



ing economies based on industrialized agriculture, fish farms, and hydropower production (Blackbourn 2006; Johnston 2007; Pritchard 2011).<sup>1</sup>

Cities also benefited from the exploitation of rivers and wetlands. Globally, many large cities have thrived at the expense of marshes and rivers; the two geographically and culturally distinct kinds of landscapes have had a historically intertwined relationship. Urbanization and industrialization were factors that drastically rearranged the spatial, economic, and biophysical relations between people, rivers, and wetlands (see, for instance, Giblett 2016; Clifford 2017; Knoll, Lübken, and Schott 2017; Way 2018). As Stefania Barca and Gavin Bridge (2015: 368) put it, across North America and Europe (including Russia) rivers and their valleys—and, we would add, marshlands—became places where “industrial capitalism was born and raised” and a new ecological order forged.

The introduction of scientific methods and technological development had radically changed forests and agriculture (Muir 2014). The now famous German School of Forestry began to calculate the volume of produced wood mass in order to maintain a balance between wood exploitation and forest plantation, and implemented a utilitarian vision of the forest with same-age, evenly aligned monoculture trees (Lowood 1990; Peluso 1992; Scott 1998). The forest turned from unregulated, wild “nature” to an “artificial work of forestry” (Radkau 1996: 69).<sup>2</sup> Equally important, forestry started to become institutionalized and bureaucratized and these new trends spread all over the globe as part of colonial domination (Vandergeest and Peluso 2006a, 2006b). In fact, colonies often served as experimental spaces for these new practices. In agriculture, the steam engine and mechanized equipment such as mechanical threshers, sowers, and grain binders, to name a few, radically changed the production and labor process. The terrestrial and maritime transport revolution completely changed the agricultural markets as products were more easily transported over great distances (Mazoyer and Roudart 2006).

All the developments outlined above are well-known to environmental historians. Numerous scholars have explored transformations of the environment in North America and Western Europe since the nineteenth century. We know far less about how Eastern Europe, a kaleidoscope of nation-states, histories, and cultures, went through the same historical processes. With the exception of Russia, which was under closer scrutiny from this perspective (Weiner 1988, 1999; Josephson et al. 2013; Moon 2013; Zeisler-Vralsted 2015), the specific regional history of Eastern Europe in the modern period has been less explored in terms of the many connections between the state, the transformation of the economy, and nature.

This volume not only fills a gap in the literature but also makes two interlinked claims. First, transforming nature in Eastern Europe was a significant part of na-

tional projects. We understand “national projects” as concerned with building a modern state and a national economy that reflect contemporary developments. We contend that planners, experts, and bureaucrats were the agents of both change and the edification of state infrastructure in the territory. The second claim of the book is that the quest for economic development was carried out by means of controlling and transforming nature. Each historical period—from roughly the 1850s to the post-1989 period—had its own apostles of development, with new economic visions and projections, new plans and new ways to implement them. The national project carriers borrowed discourses about nature, ideas, and technologies of nature governance from those countries that had demonstrated previous experience in putting nature to work in improving the national economy. We show that East European states have not perceived a conflict between the national projects and taking inspiration from neighboring countries and the western world (which had been more successful in taming nature). On the contrary, the construction of a state and a national economy would have been lost without an inspirational model.

Our analysis suggests a historical model in which the “West” had not ended up in the “East” in order to exploit its natural resources in a colonial manner. We show that Eastern states’ interest in developing their economy converged with the interest of Western states in transferring experts, technologies, and ideas about nature. This allowed Western institutions, state or private, to invest in various infrastructural projects for transforming nature and gaining financially in the process. The point where the two interests meet is the amalgamation of ideas about nature and developing local economies. The meeting point also reflects the unequal power relations between Eastern and Western countries throughout the twentieth century, which were enacted both directly and indirectly. In the field of economic development, Western technology and knowledge were seen as the most advanced, which created a strong motivation among Eastern countries to reject ideas that originated elsewhere. Disentangling this process and highlighting its main drivers, mechanisms, and outcomes is the aim of this book.

To demonstrate how these two claims come together, we explore the role of state planners, experts, and bureaucrats as carriers and implementers of changes in the natural world, their professional trajectories and actions, and their visions and ideals for a modern state and technologized nature in Eastern Europe. We show how ideas about the capitalist economy and nature, and the scientific knowledge and technologies necessary to implement new ideas, were transferred from Western Europe and blended with local ideas, plans, projects, and policies. Most states in Eastern Europe, even the empires that dominated the zone, became obsessed with the project of the domestication of the natural world, which they saw

as the only way to modernize their economies. Eastern states' interest in economic development coincided with Western European interests to find new markets for their products and financial investments. The new nation-states that appeared in the second half of the nineteenth century were greedy for development after centuries of imperial economic and political domination. Furthermore, the Central Eastern European empires—Ottoman, tsarist, and Habsburg (from 1867 Austro-Hungarian)—were themselves in quest of economic, technological, and military development (Grandits, Judson, and Rolf 2020).

To include both nation-states and empires in their mutual pursuit of economic development and the domestication of nature, we engage the concept of K. Sivaramakrishnan and Arun Agrawal's (2003) "regional modernities." They show that a region—which could be a nation-state or a multinational formation—is the place where developmental policies and associated projects occur, as we also see in Eastern Europe.

*A New Ecological Order* deals with a wide region that encompasses both nation-states that appeared in the second half of the nineteenth century and the above-mentioned regional empires. There are thus chapters that look at travelers' discourses that dehumanize populations and anthropomorphize forests in Republican Turkey, and explore scientific innovations that attempt to domesticate muskox in Siberia or construct dams in the former Soviet Republics of Tajikistan and Kyrgyzstan. These chapters communicate perfectly with those focusing on countries considered indisputably Eastern European for at least two reasons. First, historically it would be impossible to separate the three empires from nation-states such as Bulgaria, Serbia, Poland, Romania, and Ukraine. At least the modern history of these states, as we will briefly point out in the following section, is intrinsically linked to the evolution and fate of the three empires, and for long periods their histories were intertwined to the point of merging. The justification for including Far North Russian territories, Central Asia, and Asia Minor as part of "Eastern Europe" may go even further back, all the way to prehistory, as Chris Hann (2012, 2015, 2016) and Jack Goody (2015) have posited. They refer to the exchange of ideas, technologies, goods, and people across a vast landmass they call Eurasia, which encompassed both the agrarian empires and the pastoral nomads of Central Asia. Second, socialism created a civilization bridge that linked the social, economic, political, and aesthetic similarities of Central and Eastern European countries to Central Asian states (Hann 2016). Throughout this vast area, over large parts of the twentieth century, socialism was the modernizing ideology and political economy that changed both the economy and society (Pine 2007) of places that had previously been quite different. For countries that experienced socialism, current social, economic, and political processes cannot be explained

without recourse to socialist economic, political, and ecological conditions (Stening and Horschelmann 2008; Feaux de la Croix and Roberts, chapter 7 in this volume; Vladimirova, chapter 10 in this volume).

The concept of regional modernities also allows us to consider developmental policies, discourses, and practices not only found at different levels of government and scales but also as promoted by both institutions and individuals (Sivaramakrishnan and Agrawal 2003: 14). The way developmental discourses and practices were experienced in Eastern Europe shows that they were not imposed by Western centers of power but by the nation-state itself, which was interested in promoting such development as a way to strengthen its power and to legitimize its presence at the local level and on the international stage. In order to realize the modernization metanoia, the nation-states and empires of Eastern Europe commissioned experts (such as engineers, agricultural engineers, geographers, biologists, foresters, and architects) to implement changes and promote ideas about the use of nature for economic development. The relationship between state and experts was not unidirectional. As Ágotá Ábran (chapter 4 in this volume) shows, when the state does not realize the potential of a certain natural resource, it is the experts who recommend political and economic intervention (see also Kohlrausch and Trischler 2014).

The reader may rightfully ask what good another regional perspective on environmental history would do when we know that environmental issues are intrinsically transnational and that “we live in one world in an ecological—environmental—sense” (Vogt 1948: 14–15). While this is true, different regional histories still matter. Does the technoeconomic power—that is, the ability of the state to rearrange nature and society in order to demonstrate its power—of, say, the (semi)colonial and postcolonial Egyptian state function in the same way as in a country that was never a colony?<sup>3</sup> As Timothy Mitchell (2002) brilliantly shows, the hydraulic works and damming of the Nile in Egypt, designed and implemented by British experts, was carried out to suit the Egyptian state, the local elite, and the metropole. In Eastern Europe, the new nation-states liberated from the embrace of the Ottoman, Russian, or Austro-Hungarian Empires were the sole commissioner of such works. In some cases, experts who had worked in African colonies were invited to use their scientific and technological knowledge to build agricultural infrastructure in Eastern European countries, as we will show below. In other cases, local planners and experts who studied abroad brought practices, ideas, technical expertise and scientific knowledge from Western European institutions and used them to reshape the local environment and society. This book delves into the various ways in which national planners, experts, and bureaucrats—all representatives of the state—contributed to transforming nature in the interest of development.

We show that despite radical changes in political regimes from the end of the nineteenth century to the present, these plans share common features and reflect the obsession with “development”—perhaps the buzzword that characterizes modern and contemporary Eastern Europe.

The next section provides a short historical view of Eastern Europe, a sort of descriptive historical map of the region showing the shattering of empires and the rise of nation-states, and the installation and fall of socialist regimes in most Eastern European countries. Each historical stage cried out for urgent development and used its own language to portray the need for the transformation of nature and the installation of a new ecological order.

## A FLUID REGION

The book guides the reader through territories that were either engulfed by ruling empires (the Habsburg, Ottoman, or tsarist/Soviet/Russian) or that belonged to disintegrating empires. The end of the nineteenth century marked powerful political movements against the three empires that still remained in place. The unequal development of a capitalist economy and political autonomy in different regions led to the emergence of an autochthonous political and technocratic elite (Ash and Surman 2012; Ábrán in this volume). It was precisely this elite that would constitute the roots of future nation-states.

The nation-state political model emerged in Southeast Europe under several favorable auspices. First, these political ideas were brought from Western Europe, generally by young elite who had been exposed to them in universities. The future Turkish, Bulgarian, and Romanian political elites studied at universities in France, Germany, and Austria during the nineteenth century. When they returned home they had completely changed: from the clothes they wore to the sociopolitical ideas they promoted, the young students entered into conflict with the previous generation who had financially supported them. The local political elite, the Moldo-Walach boyars or the *chorbadzii* in Bulgaria (winners of the economic reforms imposed by the Ottoman Empire) never thought that their own sons would turn the knowledge and experience acquired in Western Europe against their own politically-conservative visions. In Poland, the political elite living abroad elaborated plans for freeing their country and unifying it following the Western European model. By “Western European model” we mean the liberalization of political life, an economic model based on industrialization, the rapid development of science and technology, and a type of societal behavior much less constrained by traditional and conservative ideas.<sup>4</sup> Second, the Ottoman Empire went through a process of economic and military uncertainty in the nineteenth century, which ultimately led to its disintegration after World War I. The empire’s weak political and

military position allowed the countries of this region (including Greece, Bulgaria, Serbia, and Romania) to become first autonomous and then independent states, and to enlarge their territories. Serbia, for instance, shaken by two major riots in 1804 and 1815, demarcated an autonomous territory within the Ottoman Empire around Belgrade city.<sup>5</sup> Greece gained autonomy over a small territory—which included the Peloponnese, Corinth, Athens, and the Aegean islands—after a violent revolution in 1821, and became an independent kingdom in 1830. After the Russo-Turkish War (1877–1878) that culminated in the peace treaties of San Stefano and Berlin, Romania and Serbia became independent whereas Bulgaria became an autonomous principality. World War I put an end to the Ottoman and Austro-Hungarian Empires, out of which several countries emerged—Turkey, Austria, Hungary, Poland, and Czechoslovakia—while Transylvania become part of the Romanian state (Wandycz 2001; Bideleux and Jeffries 2007). Different regions of the now defunct Austro-Hungarian Empire were included in the new Kingdom of the Serbians, Croats, and Slovenes (which became the Kingdom of Yugoslavia from 1929) or became part of the Soviet Union (Magocsi 2010).

The elated political elite of these new countries adopted political and administrative reform programs that were inspired by Western European countries. At the same time, the technocratic establishment engaged more and more in a nationalist discourse and actions meant to consolidate the nation-state in the interwar period. The economic development, expansion of a national economy, and construction of the state administration, bureaucracy, and large infrastructure within the national territory were all part of this elite's vocabulary and political action (Gradits, Judson, and Rolf 2020). Inevitably, the natural environment was targeted for change in the name of the nation-state's prosperity (Özkan 2013, 2018).

After World War II the geographical map of Eastern Europe was split between the socialist regimes, under the heavy influence of the Soviet Union, and the capitalist economies of Turkey and Greece. However, Turkey borrowed its first foreign aid from the Soviet Union in the 1920s and also certain ideological aspects of the Soviet model such as the emergence of the “new man” or the use of the elites as vanguards. Turkey's leaders defined Kemalism as a third way between capitalism and socialism, and in many ways the closed, protected economy (which lasted until the 1980 military coup) was very similar to socialism in terms of citizens' everyday experiences (B. Jelavich 1999: 406–12; Zürcher 2017: 223–80; Ahmad 2014: 95–148). The historian Paul Josephson (2016) shows how the socialist countries in Central and Southeast Europe followed the blueprint of the Soviet Union to convert nature into a more productive landscape through building new infrastructure, taming rivers, building thousands of kilometers of levees and irrigation systems, and organizing intensive agriculture and the introduction of new crops.<sup>6</sup>

Giant dams were constructed, such as the Iron Gates dam in 1971 between Romania and Serbia, or were planned to be built, such as Gabčíkovo between Hungary and Czechoslovakia. After Stalin's death (1953) most Southeast European socialist states removed themselves from Soviet control, and some adopted more liberal policies.

Like dominoes, the socialist regimes collapsed one after another between 1989 and 1991. A new economic model was adopted and as the end of socialism coincided with the peak of global neoliberalism, the latter became the most persuasive model (Ban 2016). Some countries, such as Romania and Bulgaria, were more sluggish in adopting new economic and capitalist political models whereas Hungary, Poland, and the Czech Republic implemented the “reforms” more promptly. Rapidly or slowly, these transformations unfolded under the supervision of international institutions such as the International Monetary Fund (IMF) or the World Bank, which deployed “econolobbyists” (Wedel 1998)—fly-in design policies, fly-out international experts—who contributed massively to the economic reforms (Creed and Wedel 1997).

### **TRAVELING EXPERTISE, TECHNOLOGIES, AND IDEAS**

We claim that transferring knowledge, experts, and ideas about nature from more developed countries was part of the national project since its inception. The interwar period produced local and international entanglements of ideas and plans that put nature to work for economic development. Socialism as an “infrastructural modernization” project (Dorondel and Posner forthcoming) had complicated the exchange of expertise, technologies, and ideas of a developmental nature. We further examine the contact points and negotiations between Western and Eastern projections of nature and economy, as well as the avenues on which such expertise traveled.

In Eastern Europe, the state played a major role in creating expertise and commissioning work that was meant to develop a modest, ruralized economy and to build much-needed infrastructure (Gätejel and Kochanowski 2020: 131). The reforms envisaged by the newly emerged nation-state in the late nineteenth and early twentieth centuries had multiple targets. First, as with any other “high modernist state” (Scott 1998)—and we should say that the states of Southeast Europe all emerged as high modernist—control over the territory was the first step (Ćorović, chapter 1 in this volume). As James Scott (1998) has shown for other areas, multiple local property arrangements, a lack of maps and clearly delineated property boundaries, and various historical practices of cultivating land, exploiting forests, fishing, and husbanding animals were not at all pleasing to the newly emerged nation-state. If the state is, as Scott (2017: 139) has defined it, “a recording, regis-

tering, and measuring machine” then the myriad of local practices had to be unified and made legible. A second reason for reform was to transform rural economies into capitalist economies and to radically transform production. Integration into the world economic system, or at least the European one, was an immediate target of the state. The Danubian Principalities had already experienced a first “internationalization” and boost to its agriculture in 1829, when, following the Russo-Turkish War, the Treaty of Adrianople allowed the liberalization of the cereals trade. Until then, Walachia and Moldova had been obliged to sell most of their cereal production at a preferential price to the Ottoman market (Palairret 1997; Demeter 2017). The 1829 treaty not only gave wings to the agricultural economy in the two principalities but also led to rapid urbanization along the Lower Danube. New cities appeared on the banks of the lower part of the river, accompanied by an entire infrastructure (including small ports and roads linking the Danube to the interior of the countries) for export of cereals to the world (Hardi 2013). The nation-state was interested in developing agriculture and in making loyal citizens of the peasantry, which was more often under the control of the local elite than the state (Dorondel and Șerban 2014). To accomplish these urgent tasks, the states of Eastern Europe needed technologies for “adapting” nature to a modern economy, and a corps of planners and experts to plan and implement the changes.

Western European expertise traveled east via two main avenues. One ran between western economic stakes in the juggernaut development projects of both states and private companies and the eastern states’ interests in such projects. A good example here is engineering works that commenced on the Lower Danube. The mighty gorges of the Iron Gates—which created a bottleneck on the Danube with its rapids, reefs, narrow channels, and shallows “no more than 18 inches of water, with a rush like the race of a mill-stream” (Ardeleanu 2009: 194)—were only possible to navigate when the waters were high enough. This was a nightmare both for the captains of the steamers and for the Austrian company that from 1829 organized the passage between Vienna and Constantinople (Ardeleanu 2009). These new economic opportunities, including the transportation of people and commodities along the Danube, motivated Austrian private investors and state high officials to start the engineering work necessary to regulate the Iron Gates in 1834 (Gätejel 2016). Taming the river to allow the steamers’ safe passage was seen as a victory for Western civilization (Quin 1836: 106). Engineering at the mouth of the Danube by the European Commission of the Danube (ECD) was another example of technology transfer and ideas of how to change natural features that were poorly suited to capitalist economic relations. Founded in 1856 by the Habsburg empire, England, France, Germany, the Ottoman and Russian Empires, the ECD aimed at rectifying the Lower Danube and its mouth through

hydretechnical works (Ardeleanu 2020). A tamed Danube would facilitate the cereals trade and represent the export of the Western civilization model to the European periphery, commonly perceived as backward (Yao 2019). After 1880 the new riparian nation-states steadily replaced the Western powers as prime actors in governing the Lower Danube and voiced their own economic and developmental interests (Ashcraft 2011; Hajnal 1920).

Inviting foreign experts and private companies to plan and implement infrastructural projects was another facet of this strategy. For instance, British companies were invited to finance the railways which linked Cernavodă to Constanța and Ruse to Varna (cities in the Ottoman province Dobroudja). Part of the deal was that they should provide their own technical knowledge and engineers (Karpát 1986: 290; Martykánová 2010: 25). Another project, the Baghdad Railway, which represented one of the most important projects in the Ottoman Empire, was built mostly with German expertise (Martykánová 2010: 221). In 1910 the Romanian government invited William Willcocks, a British engineer who worked in different parts of the world, to draw up plans for an irrigation canal to water the arid yet potentially fertile plains of southern Romania. As a true predecessor of contemporary international experts from the World Bank or the IMF, Willcocks had previously contributed to the construction of the Aswan Dam in colonial Egypt at the end of the nineteenth century, and then came to the Ottoman Empire to help build irrigation systems. The interwar period found him in India assisting in the construction of irrigation systems.

Through their knowledge and expertise these international experts linked areas that were worlds apart by spreading technologies and ideas about economic development and the need to transform nature for development purposes. States seeking to transform urban areas took great pride in importing modern architectural styles, modern planning, and sewage and electricity infrastructure (Kaika 2006: 281; Inal 2011; Ćorović in this volume). The aim was to transform an amalgam of constructions, roads, and land uses into a modern city, thus contributing to the symbolic power of the state (Ferhadbegović 2020). Ferenc Reitter (1813–1874), an engineer, urbanist, and planner, is another example of a traveling expert. After carrying out successful projects in London, Paris, and Vienna he was hired in the mid-1860s to systematize the urban infrastructure of Budapest (Sisa 2013: 120; Tamáska 2018: 568–69). Greece and Bulgaria asked for the assistance of western planners to reshape Athens and Sofia. Western companies such as Lindley Brothers pioneered the construction of urban sewage systems from western cities to cities in Poland, Romania, and even Moscow (Kohlrausch and Trischler 2014: 41). In the interwar period functionalism and modernism were imported and adapted to local needs: with the assistance of Western urbanists, besides the large Greek

cities of Piraeus, Thessaloniki, and Athens, 135 small cities of around 5,000 inhabitants were redesigned in the 1920s–1930s. These small cities needed refurbishing after the Balkan Wars (1912–1913) and the devastation of World War I, but also had to cope with the displacement of large masses after the exchange of territories in the Balkans and Asia Minor (Yerolympos 1993: 241).<sup>7</sup>

Other changes in the natural environment such as the construction of levees along the Lower Danube in Bulgaria and various rivers in Greece and the drainage of the marshlands served the same purpose: settling the surge of immigrants after the Balkan Wars and World War I (Dragostinova 2006; Vlachos, chapter 2 in this volume). These projects were supported technically and financially by the League of Nations (Şerban and Dorondel, chapter 5 in this volume).

The guest experts were not always successful in their endeavors. In 1860 the Ottoman central officials granted permission to exploit 100,000 hectares of forest on the empire's territory, in what is now southern Bulgaria, in order to finance a giant infrastructural governmental program: the construction of a railway to link Istanbul and Vienna (Dursun 2007: 306–26). The project failed due to local peasant resistance and the lack of adaptation of new management practices to local customs. In Greece, after Otto from the dynasty of Bavaria was crowned king in 1832, an ambitious plan of forest management and exploitation was conceived following the German model, with all personnel, from engineers to foresters, of German origin (Seirinidou 2017). For many reasons, including peasant resistance to the imposition of new foreign forest exploitation practices, all personnel were withdrawn after the mid-1840s and replaced with local foresters who had limited experience (Kostov 2016).

A second avenue for transferring expertise from Western Europe was through the formation of local technical cadres. In the second part of the nineteenth century, the countries of Eastern Europe began developing native schools of engineers, urbanists, architects, agronomists, and foresters—most of the founders having been trained in western academia. This was a steady but essential process. The new universities and schools developed not only in the newly emerged nation-states but also in the empires that dominated the region. For instance, in Ottoman Egypt beginning in 1820, French and English experts contributed to the development of civil schools for the training of water engineers (Martykánová 2014: 17–21). The Ottoman Imperial School of Naval Engineering was established in 1773 (Kohlrusch and Trischler 2014: 30), whereas in 1809 in tsarist Russia an institute for training road construction engineers—inspired by the Parisian *École nationale des ponts et chaussées*—was established. Also, in the western peripheries of the tsarist empire, from Finland to Ukraine, a network of polytechnic schools was founded to provide desperately needed experts and technical cadres (Gouzévitch,

Cardoso de Matos, and Martykánová 2017: 248, 270–73). In Poland, the Polytechnic University in Warsaw was opened in 1915 after only three months of German occupation of the city. The new establishment was immediately perceived not only as compensation for the long Russian domination but embodied hope for national construction through technical expertise (Kohlrausch and Trischler 2014). In what was still Ottoman Bulgaria a corps of local agronomists trained in Western and Central Europe emerged in 1860–1870, just before the appearance of the modern Bulgarian state (Angelova 2019).

During the interwar period the nation-states “nationalized” and strengthened their technical and scientific educational institutions. This period represented the finest “hour of the experts” as Martin Kohlrausch (2015) puts it. Experts and scientists were the arms of the state in establishing political control, organizing territory, developing local economies, and shaping the national landscape.

This trend continued after 1945 when, except for Greece and Turkey, all other countries of the region came under the political and economic control of the Soviet Union.<sup>8</sup> This means that they entered a political-economic system dubbed “the greatest state planning scheme the world has ever seen” (Dodd 1933: 34; Cook, Ward, and Ward 2014). Planning profound economic, political, and social changes had radical repercussions for the natural world as well. Again, the state—this time socialist—actively sought fresh technologies that could reinforce the new directions of economic development. In the decade after 1945 the Soviet Union exported technical expertise to other countries of the socialist bloc. Yet the relationship and technological flow between the socialist and capitalist blocs was not totally interrupted. There were contacts and transfers of knowledge, experts, and development ideas between the Soviet Union and Western Europe (Cook, Ward, and Ward 2014). When the socialist bloc experts lacked knowledge in a certain domain they looked to Western countries; the Soviet Union appealed to Finland’s experience, expertise, and technology to manage forest harvesting, which was poorly managed in Russia, resulting in a great loss of timber (Kochetkova 2018). Nevertheless, the socialist countries tried to limit the import of western technologies and ideas as they attempted to decolonize their economies and societies (Mark, Kalinovsky, and Marung 2020). Conversely, the socialist countries exported technology to capitalist countries such as West Germany, Italy, the United States, and France. The United States, for instance, imported key technologies in industries such as metallurgy, mining, and technomedicine; in the 1970s Great Britain imported open-end spinning-machine technology from Czechoslovakia; and West Germany, Italy, and Spain imported technologies for the sugar industry and the processing of sulfuric acid from Poland (Kiser 1976; Freeze 2007; Maciejewicz and Monkiewicz 1982). Socialist countries thus represented serious competitors

for Western countries' economic interests. For instance, the Soviet Union exported dam-building expertise to Egypt, and countries including Romania, Bulgaria, and Hungary played a significant role in industries such as petrochemistry and urban architecture in Northern Africa and the Middle East (Reynolds 2017; Mark, Kalinovsky, and Marung 2020; Ghetas 2018: 79; US Congress, Office of Technology Assessment 1984: 17, 474; Stanek 2020).

The crushing of socialist regimes in Eastern Europe created new states that emerged from the ruins of their socialist predecessors, to twist David Stark's (1996: 995) famous expression, and new policies of redefining the relationship between state-society-economy and nature appeared.<sup>9</sup> Within this context, a shift has occurred: whereas before 1989 the professional bodies and branches of government dealt with policy transfer, now consultancies, think tanks, and nongovernmental organizations (NGOs) tend to play a more central role (Pojani and Stead 2018). One domain in which knowledge and ideas about environment were transferred through NGOs is the relations between nature, society, and the state. The socialist technological havoc linked to intensive industrialization and brutal exploitation of natural resources produced appalling environmental consequences visible even under socialism (Pál 2017). Thus, the West provided conservation technologies, ideas about nature, and expertise to improve the state of nature. For instance, all attempts to restore areas of the Lower Danube in Bulgaria and Romania after the 1990s were made with financial support, knowledge, and experts from the World Wildlife Fund, Germany or the Netherlands (Vinke-de Kruijff et al. 2012).

Jürgen Kocka and Heinz-Gerhard Haupt (2018) reflect on the ways in which transfers of all sorts—economic, political, cultural, and ideological from one country to another, from one continent to another—unfold. They show that this flow of knowledge, experts, technologies, and ideas is not a simple movement from the West to the rest of the world, but was also negotiated and shaped by the receiving countries. Sometimes knowledge and experience did not even originate in the West but in a neighboring country, as Șerban and Dorondel show in this volume. Thus, the regional modernities—which in our view include the complex relationship between local and international experts, traveling ideas about nature and infrastructural projects, and technologies geared to appropriating nature—challenge the simplified “West created, others received” logic of development.<sup>10</sup>

### **PLANNERS, EXPERTS, AND BUREAUCRATS AS AGENTS OF CHANGE**

We distinguish between planners, experts, and bureaucrats only for analytical purposes. The planners are those experts who are also intricately linked to political power. Their authority is not just scientific but also political, and they often occupy high positions within the state (see, for instance, Dostalík 2017). They are able

to circulate ideas and plans regarding a domain of activity, a space or a territory. Sometimes these plans can be traced to a particular person or a group but there are cases in which planning is an anonymous activity and no individual can be tracked down as the mastermind behind the plan. Experts—and we specifically refer here to technoscientific experts—are both trained professionals in a science, from biology and geography to agronomy and engineering of all sorts, but also professionals who are not necessarily scientists but draw on scientific principles in their work (Kohlrausch and Trischler 2014: 8).<sup>11</sup> There are similarities and differences between planners and experts although often scholars do not discriminate between them (see, for instance, Kohlrausch and Trischler 2014; Kohlrausch 2015; Dostalík 2017). For instance, both categories are endowed with political or administrative power and work mostly for state institutions that give them the authority to make decisions in specific domains. They possess knowledge on matters that are either inaccessible or hard to grasp by laypersons (Carr 2010). Both categories solve problems that are both theoretical and practical (Dostalík 2017). They not only *know* things but they *act* based on their knowledge and authority (Carr 2010; Vandendriessche, Peeters, and Wils 2016). Yet there are differences as well. Often experts are involved in international networks and attend international scientific conferences, while planners are more usually state-oriented (Kohlrausch and Trischler 2014; Kohlrausch 2015; Dostalík 2017). Finally, by bureaucrats we mean state employees who have expert knowledge and authority granted them by the state but are expected to maintain the status quo in a certain domain rather than act to change it, as experts would do. Foresters, water technocrats, levee and agricultural technicians, and so on, are the type of bureaucrats we discuss in this book as well as their actions and outcomes (Blavascunas, chapter 9 in this volume, Janáč, chapter 6 in this volume). They are part of an administrative body, usually managing a natural resource (such as forests) at the local level, making it legible to higher offices. They are the contact point between people and the state. Bureaucrats have power that they wield in certain domains through authority bestowed on them by the state (Heyman 2004).<sup>12</sup> Similar to planners and experts, bureaucrats are part of the state's mechanisms of control, organization, and implementation of projects—they are one of the faces of the state and apostles of a new ecological order.

## **ORGANIZATION OF THE BOOK**

The first section, “Planning Territory,” explores the way that nation-states try to consolidate power in the territory by planning and organizing it. Dragana Ćorović (chapter 1) analyzes the transformation of Belgrade's changing landscape from the end of the nineteenth century up to World War I. This process comprised various

actions, such as the establishment of a land registry, city planning, educational reform, and the construction of modern infrastructure systems. George Vlachos (chapter 2) examines the monumental engineering project carried out in a southern Macedonian wetland at the beginning of the twentieth century in relation to its ethnic and national significance. By eradicating the local population's agricultural practices that were considered deeply rooted in Ottoman and Slavic systems of production, the Greek agronomists transformed the swamps into agricultural fields more suited to modern agriculture and a modern state. The aim was to replace a Slavic population with a Greek-speaking one resettled from Asia Minor. This chapter also makes an excellent link between the engineering of nature and the population exchange between two Balkan countries—a historical process characteristic of the modern Balkans. Stefan Dorondel and Anna Olenenko (chapter 3) explore the history of a Dnipro wetland in Southern Ukraine under two political regimes: tsarist and Soviet. They show that both regimes perceived wetlands as a wasteland that required permanent improvements. The chapter looks explicitly at political and economic ideas concerning the definition of productive land, the scientific knowledge involved in transforming the wetland, and the technical methods required to organize a territory.

The second section, “Nature, Economy, and Experts,” reflects on the role of experts in transforming nature for economic development purposes. Their mission is to assist the state not only in rearranging nature to follow an economic rationale—whether capitalist or socialist—but also in escaping the straitjacket of the national market and connecting with regional and international markets. Ágota Ábrán (chapter 4) presents an account of scientists who advocate the conversion of hitherto unused plants into productive ones and encourage the state, the market, and the villagers to view certain weeds as profitable medicinal plants. Alongside the conversion of weeds into commodities it was necessary to convert villagers into economically conscious gatherers and cultivators of medicinal plants. Stelu Șerban and Stefan Dorondel (chapter 5) explore the politics of damming the Lower Danube in Bulgaria and Romania and the role of experts in designing and implementing the state's plans for developing the region between 1900 and 1940. The chapter highlights different strategies to drain the floodplain in order to build an irrigation system and national grid and describes the way the two states incorporated European experts, knowledge, and technologies into these projects. Jiří Janáč (chapter 6) looks at environmental change in Czechoslovakia during the twentieth century from the perspective of a specific group of national technocratic elites—the so-called hydraulic bureaucracy, or hydrocracy. As water came to be regarded primarily as a national natural resource and a vital economic domain, hydraulic expertise became a strategic instrument in the hands of the nation-

state. The consolidation of the state was related to the construction of its water infrastructures. Jeanne Féaux de la Croix and Flora Roberts (chapter 7) show the connections between environmental and social engineering through the prism of large-scale water infrastructure projects in Tajikistan and Kyrgyzstan from 1940 to the present day. Drawing on archival research, oral histories, and ethnographic fieldwork, the chapter traces the “biographies” of five large dam-building projects across manifold economic and political changes. Appraising the legacy of late Soviet environmental and social engineering, it traces changes in the assemblage of actors, types of expertise, finance, and political decisionmakers associated with water infrastructure.

The third section, “Imaging New Nature,” establishes the consolidation of a technostate apparatus that not only organizes and manages the natural resources of a country or region but also imagines nature and projects its role onto local or regional development. Hande Özkan (chapter 8) analyzes representations of Asia Minor’s natural landscapes by exploring the distinct discourses of European experts and the Turkish bureaucracy. She reflects on the processes of anthropomorphization of forests and of naturalization of the local population and shows that the young republic’s forestry regime was central to the simultaneous projects of state building, subject formation, and nature making. Why and how a Polish forester became a champion of the Polish homeland through his logging activities in the primeval Białowieża Forest is the topic of Eunice Blavascunas’s contribution (chapter 9). The transhistorical narrative that unfolds here demonstrates that the state in Eastern Europe can facilitate and extend its expertise regarding natural forests. In Poland, the forester in Białowieża is more than just a member of the bureaucracy whose contribution helps to fulfill the expectations of the state; he is a figure who believes that Polish forests and forestry are national constructions. Vladislava Vladimirova (chapter 10) engages with an ethnographic description of an experiment to domesticate muskoxen within a reindeer herding enterprise in the Evenki village of Surinda. She shows that the scientific process of muskox domestication becomes a field of negotiation between state administration and the Evenki people and an issue of the region’s political economy. Finally, Yulian Konstantinov (chapter 11) presents an account in which humans, animals—the golden jackal (*Canis aureus*)—and infrastructural projects are all implicated in the postsocialist political transformations of a Bulgarian village. Konstantinov gives equal weight to local practitioners’ and experts’ interpretations of local history and to the jackal’s attempt to build a relationship of trust and solidarity with the author.

Stefan Dorondel and Helmuth Trischler’s epilogue shows that despite various changes in state ideologies over the past century and a half, state practices

regarding the “corrections” made to nature remained the same. These corrections brought to light the existence of what were perceived as “good” and “bad” natural environments, which are also linked to transformations of the economy and political subjects.

*A New Ecological Order* discusses a “new nature” created by the state’s intervention through its agents of change as part of regional modernities in Eastern Europe. It points to the intricate link that exists between global ideas, technologies, and experts, all of which aim to “improve” nature and local politics, economic interests, and natural environments. This link continued unabated throughout three distinct historical periods: the period of nation-state formation at the end of the nineteenth century, the socialist period, and the postsocialist period. In all three periods state planners, experts, and bureaucrats have attempted to impose global technologies and ideas on nature to serve local economic interests.

## NOTES

1. For an exhaustive literature on rivers and wetlands, see Schönach (2017).
2. Although forest exploitation has been regulated since premodern times, the complexity of management techniques has reached a completely new level since the eighteenth century.
3. Egypt was not a colony per se but during various periods it was under Ottoman and British rule. Its special status, with the Egyptian state “retaining great control over internal affairs,” led Hanan Kholoussy (2010: 688) to call Egypt a “semi-colony.”
4. For instance, in the nineteenth century, tsarist Russia forbade the construction of industrial factories, which it feared would bring revolutionary ideas (Acemoglu and Robinson 2012).
5. This paragraph is based on Jelavich and Jelavich (2000). See also Livezeanu and Klimó (2017).
6. For further details concerning agriculture, see Olšáková (2016). For nature conservation policies, see Brain (2010). For building dams, see Cretan and Vesalon (2017) and Fitzmaurice (2018).
7. The dramatic and sudden growth of urban populations in the interwar period obliged Eastern European governments to develop urban and relocative policies in order to cope with the new situation (Müller 2020: 181–85).
8. However, Greece and Turkey are not completely disconnected from the socialist political economic model. For instance, until the opening of markets in 1980, Turkey’s state-led economy was organized around five-year plans that were quite similar to the socialist economies (Celásun and Rodrik 1989).
9. David Stark (1996: 995) argues that in the postsocialist context institutions rebuilt “*not on the ruins but with the ruins* of communism.”
10. We thank Hande Özkan for this description.
11. For various other types of expertise, see Carr (2010).
12. For an anthropology of bureaucracy, see Hoag (2011).

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