies for Asia in general, and for East and Southeast Asia in particular. Then we will consider how environmental movements have interacted with politics, at the national level and beyond, and the resulting impact for the challenges of the ecological crisis.

The Anthropocene as Temporal Milestone

At the turn of the twenty-first century, Nobel Prize-winning chemist and atmospheric specialist Paul Crutzen and marine biologist Eugene Stoermer posited in a short article that, around the time of the industrial revolution in the eighteenth century, the earth left the Holocene—the post-glacial geological epoch of the past twelve thousand years—to enter a new geological period marked by the serious effects of anthropic activity, which they proposed to name the Anthropocene (Crutzen and Stoermer 2000). Two years later Crutzen published another one-page article in *Nature*, and the neologism "Anthropocene" became instrumental in raising awareness of a large range of big issues, such as the decisive impact of man-made gases on global warming and the massive depletion of biodiversity caused by a combination of global warming, habitat loss, pesticides, antibiotics, plastics, etc. Mass extinction, that is, the dying off of more than 50 per cent of the species on Earth, has generally been thought as a prehistoric phenomenon with five major instances, the best known of which was the disappearance of the dinosaurs. But since the publication of Elizabeth Kolbert's Pulitzer Prize-winning book *The Sixth Extinction* (2014), it is widely acknowledged that mass extinction currently threatens all kinds of plant and animal species (Ceballos et

al. 2015). More recently, a United Nations report has confirmed that a mass extinction of the Earth's fauna and flora is already underway due to anthropic impact.[3]

These apocalyptic issues are often discussed under the catchword of "the Anthropocene".[4] The international community of geologists has received the neologism with reserve, preferring thus far to stick to the previous era, the Holocene; however, this was no great surprise, since it had taken fifty years of discussions to finally validate that designation at a conference in 1885. The term has also stirred fierce resistance among social scientists, although a great number of researchers have endorsed its use, particularly in the subfields dealing with environmental issues such as environmental history. As Jason Moore (2016, p. 3) puts it, "like globalization in the 1990s, the Anthropocene has become a buzzword that can mean all things to all people".

Much of the discussion on the Anthropocene has centred around where and when it started. Did it happen in Western Europe during the first industrial revolution, prompted by the invention of the steam engine and the sudden use of large quantities of coal? Or did it start after the Second World War with the "great acceleration" in the consumption of natural resources, driven in particular by the "American way of life" (Bonneuil and Fressoz 2013, pp. 28–33; Horn and Bergthaller 2020, chapter 11)? In this book, we cast aside this debate to retain the moment when, at the turn of the millennium, Crutzen and Stoermer (2000) introduced the concept to the scientific community. Although the idea that human activity was effecting cataclysmic changes to the Earth's systems was not new, the introduction of the Anthropocene as a concept has served to focus the attention, not only of researchers and scientists, but also of the wider public, around a single, coherent narrative.

Consequently, the thinking on environmental issues in the twenty years since has, to a large degree, engaged this concept; it is exactly these twenty years that we address in this book. The word thus acts as a chronological shorthand for the period studied here. While this certainly entails a much narrower view of the Anthropocene, we believe it carries heuristic values for our focus on environmental movements and politics. Moreover, even though individual chapters of this book may not discuss it, the use of this theoretical framework reminds us that the environmental destruction they reveal has entered a scale that was unknown, indeed unimaginable, some twenty years ago; this is not just another crisis that will soon end. In the remainder of this section,

we present some salient points of the debate on the Anthropocene, which matter for the purposes of this book.

A major criticism of the Anthropocene concept is that it ascribes responsibility for the environmental crisis to humans in general, whereas many feel that the blame rightly belongs to just a portion of mankind. To some, the problem is its inherent Western-centrism, which deflects the responsibility of Western Europe and North America for the ecological crisis. In other words, the *anthropos* of the Anthropocene discourse is another version of the capitalist white male who finds in this narrative a renewed way to impose his neo-colonial domination (e.g., Davis and Todd 2017; Hecht 2018; Baldwin and Erickson 2020; Simpson 2020; Simangan 2020). This view is of importance for the post-colonial countries studied in this volume.

An unexpected challenge to this postcolonial criticism has come from Dipesh Chakrabarty (2009), a prominent author of postcolonial and subaltern studies. Chakrabarty admits that all the anthropogenic factors contributing to global warming are part of the imperial domination imposed by the West on the rest of the world. Western countries bear a moral burden, and other countries like China—which has now surpassed the United States as the largest emitter of carbon dioxide—are "prospectively guilty". Chakrabarty concludes that, while post-colonial scholarship's "hermeneutics of suspicion is an effective critical tool in dealing with national and global formations of domination", it is of little help in addressing global warming. Chakrabarty's article has provoked heated debates. Andreas Malm and Alf Hornborg (2014), for instance, endorse the notion of the Anthropocene, but they tag Chakrabarty's approach as a "flawed argument" that overlooks the differentiated vulnerability inherent in the power game between the rich and the poor (see also Beau and Larrère 2018; Reszitnyk 2020).

Other scholars believe that, while the West was undeniably the primary source of anthropogenic activities, the true culprit is capitalism. Its conception and early development were Atlantic-centred, but its subjugation of nature to capital accumulation has been adopted by much of the world, exponentially accelerating its devastating effects on the environment. For this reason, it has been suggested that the term "Anthropocene" should be replaced or at least completed by the concept of the "Capitalocene" (Moore 2016). The bulk of the many suggested alternatives for the Anthropocene have had little or no theoretical impact; the Capitalocene is a notable exception. Historian Jason Moore argues

that capitalism seized on a completely new attitude toward nature: one that ceaselessly expanded the use of free—or almost free—labour, food, energy, and raw materials, through their appropriation and exploitation in lands both near and far. This reliance on "cheap nature" (2015) became the fundamental capitalist law of value.

Another left-wing criticism of the Anthropocene discourse argues that it tends to depoliticize the debate. For instance, Erik Swyngedouw (2015) posits that the Anthropocene discourse tends to avoid criticism of global corporations and tax-free polluters, thereby reducing the political discussion to a consensual and managerial approach within the neoliberal framework of "good governance". In his contribution to the present book, Harvey Neo analyses why this notion fits in very well with Singapore's approach to the Anthropocene.

Nonetheless, the Anthropocene is not necessarily a depoliticizing concept. Bruno Latour, who has generally endorsed the term (e.g., 2014, 2015), has also addressed a sharp criticism of the consensual "good governance" and the mirage of a world government that would be able to impose the right decisions on everyone. The problem, as Latour argues, is rather to fully acknowledge the *geo* in geopolitics. For instance, the Covid-19 pandemic, which has been a tremendous disruption to the traditional world order, is a dramatic reminder of the geopolitical force of the Anthropocene (Latour 2020). Latour accordingly invites us to look "down to earth" as closely as possible to the ground level of politics, so as to gradually map the frontlines of conflicts at different levels—local, national, regional, and international—but step by step (Latour 2015, 2017). This book is an attempt to do so through an analysis of selected cases of Asian environmental movements.

The Anthropocene in Asia

Another question of equal importance for the purpose of this book is how does Asia fit in the Anthropocene? As a concept aimed to define a very long period of time on a universal scale, the Anthropocene is not supposed to be confined within a particular place. However, an overwhelming proportion of authors who discuss the Anthropocene, both advocates and opponents of the notion, are from Western Europe, North America, and Australia. Moreover, scholars from other regions have so far shown little enthusiasm for this debate. This discrepancy engenders empirical shortages and theoretical flaws, sometimes openly

assumed (e.g., Corlett 2013). Departing from the domination of Western paradigms in the Anthropocene literature (Marquardt 2019), a few scholars have therefore deemed it necessary to redefine the concept from the perspective of Africa (Hecht 2018), and Asia (Hudson 2014; Chatterjee 2020; Simangan 2019, 2020; see also Horn and Bergthaller 2020, chapter 12). This regionalist approach includes elements of the postcolonial criticism already presented, but it also offers further perspectives.

Hudson (2014) paved the way by identifying three research axes: the role of Asia in Anthropocene histories, the social and ecological vulnerabilities this epoch poses for Asia today, and how Asia addresses these global challenges. Our book focuses on the latter two questions through the relatively narrow angle of social movements and politics. But as **Dahlia Simangan**, a young researcher from the Philippines (2019, p. 565), aptly notes: "In a discourse saturated by universalising agenda, a regional level of analysis is an attempt to bridge global action and local capacity." Moreover, in an echo of *Provincializing Europe*— Chakrabarty's seminal book for subaltern studies—the historian of India Elisabeth Chatterjee (2020) invites researchers to "provincialize" the notion, and depart from the Western focus on the history of coal and oil (e.g., Malm 2016) to study other drivers of the Anthropocene, such as hydroelectricity, which has been instrumental in the modernization of Asian countries.

However, the geography of contemporary Asia is intertwined with the logic of asymmetrical world exchanges. Consider, for instance, that the Organization for Economic Co-operation and Development (OECD), which includes Japan and South Korea, accounts for more than two-thirds of the world's gross domestic product, but less than 20 per cent of its population. What Alf Hornborg (2013) terms "time-space appropriation" and an "unequal ecological exchange" have meant a huge transfer of wealth and resources from the "rest of the world" to Europe and North America. As he further observes (2018), this transfer still operates to the advantage of economic alliances, such as the OECD, because while these countries import and consume merchandise from China, carbon emissions resulting from the production of these imports are attributed to China (see also Zhang et al. 2017; Sims Gallagher and Xuan 2018; cf. Harris 2011).

The philosopher and member of the Australian Greens, Clive Hamilton (2017), tackles the argument of unequal relations thus: as

China reorients its economy toward domestic consumption, its share of emissions arising from export manufacture is declining. China is now the world's biggest carbon-emitter, and it is becoming harder to place all of the responsibility on its exports. At the 2015 climate change conference in Paris, Chinese diplomats were compelled to give up this line of argument, which had sabotaged the negotiations at the 2009 Copenhagen conference. Following on Chakrabarty, Hamilton (2017, p. 31) therefore fully endorses the notion of the Anthropocene: "If the 'Anthropocene' was a Eurocentric idea when it was coined, it is now Sino-Americo-Eurocentric, and in a decade or two it will be Indo-Sino-Americo-Eurocentric." Or as Horn and Bergthaller (2020, p. 173) see it: "The old industrial nations of Europe and North America may have started the recent transformation of the Earth system, but they are no longer in the driver's seat. Today the Asian nations are as much a part of the problem—and they must be a part of the solution, if there is to be one."

Indeed, according to the Germanwatch Institute, from 1998 to 2017, five of the top ten countries most affected by climate change were in Asia: Myanmar, the Philippines, Bangladesh, Pakistan, and Vietnam (Burck et al. 2020; cf. Sovacool 2015). Inversely, the same research institute shows that Taiwan, Japan, and South Korea rank at the bottom of the countries that most need to reduce their carbon emissions (Eckstein et al. 2019). The Asia-Pacific region as a whole is the highest contributor of greenhouse gas emissions to the atmosphere, with 40 per cent of global emissions in 2015; this percentage is projected to increase until 2030, with 89 per cent of Asia-Pacific's contribution coming from China, India, and Indonesia (Simangan 2020).

Regarding the concrete consequences of what the Anthropocene means for Asia, a great deal of discussion has so far focused on climate change and its most immediate consequences, like rising sea levels or stronger typhoons. For instance, Jakarta has been proclaimed "the city of the Anthropocene" for its vulnerability to rising sea levels and the resilience of the *kampong*—its floating slums (Chandler 2017). The Indonesian government is thus planning to transfer the capital to East Kalimantan (on the island of Borneo), with possibly detrimental effects for local indigenous populations and lush rainforests that are home to orang-utans and countless other animal species. Singapore is another city threatened by rising sea levels, with 35 per cent of its territory lying less than five metres above sea level; but from Lee Kuan

Yew's vision of a "Garden City" to its iconic Supertrees, Singapore's techno-nature and green-washing policy reflect the firm intention of the city-state to become a champion of resilience in the Anthropocene (Schneider-Mayerson 2017).

Along with rising seas, biodiversity loss in Southeast Asia is a major issue—if not the main issue—of the Asian Anthropocene. In addition to the oceans' depletion of fish and corals (Bush and Marschke 2017), the rivers' flora and fauna have been drastically decreasing due to the astounding number of hydroelectric dams under construction (Middleton 2017). Terrestrial species are similarly under attack, due to continued deforestation. After the Amazon and the Congo, Southeast Asia is the world's third-largest zone of tropical forests and a concomitant repository of terrestrial biodiversity (Seymour and Kanowski 2017; Hughes 2017). Boomgard (2017) stresses that anthropic impact on the Southeast Asian environment dates back to long ago, the current scale of decimation really started after the 1960s (cf. Stibig et al. 2013). By 2004, a strong warning was issued that Southeast Asia could lose three-quarters of its forests and up to 40 per cent of its biodiversity before the end of the twenty-first century (Sodhi et al. 2004). Sixteen years later, as the pace of deforestation has continued apace, Southeast Asia's biodiversity is at the forefront of "mass destruction" (Seymour and Kanowski 2017; Hughes 2017; Zeng et al. 2018), and at so rapid a rate that current data quickly becomes obsolete.

Social mobilizations against deforestation in Southeast Asia have long been a core research topic of political ecology (e.g., Tadem 1990; Lohmann 1993; Peluso 1994; Hirsch and Warren 1998; Dauvergne 2001; Ross 2001; Greenough and Lowenhaupt Tsing 2003; McElwee 2016; Vandergeest and Roth 2017). A famous case occurred at the end of the 1990s, when an international boycott campaign against Malaysian timber raised awareness of the issue (Keck and Sikkink 1998). Since then, mobilizations of local people and transnational networks have continued unabated, as in the 2009 Greenpeace campaign to enforce control over the expansion of oil palms in Indonesia. Nevertheless, the last two decades have seen an acceleration of forest loss in the region, as if no human force nor any law could possibly stop the chain saws and bulldozers from encroaching further on "protected" forest areas, not until the very last tree is cut down.

Furthermore, the disastrous consequences of continued deforestation for the biodiversity of plant and animal species go hand in hand

with brutal attacks on human and cultural diversity, or what Aiken and Leigh (2015) call development by displacement and resettlement, whether through forced eviction or land-grabbing by false promises (of brand new houses, and modern conveniences like electricity, tap water, tarmacked or paved roads, etc.). Local populations of farmers or indigenous peoples often pay the highest price in an economy based on bulldozers, tons of concrete, and pesticides. The construction of large hydroelectric dams, and the expansion of mining and monocultures are almost inevitably accompanied by the displacement of entire communities, massive pollution of land and rivers, and a homogenization (and oversimplification) of human and natural ecology.

This violence is nothing new; it started during colonial times, was further aggravated by post-colonial regimes, and has been described by an abundant literature (e.g., Tadem 1990; Lohmann 1993; Hirsch and Warren 1998). What is more specific to the Anthropocene paradigm is that departing from the naive belief that brutal infrastructure projects and the expansion of agribusiness are "sustainable development", there is now a large consensus among international organizations that further destruction of the "cultural and natural heritage" must be avoided. However, despite announcements or stricter enforcement of regulation encouraged by various international initiatives, like the UN's REDD (Reducing Emissions from Deforestation and Forest Degradation), and despite the apparent willingness of major industries and high finance to adopt ethical standards via Corporate Social Responsibility programmes and the Equator Principles—if only for marketing reasons, national governments are likely to push unsustainable business as usual (Welker 2009; Hughes 2017; De Koninck and Pham 2017; Seymour and Kanowski 2017).

Several chapters shed light on the pathology of ongoing resource extraction. In Indonesia, Malaysia, Thailand, Philippines and Cambodia, social movements against the major causes of deforestation (industrial logging, agribusiness, and hydroelectric dams) remain major causes of contention, often entangled with a disregard of land rights of rural communities, indigenous peoples in particular.

But these considerations on the Anthropocene of Asia intertwine also with geopolitical concerns. As a mark of its ascendancy, China has undertaken a comprehensive global investment programme, the Belt and Road Initiative (BRI), with the aim of fashioning a China-centred economic sphere, by developing and economically integrating

the countries along the historic Silk Road. With an estimated value by 2049 of US$8 trillion spread over a total of seventy-two countries, the BRI could be the largest infrastructure project in human history (Morris-Jung et al. 2018; Diokno et al. 2019), with possibly devastating consequences for biodiversity (Hughes 2019) and a further increase in global warming emissions due to the export of coal-burning power plants (Maréchal 2018). In addition, the new Silk Road is likely to increase China's political influence in the countries receiving these large investments. This question will be addressed in particular through the case of Chinese hydroelectric investments in Cambodia (Chapter 10).

What is the current pace of mobilization to curb the massive forces of destruction presented above? To what extent can traditional social movements cope with such challenges? Will these mobilizations be able to act quickly and efficiently enough to prevent the last forests being completely erased, or the Mekong and other rivers becoming so dammed up that only a few dozen species out of thousands will survive? To answer these questions, as evoked above through Swyngedouw's post-politics and Latour's redefinition of geopolitics, we need to examine the interaction between environmental movements and politics.

Environmental Movements and Politics

The dialectics of environmental movements with politics can be analysed through different prisms, but to put it simply, one perspective focuses on the contribution of environmental movements to environmental issues themselves; another angle concerns their influence on socio-politics on a par with other social movements (such as labour or gender movements), as well as how the legal and institutional framework allows them to flourish or not. At the local and national stages, decisive factors are the role of elections (if any), liberty of association (to initiate collective action and raise awareness on a specific issue), freedom of speech and of the press, and the right to protest (to influence public opinion). Beyond the national level, local non-governmental organizations (NGOs) must spend efforts in networking with bigger organizations like Greenpeace to open the doors of international organizations like the UN climate change conferences. In this section, we present key features of this interaction between environmental movements and national or international politics from the country cases studied in this volume, as well as the main theoretical frameworks used by the authors.

In Search of Environmental Justice and Political Opportunities

The chapters in this volume borrow from different disciplines and fields of studies, such as environmental politics, political ecology, human geography, and environmental sociology. But they share common references, notably two streams of theoretical background; one is Environmental Justice (EJ) and the other is Political Opportunity Theory (POT). Both theoretical frameworks have become dominant in the political sociology of social movements in the literature in English (and with a large number of case studies located in the United States), and by extension, the rest of the academic world. This intellectual domination of North American literature tends to neglect other theoretical perspectives and minimize cultural specificities when, at a critical time for biodiversity, we should also pay attention to a broader diversity of theoretical approaches. But POT and EJ share a common concern for grassroots mobilization—a basic requirement for bringing environmental politics "down to earth" (Latour 2017), and this conjunction has so far proved sufficiently helpful in a variety of contexts (Guha and Martinez-Alier 1997a; Pellow 2017; Sicotte and Brulle 2017). In many countries, including in Asia, environmental activists have mobilized under a rallying call for EJ (or related slogans such as "climate justice"), which implies a moral criticism of state policy and corporate behaviour. Moreover, in their analysis of environmental movements, social scientists from various countries have borrowed the ethical prism of EJ, or preferred the more neutral lenses of POT, and sometimes they have combined both approaches. The following chapters will reflect this ideological and theoretical atmosphere.

This heterogeneous repertoire needs some further explanations. POT, which is also known as the Political Process Theory or Political Opportunity Structure, appeared in the 1970s, soon after Resource Mobilization Theory (RMT) was developed by authors like Charles Tilly, at his debut a prominent historian of the French Revolution. RMT looked at both societal support and constraint of social movements, paying attention to "the variety of *resources* that must be mobilized, the linkages of social movements to other groups, the *dependence* of movements upon external support for success, and the *tactics* used by authorities to control or incorporate movements" (to borrow from a seminal article by McCarthy and Zald 1977, italics added).

In contrast, POT emphasized the role of the political environment and, in particular, the windows of opportunity that might favour social

change (like the emergence of elites sympathetic to the cause), but also considered various threats and constraints like state repression or deeper social change; hence the addition of *structure*, which should not however be interpreted as a tribute to structuralism (Tilly 1978; Tarrow 1994; McAdam et al. 1996, 2001; Goodwin and Jasper 2011). A major contribution of POT to the theory of collective action was to "debunk the myth of social movements as spontaneous and autonomous forces" (Cefaï 2007, p. 273; see also Jasper 2010, Ho 2019), bringing back the emphasis on their interactions with the larger social, political, and legal environment, as well as their degree of integration with political institutions.

Environmental Justice started in the 1980s in the United States as a catchword for the mobilization of black and other ethnic minorities against what they had come to perceive as an unfair distribution of risk between white middle-class neighbourhoods and communities of Black, Hispanic, Asian, or Native Americans on the "fence line" of industrial zones (Bullard 1983, 1990). The ontology of North American EJ scholarly work, as well as its Australian variation (e.g., David Schlosberg), is still marked by this outcry against structural racism. In the United States, the Environmental Protection Agency and other state institutions have gradually endorsed the notion of EJ in the consensual mode of neoliberal multiculturalism and its coded way of talking about racism (Pulido 2017, p. 16), hence the development of a new, radical stream of EJ (Pellow 2018); a similar institutionalization of EJ as well as a new radical movement can be observed in other countries like Taiwan (Chapter 2). In Asia, generally speaking, rather than problems of racism in its U.S. understanding of the term—i.e., with obvious references to skin colour—EJ is a frequent reference for addressing class struggles and land conflicts between the dominant group and ethnic minorities or indigenous peoples.

During the last fifty years, there has been an increasingly strong coordination and recognition of indigenous peoples around the world, with highlights including the awarding of the 1992 Nobel Peace Prize to Maya activist Rigoberta Menchú, and the United Nations' designation of 1993 as the International Year of the Indigenous Peoples (Niezen 2003). This trend has continued in the new century, leading to the growing acknowledgement of indigenous peoples—or "aboriginal peoples" or "first nations"—with striking insistence in countries like

New Zealand, Canada, Australia, and Taiwan. The level of recognition depends on the agenda of the dominant ethnic group (Whites in Australia, Han in Taiwan, Kinh in Vietnam, and more controversially, *Bumiputra* in Malaysia). Sometimes, the ruling ethnic group expresses sincere remorse for past oppression, such as land grabbing or a ban on indigenous languages. Yet, with the possible exception of New Zealand's Māori, for the great majority of indigenous groups, concrete results and better living conditions are slow to come, rather in the way that "protected areas" do not necessarily prevent deforestation. Moreover, symbolic recognition of indigenous cultures is often reduced to electoral opportunism or political correctness. But like the biodiversity depletion that accompanies the vanishing rainforests, threats of the partial or complete cultural genocide of many indigenous peoples have become a symbolic feature of the Anthropocene, generating guilty feelings among the elites and urban middle classes, or what Boltanski (2009) calls a "distant suffering".

In this book, the chapters on Taiwan, Malaysia, Thailand, Indonesia, and the Philippines address this problematic issue. For instance, in the states of Sabah and Sarawak (or East Malaysia, on the island of Borneo), where the native peoples represent two-thirds of the total population (about three million), the defence of customary land rights is a core issue in stopping deforestation by the state, mining companies, and agribusiness. Despite the early support of transnational advocacy networks against the deforestation of Sarawak (Keck and Sikkink 1998, pp. 150–63), and despite growing recognition by the Malaysian courts, indigenous organizations of East Malaysia have gained few results in the fight against big dam projects (Aiken and Leigh 2015, pp. 82–83). However, as Majid Cooke and Hezri show in this book (Chapter 7), in a number of cases, East Malaysian courts have provided some significant progressive judgments, transforming the postcolonial legacy of English Common Law into a powerful leverage tool for those less endowed with economic and symbolic capital. Taiwan, Indonesia, Malaysia, and the Philippines present other examples of the important role of the courts in delivering environmental justice to the victims of land-grabbing or industrial pollution. However, the results are uncertain, and long-delayed, especially with transnational issues like global warming policies (Chapter 5) or the class action launched in Taiwan by Vietnamese fishermen (Chapter 2).

Climate Justice

Although still a matter of debate for prominent climate change deniers, increasingly frequent and violent weather disasters such as typhoons have motivated EJ-inspired ecologists to frame climate change as an unfair distribution of environmental risk on a worldwide scale (Lyster 2015; Harris 2016). Seeking mitigation and adaptation for climate change-related disasters has become a rallying cry for the most vulnerable, such as the coastal populations of the Philippines, Thailand, and Indonesia (see Chapters 5 and 7). In 2000, the UN climate change conference held in The Hague (the 6th meeting of the Conference of the Parties) made it clear that environmental justice was a global problem urgently needing to be addressed through international networks (Roberts and Parks 2009).

Since then, the worldwide movement for climate justice has gained momentum, usually in conjunction with UN climate summits, which offer good windows of opportunity through exposure to the global media. Almeida (2019, pp. 5, 169–70) has counted more than one thousand protest events in 175 countries between 2014 and 2018 alone, making it the most extensive transnational movement in history, with a growing proportion of Global South actors like the World Social Forum. The 13th UN climate change conference held in Bali in 2007, is a good example. As Suharko shows (Chapter 6), a coalition of Indonesian NGOs seized the opportunity to push the Indonesian government and other participating countries to look beyond the neoliberal targets of carbon trading—which consider any kind of forests or agribusiness plantation as sufficient for capturing carbon emissions—and engage in more concrete action against the ravaging of primitive forests in "protected areas".

Like the Occupy movements, the mobilizations for climate justice denounce the negative impact of neoliberal policies, which tend to neglect state regulation and impose a heavier burden of taxes on the most vulnerable. For instance, in France, after months of protest in 2018–19, the *Gilets Jaunes* ("Yellow Vests") movement against a carbon tax has finally convinced the government that technical solutions from neoliberal economists will not be accepted if they increase social inequalities. In East and Southeast Asia, neoliberalism still operates within the institutional framework of the developmental state (Barney 2017). While this is most obvious in one-party regimes like Vietnam

(see Ortmann, Chapter 9), Magno argues that in the Philippines, the state remains weak and environmental activists must confront strong rent-seeking and commercial interests evading social and environmental accountability (Chapter 5).

When things go well, the dynamics of environmental movements generate a collective expertise that influences national legislation and international agreements on environmental policy. Beyond the national level, as evidenced by the UN climate change conferences, the role of international organizations like Greenpeace or Friends of the Earth is decisive in echoing the voice of Southeast Asian organizations. Twenty years ago, Lee and So (1999, p. 14) noted that these Western NGOs were being vilified as vehicles of neo-colonialism by strong-arm regimes like that of Mahathir. In contrast, Greenpeace is now being criticized by Taiwanese NGOs for its lack of political concern regarding China's bullying of the island nation (Chapter 2), whereas in the Philippines and Indonesia, local NGOs seem to appreciate its initiatives for lobbying states and global firms on climate change (Chapters 5 and 6).

Extending Environmental Justice to Other Species

Alongside the movement for climate justice, certain threatened animal species, such as polar bears, Borneo's rhinoceros and orang-utans, marine turtles hurt by plastic waste, and bee populations decimated by insecticides, have captured the world's attention through campaigns by international organizations like Greenpeace and the World Wide Fund for Nature (WWF). But the vast majority of threatened plants and animal species do not attract support beyond specialized scientists and a few local NGOs. In addition, while social scientists are keen to study social movements and political change, in comparison, the cause of "non-humans" has sparked very little research.

Despite its focus on the activities of man, the Anthopocene narrative generally champions the rights of an enlarged diversity of living species (Tønnessen et al. 2016). Similarly, inspired by the outcry of indigenous peoples against the neo-colonial disrespect for both people and non-human natures, Pellow (2017) seeks to extend political opportunity structures to non-humans. As he argues, cutting ties with human-centred ideologies implies a departure from a utilitarian understanding that reduces land, plants, and animals to mere resources for the sake of man, and indeed, all too often, an economic development model that is set by mining companies or agribusiness.

Harvey Neo further shows (Chapter 4) that despite the increased number of NGOs dedicated to animal welfare—such as the Jane Goodall Institute—and the apparently benevolent attitude of Singaporean authorities, non-humans remain excluded from substantive political debate. For instance, Singapore has joined international conventions for the protection of endangered wild species, yet the state keeps granting permits for the import of wild dolphins by marine resorts and does very little to stop the encroachment of housing on the reserve habitat of wild macaques. So, in spite of an apparent government commitment to the protection of wild animals, NGOs dare not openly denounce the hypocrisy of the state, even for the advocacy of such iconic mammals as dolphins and monkeys. In the context of Singapore's post-politics, every stakeholder has an equal say in the debate—providing one does not challenge the happy narrative of the "Garden City" state.

More generally speaking, in wealthy countries like Singapore, the "environmentalism of the rich" (cf. Guha and Martinez-Alier 1997b; Martinez-Alier 2002) cares little about the import of natural resources, such as sand from Cambodia and Indonesia, which is devastating for those countries' coastal ecosystems. So, while the façade of Singapore's Garden City boasts the iconic Supertrees, its backyard is a big pack of contradictions and double standards. Singapore is not alone in such green-washing. It stands rather as a marketing model for other wealthy cities like Hong Kong, Shanghai, Taipei, Tokyo, Seoul, Kuala Lumpur, etc.

While signs of the apocalypse, exemplified by global heating and the mass extinction of species, call for an urgent response, even large mobilizations of people do not guarantee results and success. Yet, we fully agree with Laura Pulido (2017)'s statement that "power concedes nothing without struggle, and that for all their messiness and disappointments, social movements, including massive shifts in political consciousness, are the *only* way to create meaningful change".

Environmental Activism: A Dangerous Job?

Environmental double standards and dubious green policies can be challenged by a combination of local mobilizations and transnational advocacy networks. But those who face the most serious risks are the local groups. After all, the principle of seizing a favourable political opportunity does not mean waiting passively for the opportunity to

come. But such action does not come without danger, and those facing the most serious risks are the local organizations. Given the small chance of quick and positive results, to what extent are risks worth taking for activists? The rational actor model would expect activists to calculate the risk before any commitment. But activists do not always have enough time to make calculated decisions. As Ho Ming-sho (2019) shows in the case of Taiwan and Hong Kong in 2014, social movements do not necessarily emerge because of favourable political opportunities; they may also occur because of an acute perceived threat, which can be induced, for example, by the police's aggressive use of tear gas or other anti-riot weapons against unarmed citizens. In the Sunflower Movement in Taiwan and the Umbrella Movement in Hong Kong, an important driver of contention was the fear of a possible erosion of civil rights under the pressure of Beijing's authoritarian rule.

The same mechanism applies to environmental mobilizations. Intimidation, imprisonment, torture, murder, rape, and other human rights violations are the common lot of environmental activists around the world (Pellow 2017; Woods 2017). For instance, in 2012, the murders of Cambodian environmental activist Chut Wutty and journalist Taing Try attracted international attention to illegal logging involving the Cambodian army (Wang, Chapter 10). But many other activists have been killed with almost no media coverage.

As Magno aptly puts it, "environmental protection is indeed a dangerous business" (Chapter 5). In the Philippines, twenty-eight environmental activists were killed in 2016 alone, behind only Columbia and Brazil—although this may seem minuscule in comparison to the 22,000 extra-judicial killings of President Duterte's "war on drugs". However, despite this deployment of police forces and vigilantes around the country, as Magno emphasizes, the Republic of the Philippines remains a weak state. Indeed, that crusade has further siphoned off government resources that might otherwise be used to enforce the rather considerable environmental protections afforded by the law; without them, the spoliation of nature goes largely unchecked. Despite resistance from civil society organizations, which share an interesting mix of Christian and Marxist ideologies, the rampant climate of gun violence, as well as alternating periods of democratic and dictatorial regimes, bring the Philippines closer to Latin America than to its immediate neighbours Taiwan and Vietnam.

Compared to the Philippines, both Taiwan and Vietnam present the characteristics of a strong developmental state, but in contrasting ways. As presented by Jobin in Chapter 2, there is a plethora of environmental injustices in Taiwan. But since the transition to democracy in 1987, civil rights have been well respected and, apart from a policeman who died accidentally during a 1991 clash with anti-nuclear protesters, environmental mobilizations do not end in bloodshed. The situation is quite different in Vietnam. For instance, after a major incident of marine pollution in Central Vietnam attributed to the Taiwanese firm Formosa Steel, street protests were brutally repressed by the police and several activists were arrested and condemned to long prison sentences (Ortmann's analysis of the case in Chapter 9; see also Chapter 2). Such reactions, typical of an authoritarian regime, are certainly not the best expression of a "strong state", but at least they are distinct from the bloody killings occurring in the Philippines and Cambodia.

Setting aside the extreme cases of extrajudicial killing or capital punishment after a show trial, a good indicator of the state and corporate response to environmental mobilizations lies in their tendency to respond either by brutal repression or by dialogue and negotiation. The red line is the guarantee given to civil rights, or what Cefaï (2007, pp. 274–75) calls the demarcation line of a polity. But as Benedict Kerkvliet (2010) has highlighted from the case of Vietnam, the red line often moves so randomly that people might be unaware they have already crossed it.

To what extent do groups that challenge authoritarian regimes have their say in the polity without fearing harassment or arrest? Do the political and economic elites renounce state violence or the repression of civil liberties? While Marxist and Foucauldian scholars tend to look at the judiciary as another tool of oppression for bourgeois regimes to maintain their power and privileges, drawing on EJ and POT, several authors of this book attribute a more positive role to the courts. If existing laws reflect the domination of political and economic elites, as the US civil rights movement—a seminal reference for EJ and POT—has proved, laws can be changed. Another option that POT literature emphasizes is the co-option of mobilization leaders by their integration into the existing political system (e.g., Heijden 1997). In any case, the red line remains the use of state violence and repression

MAP 1.1
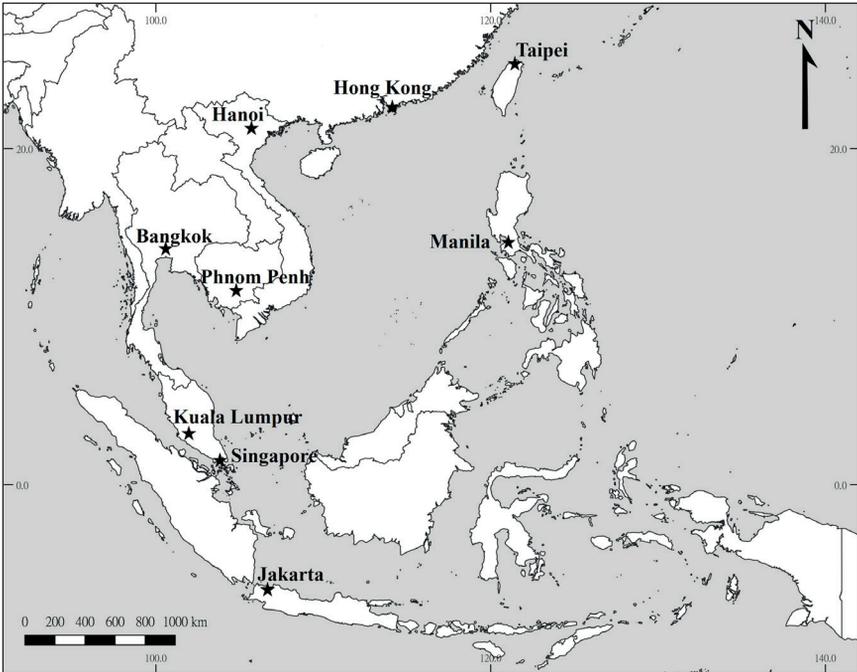
Taiwan, Hong Kong, and the capital cities of the Southeast Asian countries studied in this book

Source: QGIS and Natural Earth.

of basic civil rights. This problem brings us to the difficult issue of the interactions between environmental movements, democracy, and authoritarian regimes. This will be the topic of the concluding chapter focusing on the particular context of East and Southeast Asia.

Outlook of the Following Chapters

In the remainder of this book, the authors look at how environmental mobilizations forge their own path between authoritarian and democratic regimes to provide an answer to our initial question—how political changes have affected environmentalism in the region, and

conversely, how environmental mobilizations have influenced national politics, and what sorts of environmental outcomes these interactions might generate.

In Taiwan and Hong Kong, as already mentioned, the confrontation with Beijing's authoritarianism stands at the core of social mobilizations at large. The fight for civil rights has gone hand in hand with the maturation of a distinct political identity, which does not result from a broad regional and cultural particularism (such as a Southern Chinese culture), but from specific political paths.[5]

In Chapter 2, Paul Jobin presents the main achievements of Taiwan's environmental movement during the last two decades. In a political landscape dominated by the cleavage between the relatively pro-China and pro-independence camps, the environmental movement has committed itself to the protection of a democratic Taiwan, thus nurturing a civic form of ecological nationalism or eco-nationalism. This civic eco-nationalism emphasizes problems of justice, such as the right to a toxin-free environment. Lawyers often play a key role in environmental movements, which might explain the reliance on judicial remedies despite their very slow pace. The scope of their involvement has, for instance, widened from commitment to the island's aboriginal groups to aiding the fishermen of Vietnam. Despite the impossibility of Taiwan's state agencies to join a large range of international meetings, and in particular all those set by United Nations organizations like the UN climate change conferences, these civic groups play a crucial role in collecting information and pushing for policy change.

The recent mobilizations for democracy in Hong Kong have attracted the attention of the world's media. In Chapter 3, James K. Wong and Alvin Y. So show that the fight for universal suffrage and more guarantees regarding civil rights has intimate links with the battles for land justice and the protection of cultural patrimony, which cannot simply be reduced to nostalgia for British colonialism. These early street protests have set the tone of a struggle for the recognition of a distinct polity. Despite its promise of respecting the principle of "one country, two systems", Beijing has increased pressure on the semi-autonomous territory to speed up its subjugation and its integration with the rest of China. This strategy has included the development of mega infrastructure projects. However, to the surprise of Beijing, and in contrast with the business-oriented environmentalism that prevailed

before, a new generation of activists has reacted more and more strongly against this policy, launching protests against the demolition of heritage sites, the construction of a high-speed railway, the third airport runway, and other projects. Many of these protests have been organized by grassroots environmental groups, which have promoted new political personalities who are deeply involved in the movement for democracy and more radicalized than ever before.

Singapore has friendlier relations with Beijing. But if Singapore is not yet a fully free electoral democracy, neither is it the authoritarian champion of green governance as some portray it. First, the city-state owes a huge ecological debt to other nations, starting with its neighbours in the region. Second, during the last two decades, civic rights have kept expanding, especially during the post-Lee Kuan Yew era (since 2015). As Harvey Neo suggests in Chapter 4, environmental mobilizations are good exemplars of this evolution. An atmosphere of post-politics implies the persistence of rigid institutional constraints and the obstacles to addressing problems in a frank and open political debate. More windows of opportunity could nevertheless appear, if ecological activists decide to pressure the authorities of the Garden City toward more coherence between its national brand marketing and its effective practices.

Since the mid-1980s, political life in the Philippines has been characterized by a vibrant civil society as well as rampant gun violence. While both have remained basic features of the twenty-first century, the intensity of climate-related typhoons has become a new central issue. If some countries suffer more than others in the Anthropocene, the Philippines are surely among them. As Francisco Magno highlights in Chapter 5, the legal battle launched against the Carbon Majors is probably the most distinctive contribution of Philippine environmentalism to the international movement for climate justice. Another important struggle of the Philippine environmental movement deals with the extractive industry. While the Catholic Church has played an important role in this battle, the influence of this environmental activism on the political life in the Philippines remains elusive.

Compared to the three decades of Suharto's autocracy, "post-New Order" Indonesia (since 1998) has seen significant democratization of the country, with regular and fair elections being held since 2004. Although elections still rely more on the charisma of populist leaders

like Yudhoyono and Jokowi (Kenny 2018, pp. 53–54), the number of civil society organizations has grown steadily, partly compensating for the structural weakness of the political parties. In Chapter 6, Suharko posits that environmental NGOs have become an important component of Indonesian civil society. With a median age of 28.3 years, in the fourth most populous country in the world, these environmental NGOs' members are young and creative. As the struggle against deforestation is a priority, they have been working hard to amend an odious law that transferred the majority of forests into the hands of state patrons and their cronies in the palm oil and logging companies, ignoring the customary rights of local populations. The young activists also pressure the international banks that finance forest-razing projects. With the cooperation of Oxfam and Greenpeace, they lobby climate change conferences so that carbon trading does not provide a blank cheque for more deforestation. In addition, they bring support to the numerous fisher folk of the Indonesian archipelago, who are vulnerable to the consequences of global warming and who must also resist against coastal reclamation for real estate developments, as in Bali, a global tourist mecca. Through these mobilizations, Indonesian environmental NGOs not only reshape the Indonesian polity, they are on the forefront of the Anthropocene's main challenges.

In Chapter 7 on Malaysia, Fadzilah Majid Cooke and Adnan A. Hezri show that, despite the long stranglehold on the country by the coalition Barisan Nasional, environmental activists have obtained several successes that led to major political change. The authors devote particular attention to the battles of indigenous peoples for their customary land rights against rapacious corporations. As in Indonesia, these environmental organizations have also relied on the judicial system; despite many defeats, the Malaysian courts, whose common law jurisdiction is a legacy of British colonial rule, have tended to recognize the rights of indigenous peoples to their ancestral lands. Since 2008, another major environmental cause has been the opposition to a rare earth refinery by a subsidiary of Lynas, an Australian company. This local mobilization gradually morphed into a nationwide campaign that combined slogans for clean environment and clean politics. In the general elections of 2013, one leader of the campaign against Lynas nearly defeated the Barisan Nasional candidate. The political turnover eventually occurred in the general elections of May 2018: after sixty-

one years in power, the Barisan Nasional was defeated by a landslide victory. Beyond the spectacular comeback of Mahathir in the 2018 elections, the authors analyse the contribution of several environmental activists that underpins this long-term process of political liberalization through the maturation of civil society.

In contrast with the countries presented so far, the last three chapters present rather gloomier perspectives both for democracy and for the environment. In Chapter 8 on Thailand, Jakkrit Sangkhamanee focuses on the gradual co-option of environmental NGOs from a commitment to the rural poor to collaboration with autocratic forces. In the 1990s, environmentalism flourished thanks to popular movements like the Assembly of the Poor, which contributed to launching a new Constitution in 1997. In contrast, during the last two decades, as Sangkhamanee argues, environmental NGOs and other civil society organizations have gradually renounced their commitment to their idealized community of "villagers" and eventually gave up their consistent criticism of the state's ecologically destructive policies. Thaksin Shinawatra's authoritarian populism and the two coups d'état that punctuated his rule (in 2006 against Thaksin, and again in 2014 against Thaksin's sister Yingluck) contributed to this process. Thaksin had forged strong links with the rural population, while centralizing decision-making to boost exports through the increased exploitation of natural resources. The NGOs felt so betrayed by the villagers that in the end they endorsed the reactionary mindset of oligarchic groups and the military. The military regimes that overthrew Thaksin and Yingluck have increased the pressure on freedom of speech, and despite the NGOs' support, they do not perform any better for the environment. But the worst may be the double-standard bias that has divided urban elites from the rural populace.

In Vietnam, the Communist Party maintains strong control over society. In Chapter 9, Stephan Ortmann posits that, despite a coherent set of environmental laws and a certain tolerance for media reporting about environmental problems, a robust environmental movement is unlikely to emerge. An important reason for this lies in the reluctance of Communist Party officials, even the reform-minded, to allow more autonomy to NGOs. As in China, NGOs are very much controlled by state authorities, such as the Vietnam Union of Science and Technology Associations (VUSTA). The very notion of NGOs and civil society

remains problematic. Ortmann argues that environmental protests and their reporting are tolerated provided they are circumscribed in time and space. If they become nationwide, they are seen as a threat to the regime and repression sets in, as indeed happened in the two rare nationwide cases of environmental protest: the campaigns against bauxite mining and the marine pollution by Formosa Ha Tinh Steel. In both cases, the considerable amount of foreign investment, as well as the politically sensitive roles of China and the Catholic Church, triggered repression from above.

The last country analysis is devoted to Cambodia. Since 1985, Hun Sen has been prime minister of the country with a joint record of longevity and corruption and electoral fraud. James W.Y. Wang makes clear how, through control of the Cambodian People's Party (CPP), Hun Sen and associates have built a patronage network that has captured the state apparatus and practices an intense expropriation of natural resources. Efforts by the West to promote democracy in Cambodia through financial aid have ended in complete failure; and China, which has no concern for democracy, has become the primary donor and largest investor. China's strategy is twofold: first, to gain geostrategic access to the Gulf of Thailand; and second, to exploit Cambodia's natural resources, starting with hydropower capacities, through state-owned companies like Sinohydro Corporation, which holds 50 per cent of the world market. Eight hydroelectric dams are already under construction and several others are planned, threatening to destroy the country's last forests and rivers. Despite all kinds of threats and harassment, an assemblage of local monks and villagers, plus an environmental NGO founded by a Cambodia-based foreign activist, has successfully mobilized against one of these dam projects. Such hard-won battles remain nevertheless as fragile as Cambodian electoral system.

In the 1980s, there was a dominant wishful thinking in the West that China's two-digit economic growth would bring about its democratization. The outbreak of the Covid-19 pandemic has made it clear that China is not ready for a democratizing path, to say the least. The long-wished-for prospect of democratization through economic development has now given way to a certain admiration for China's "strong" responses to climate change, pandemics, and other symptoms of the Anthropocene. In the concluding chapter,

Jobin draws on the findings of the previous chapters to examine the temptation of environmental authoritarianism, with China and Singapore the dominant models, and the significance of Taiwan and Hong Kong as democratic challengers to this model. The chapter presents a theoretical framework for further studies into the interactions between environmental mobilizations and different political regimes, with a focus on East and Southeast Asia.

NOTES

1. These are Alvin Y. So, Hsin-Huang Michael Hsiao, Ming-sho Ho and Francisco Magno.
2. In this book, although we might also use the expression of climate change, we have a preference for "global warming". As Latour (2015, p. 25) reminds, "climate change" was astutely introduced in 2003 by the American oil industry and its Republican supporters to mitigate the threatening impact of "global warming". Inversely, some researchers have recently proposed to level up "global warming" to "global heating" (Watts 2018). On climate change "denial countermovement", see Dunlap and McCright (2015)'s exhaustive research.
3. For a summary, see IBPES (2018) and IBPES (2019) for Asia. The 1,800-page report, which consisted of more than 15,000 scientific publications, stresses that three-quarters of the Earth's environment today has been altered by human activity, and if there is no quick solution, another one million animal and plant species will be threatened with extinction. The five main culprits of biodiversity loss are land use (agriculture, deforestation), direct exploitation of resources (fishing, hunting), climate change, pollution and invasive species. For example, plastic pollution has increased tenfold since the 1980s, and between 300 and 400 million tonnes of heavy metals, solvents, toxic sludge, and other wastes from industrial sites are dumped annually into the oceans. Fertilizers entering coastal ecosystems have produced more than 400 "dead zones" in the oceans, totalling 245,000 square kilometres, or the size of the United Kingdom.
4. In addition to a burgeoning number of articles using the Anthropocene in their title or as keyword (for literature reviews in humanities and social science, see Marquardt 2019, Simangan 2020), there are already three academic journals entirely devoted to it. The quarterly *Anthropocene*, which started in 2013 with Crutzen on the editorial board, is hosted by the scientific publisher Elsevier; *Elementa: Science of the Anthropocene*, an

online open access journal was launched the same year by the University of California; and the *Anthropocene Review*, another quarterly which welcomes scholars in the humanities and social sciences, debuted in 2014 and is hosted by Sage.

5. If the Southern Chinese culture was the main component of the recent mobilizations in Taiwan and Hong Kong, similar resistance to Beijing would also occur in places like Macao, Guangzhou or Fujian province, but this is far from being the case.

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