

Nature, Resources, and Development: Historical Perspectives on the Global Environment

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ABSTRACTS

This article provides an overview of recent research that brings together environmental history with the history of development projects. To provide orientation within a newly emerging field, the article distinguishes between three strands of research: A. studies that focus on the notion of the environment as a resource for economic development; B. studies that analyze how political actors considered “nature” as a developmental resource that could be used to re-design societies according to political and ideological visions; and C. studies that are concerned with the ecological and social effects of developmental projects.

Dieser Artikel bietet einen Überblick zu gegenwärtiger Forschung, die die Umweltgeschichte mit der Entwicklungsgeschichte zusammenbringt. Um Orientierung innerhalb eines neu entstehenden Feldes zu bieten, unterscheidet der Artikel zwischen drei Forschungssträngen: A. Studien, die die Umwelt als Ressource für wirtschaftliche Entwicklung in den Blick nehmen; B. Studien, die untersuchen, wie politische Akteure „Natur“ als entwicklungspolitische Ressource betrachteten, die dazu dienen konnte, Gesellschaften entlang politischer und ideologischer Visionen zu gestalten; und C. Studien, die sich mit den ökologischen und sozialen Effekten von Entwicklungsprojekten befassen.

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1. Introduction

The history of development is, by now, a well-established field of research.¹ In recent years, historians working in the fields of international, colonial, and global history have studied development thinking, development practices, and development conflicts across the globe, with an emphasis on the twentieth century, and with an increasing appreciation of the long and diverse roots of these phenomena and the plurality of actors and interests involved. One field of inquiry that is notably missing from most of the existing accounts is nature, or the natural environment. Very few articles and chapters exist that carry the terms “development”, “nature”, and “environment” in the title. Tellingly, the *Routledge Handbook on the History of Development*, which covers a large number of themes relevant to development, lacks a chapter on the environment. Given the massive effects many development projects – from irrigation to dam-building, from land reform to the construction of transport infrastructures, from tin mining to the establishment of fishing industries – have had on the planet, and the dependence of economic growth and social life on the existence of so-called natural resources, this is a grave shortcoming. Current debates about the notion of the Anthropocene and growing concern about the speed with which climate change is happening have triggered many historians’ awareness that “nature” is not just another topic one can choose to study or decide not to study. These days, even those who are most removed from any kind of environmental history are coming to acknowledge that nature is crucial to all human and non-human life, and constitutive of the world we live in. Thus, the call to make the natural environment a category of historical analysis like any other – politics, gender, economy, class, culture, ideas – is falling on increasingly fertile ground. Environmental history is seeing a shift from being a sub-discipline to becoming a key research field that attracts scholars from a variety of backgrounds.²

Thus the time seems ripe to incorporate the environment more fully into the investigation of the history of development, and vice versa. To bridge the gap between the two fields, and to allow for a meaningful discussion that goes beyond complementing existing research, it is important to reconsider some of the main assumptions about what “development” and “environment” are, and in which settings and on which scales they can best be studied. This entails the need to rethink the character of the two concepts and the implications their characterization in historical research has had on the study of the two fields.

1 For a historiographical overview, see C. R. Unger/I. Borowy/C. A. Pernet, *The History of Development: A Critical Overview*, in: idem (eds.), *Routledge Handbook on the History of Development*, Abingdon 2022, pp. 3–16.

2 Cf. M. Arndt, *Environmental History*, *Dokupedia Zeitgeschichte* (23 August 2016), <http://dx.doi.org/10.14765/zzf.dok.2.700.v3> (accessed 20 May 2022), p. 8. See also A. Frank Johnson, *Europe without Borders: Environmental and Global History in a World after Continents*, in: *Contemporary European History* 31 (2022) 1, pp. 129–141; A. Acker/L. Warloutet, *From the Globe to the Planet? New Challenges of Global and Environmental History*, in: *Monde(s)* 21 (2022) 1, pp. 21–46.

2. Development and Environment: Conceptual Considerations

The understanding of development that informs most of the existing studies on the history of development is “Big D” development along the lines economist and geographer Gillian Hart has defined it in a 2009 article. According to Hart, “Big D” development stands for “the multiply scaled projects of intervention in the ‘Third World’ that emerged in the context of decolonization struggles and the Cold War”.³ This is a useful characterization that allows historians of development to delineate their object of study from research that is more broadly interested in what Hart defines as “Little d” development: “the development of capitalism as geographically uneven but spatially interconnected processes of creation and destruction, dialectically interconnected with discourses and practices of Development”.⁴ In other words, the understanding of development with a capital D emphasizes the future-directed character of development thinking and the importance of planning and designing interventions into existing socioeconomic structures to achieve a specific form of development.⁵

While the general distinction is valuable, Hart’s definition of Development remains somewhat limited, as it assumes that developmental interventions were predominantly carried out by Northern and/or Western actors in the so-called Global South after 1945. This understanding is similar to the one that was predominant in the first phase of historical research on development in the 2000s, which focused on the development and modernization ideas of American actors in the Cold War context. In recent years, many historians have traced the roots of development thinking back to the interwar period (at the very least), and they have emphasized the influential role of European colonial administrators as well as scientific experts, religious groups, politicians, and entrepreneurs from around the globe – including the socialist world – in shaping the understanding of development as it emerged in the mid-twentieth century.⁶

How can nature and the environment be conceptualized with a view to this kind of development understanding? Broadly speaking, we can distinguish between natural history and environmental history. While natural history is a natural science approach that focuses on the study of the biological world, environmental history is “the history of the changing mutual relationship between humankind and nature.”⁷ This understanding implies a distinction between the human and the non-human world that identifies non-

3 G. Hart, D/developments after the Meltdown, in: *Antipode* 41 (2009) Supplement 1, pp. 117–141, at 119.

4 Ibid.

5 Cf. K. Gardner, *Anthropology and Development*, in: J. MacClancy (ed.), *Exotic No More: Anthropology for the Contemporary World*, 2nd edn, Chicago 2019 (2002), pp. 193–207, at 194.

6 See, among others, F. Cooper, *Development, Modernization, and the Remaking of an Imperial Order*, in: *Yearbook for the History of Global Development* 1 (2022), pp. 81–101; D. Freeman, *Entangled Histories of “Development”, “development”, and “Christian development”*, in: *Yearbook for the History of Global Development* 1 (2022), pp. 59–80; E. Helleiner, *Where Did the Idea of International Development Come From? Looking Beyond the Industrialized Core*, in: *Yearbook for the History of Global Development* 1 (2022), pp. 37–57; A. M. Kalinovsky, *Numbers in Space: Measuring Living Standards and Regional Inequality in the Soviet Union*, in: *Yearbook for the History of Global Development* 1 (2022), pp. 155–181.

7 Arndt, *Environmental History*, p. 1.

human species as “nature”. The notion of “nature” as a realm separate from human life is a highly anthropocentric construction. For the longest time, human animals lived in and with the natural world, and alongside other animals. Under the so-called Biological Old Regime, which was in place until the early modern period, the human condition depended on “the annual flows of solar energy to supply the four necessities of life: food, fuel, clothing, and housing.”⁸ The Columbian Exchange – the connection of the “old world” with the “new world” via trade, foreign rule, resource extraction, and disease – marked the beginning of a transition phase in which the dependence of human beings on the natural world’s cycles began to be reduced by designs that overrode natural settings.⁹ It was the complex interaction between the rise of the natural sciences, technological developments, and the socio-economic and spatial re-arrangements associated with industrialization and state-building in the modern era that allowed the idea to emerge that human life could be abstracted from its material and natural surroundings.¹⁰ Closely tied to the emergence of evolutionary theories, the argument that “mankind” had succeeded in overcoming the allegedly archaic rules of the natural world drove a sense of superiority that served to legitimize conquest and exploitation.¹¹ Informed by theories about “racial” difference, European and American scientists in the nineteenth and early twentieth centuries argued that the alleged level of civilization could be assessed, among other factors, by individuals’ and societies’ proximity to “nature” and, by proxy, by their distance to “culture”.¹²

The nature-culture divide has been deconstructed in past decades by scholars in a variety of fields, from literature to critical race theory to colonial history. Yet for all the critique the concept has been subjected to, it is difficult to overcome it entirely because it has been so constitutive to the self-understanding of human actors in the modern world. The concept of development as a way of designing socio-economic relations is built on the notion that human behavior is not limited by natural factors. The exceptional economic growth many industrial societies witnessed in the post-World War II decades produced the notion of independence from material constraints.¹³ This, in turn, led to an optimistic sense of being able to implement the most ambitious development visions without having to worry, or even to think, about the finite nature of natural and, in today’s parlance, planetary resources.

8 R. B. Marks, *The (Modern) World since 1500*, in: J. R. McNeill/E. S. Mauldin (eds.), *A Companion to Global Environmental History*, Malden 2012, pp. 57–78, at 58.

9 Cf. *ibid.*, pp. 59–60.

10 Cf. J. Radkau, *Nature and Power: A Global History of the Environment*, Thomas Dunlap (trans.), Cambridge 2008 (2002), chapter 2; Marks, *The (Modern) World since 1500*.

11 W. Reinhard, *Die Unterwerfung der Welt: Globalgeschichte der europäischen Expansion, 1415–2015*, Munich 2021 (2016).

12 W. Beinart/C. Hughes, *Environment and Empire*, New York 2007; U. Kirchberger/B. M. Bennett (eds.), *Environments of Empire: Networks and Agents of Ecological Change*, Chapel Hill 2020; C. Ross, *Ecology and Power in the Age of Empire: Europe and the Transformation of the Tropical World*, Oxford 2017.

13 See, among others, C. Pfister, *The “1950s Syndrome” and the Transition from a Slow-Going to a Rapid Loss of Global Sustainability*, in: F. Uekötter (ed.), *Turning Points in Environmental History*, Pittsburgh 2010, pp. 90–117.

Historians have largely followed the historical actors' pronounced disinterest in the physical, material elements of development. Most existing histories of development focus on individuals who conceptualized development approaches by intellectual means and in academic or administrative settings, far removed from the localities in which the availability of so-called natural resources would have had a direct impact on their thinking, and on governments and international organizations that, for a long time, were primarily interested in the economic growth rates reported back to them. The environment played a marginal role in those accounts at best, merely serving as a backdrop of development plans and projects, if considered at all.

This selective perspective was supported by the strong ideological critique that has characterized social scientific and historical research on development for many years. James Ferguson's *The Anti-Politics Machine*, Wolfgang Sachs's *Development Dictionary*, Gilbert Rist's *The History of Development*, Arturo Escobar's *Encountering Development*, and James Scott's *Seeing Like a State* promoted interpretations of development that emphasized the technologies with which hegemonic actors tried to implement their development visions against the will of the people whose livelihoods were affected by the (intended or unintended) consequences of developmental interventions.¹⁴ This was, in essence, a view that, following Foucault, focused on discursive formations mirroring political and economic inequalities, and that was intent on exposing the allegedly malign nature of development as a philanthropic disguise for geopolitical interests and exploitative capitalist strategies. Consequently, many authors argued that the entire development apparatus that had come into institutional existence over the course of the twentieth century needed to be dismantled.¹⁵

The strong emphasis on the knowledge-power nexus was immensely helpful in challenging the image of philanthropic donors and (un)grateful recipients of development assistance. It opened up the view to the variety of political uses development had in a variety of circumstances, from the colonial period to the Cold War context to structural adjustment policies and the liberalization of markets and societies in post-1989 Eastern Europe. However, the critical scholarship on development by and large replicated the self-image of Western or, more precisely, Northern development actors as being in control of development, and of development as an intellectual and institutional struggle far removed from the realities of life in the so-called Global South. As Frederick Cooper noted in 2010, the critique of development as a governance tool ran the risk of denying development opportunities to those who might, in fact, desire them: "critiques do not bring piped water to people who lack it; they do not ease the burdens of women caught between rural patriarchies and urban exploitation; they do not distribute read-

14 A. Escobar, *Encountering Development: The Making and Unmaking of the Third World*, Princeton 1995; J. Ferguson, *The Anti-Politics Machine: "Development", Depoliticization, and Bureaucratic Power in Lesotho*, Cambridge 1990; G. Rist, *The History of Development: From Western Origins to Global Faith*, London 1997; W. Sachs (ed.), *The Development Dictionary*, London 1992; J. C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, New Haven 1998.

15 Cf. Gardner, *Anthropology and Development*, pp. 201–203.

ily available antidotes to childhood diarrhoea [sic] and malaria in areas of high infant mortality.”¹⁶ These aspects of development proved difficult to analyze for scholars who were predominantly trained to study ideas and arguments. Historians of development repeatedly mentioned the need to move from the intellectual history of development to the material history of development but rarely realized this agenda.¹⁷

Some exceptions to the latter statement can be found in the works of historians specializing in particular regions. For example, historian of Latin America Barbara Weinstein, in her 2008 article “Developing Inequality”, argued that the historical study of development should not be limited to the analysis of development discourse and the linguistic deconstruction of images of “backwardness”. Rather, the *economic* inequality that existed within many so-called developing countries needed to be taken seriously. Weinstein suggested an approach that combined economic history with cultural history, and applied it to the study of the origins of Brazil’s divide into an urban, industrial region constituted by the city and state of São Paulo, and a rural, agricultural region in the North that served as the feeder to the former and was considered backward and peripheral. As Weinstein argued, this stark interregional divide, which continues to exist until this day, was neither a “natural” given based on geography and climate nor solely the result of an elite imagining “the Other”. Rather, she demonstrated, the internal division of Brazil and the emergence of a specific regional identity that became the national norm were the result of the Brazilian elite’s political decisions regarding economic development that were informed by cultural and racial assumptions about population groups, with the two elements reinforcing each other.¹⁸

Weinstein’s call to pay more attention to the economic side of things without falling into the trap of economic determinism has come to fruition since. The financial crisis of 2008 triggered a debate about the future of capitalism and the challenges of dramatically increasing economic inequality within societies and across the globe. Over the course of the past decade, a large number of publications have appeared that use the lens of so-called natural resources to study the emergence of global capitalist structures.¹⁹ At least indirectly, and in some cases directly, the new histories of capitalism, particularly those focusing on commodities, have re-directed attention to the history of resource extraction (mining), infrastructure projects (hydroelectric dams, but also roads and harbors), and, more generally speaking, the interrelation between human societies and the environment.²⁰

16 F. Cooper, *Writing the History of Development*, in: *Journal of Modern European History* 8 (2010) 1, pp. 5–23, at 6.

17 See, for example, D. C. Engerman/C. R. Unger, *Introduction: Towards a Global History of Modernization*, in: *Diplomatic History* 33 (2009) 3, pp. 375–385, at 383.

18 B. Weinstein, *Developing Inequality*, in: *American Historical Review* 113 (2008) 1, pp. 1–18.

19 M. Aso, *Rubber and the Making of Vietnam: An Ecological History, 1897–1975*, Chapel Hill 2018; S. Beckert, *Empire of Cotton: A Global History*, New York 2014; G. T. Cushman, *Guano and the Opening of the Pacific World: A Global Ecological History*, Cambridge 2013; G. Mitman, *Empire of Rubber: Firestone’s Scramble for Land and Power in Liberia*, New York 2021.

20 See S. Beckert et al., *Commodity Frontiers and the Transformation of the Global Countryside: A Research Agenda*, in: *Journal of Global History* 16 (2021) 2, pp. 435–450, and the responses to the article in the same issue;

One strand of research that has been particularly active in this regard is agricultural history. While for a long time many contemporary historians considered agriculture outdated and irrelevant, in recent years agricultural history has been revived and refreshed in a variety of ways. Given the relevance of food production and food security in modern societies, and the continuously large numbers of individuals who, throughout the twentieth century, lived and worked in rural and agricultural contexts, the history of agriculture has been “rediscovered” as a highly political field of research.²¹

With regard to the history of development, agricultural history is particularly relevant, seeing that most of the so-called developing regions and countries were producers of food crops and raw materials that were needed globally. Colonial and imperial powers competed for influence over territories that were considered valuable for growing and extracting certain products. Companies and governments invested into efforts to maximize the extraction of so-called natural resources. Scientific research into botany, plant physiology, soil types, and other fields related to agricultural production boomed in the late nineteenth and early twentieth centuries, with a large amount of research being carried out by scientists working for colonial governments and research institutes in the colonies. It would be shortsighted to consider the exploitation of natural resources as a one-directional enterprise driven by European science and technology. However, there can be no doubt that European colonial and imperial structures and interests played an important role in establishing the idea that Asia, Africa, Australasia, and Latin America were resource-rich but economically underdeveloped continents that awaited exploitation by “modern” means.²²

It is against this historiographical background that in recent years there has been a notable trend toward investigating the environmental and ecological aspects of development policies and projects more systematically.²³ Broadly speaking, we can distinguish between three strands of research, not all of which come from the field of the history of development more narrowly defined but relate to development questions: A. studies that focus on the notion of the environment as a resource for *economic* development; B. studies that analyze how political actors considered “nature” as a developmental resource that

S. Hazareesingh/H. Maat (eds.), *Local Subversions of Colonial Culture: Commodities and Anti-Commodities in Global History*, Basingstoke 2015.

- 21 For overviews, see H. Maat, *Agriculture and Food Production*, in: Unger et al. (eds.), *Routledge Handbook of the History of Development*, pp. 190–203; C. R. Unger/L. van de Grift/D. Müller, *Living with the Land: Introduction*, in: idem (eds.), *Living with the Land: Rural and Agricultural Actors in Twentieth-Century Europe – A Handbook*, Berlin 2023, pp. 1–13. Some of the scholars working in these fields embrace the concept of New Materialism while others are more critical of it. For an overview, see K. Lipartito, *Reassembling the Economic: New Departures in Historical Materialism*, in: *American Historical Review* 121 (2016) 1, pp. 101–139. For a discussion on the concept’s value for the history of agriculture, and on the concept’s limits and challenges, see the roundtable in *Agricultural History* 96 (2022) 1–2.
- 22 See Kirchberger/Bennett (eds.), *Environments of Empire*. A more Europe-centric account is offered by Ross, *Ecology and Power in the Age of Empire*. The classical study that precedes recent publications in this field is A. W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900–1900*, Cambridge 1986.
- 23 For a first historiographical overview on the case of Mexico, see F. Schulze, *Developmentalism and Environment in Twentieth Century Mexico*, in: *IberoAmericana* 19 (2019) 72, pp. 249–259.

could be used to re-design societies according to *political and ideological* visions; and C. studies that are concerned with the *ecological and social* effects of developmental projects. Clearly these categories are not mutually exclusive, but they can serve as an orientation in delineating the emerging field.

3. The Environment as a Resource for Economic Development

Much has been written on the understanding of “nature” offering unlimited supplies for the production and consumption of goods, and the ways in which this thinking translated into the increasingly exploitative approach to using natural resources as the basis for economic development. As noted above, one strand in this field of research is driven by an interest in the emergence of global capitalist structures. For example, Gavin Bridge and Tomas Fredriksen study how the British colonial government and British entrepreneurs in the early twentieth century identified a tin basin in Northern Nigeria and set out to exploit the tin as efficiently as possible. Tin-mining had been practiced in the region in earlier times by local entrepreneurs, but only in the context of British rule did the Jos Plateau become the site of systematic extraction. Bridge and Frederiksen are interested in “the *actual practices* by which nature and place came to be known and re-constituted by colonial and corporate interests”.²⁴ Implicitly referencing Schumpeter, they interpret the British efforts in northern Nigeria as an example of the “creative-destructive energies of modernisation [that] were transmitted to the edge of Empire.”²⁵ Hence, their interpretation of the ecological effects the intensification of tin mining had on the Jos Plateau – from water pollution to soil erosion, from population growth driven by labor needs to food shortages caused by siltation – is, to a large degree, a study in the destructive environmental effects of capitalist structures that were introduced by European actors to non-European spaces.

Similar work exists for Latin America, where the notion of the periphery’s economic underdevelopment due to the economic exploitation by the industrial core is part of a long tradition of political discourse and historical writing broadly summarized under the notion of dependency theory.²⁶ In recent years, some historians have challenged this diffusionist, linear notion by studying how Latin American actors (rather than European ones) identified their countries’ natural resources as crucial for their nations’ economic development. For example, Teresa Cribelli analyzes the efforts of scientists and entrepreneurs in late nineteenth-century and early twentieth-century Brazil to identify natural materials like wood, fibers, and resins for export. Their rationale was that increased exports would improve Brazil’s international economic standing and make the country

24 G. Bridge/T. Frederiksen, “Order out of Chaos”: Resources, Hazards and the Production of a Tin-Mining Economy in Northern Nigeria in the Early Twentieth Century, in: *Environment and History* 18 (2012) 3, pp. 367–394, at 368.

25 Ibid., p. 371.

26 For an overview, see R. Merino, Resource Governance, in: Unger et al. (eds.), *Routledge Handbook on the History of Development*, pp. 204–218.

more self-sufficient and powerful.²⁷ Cribelli shows that the exploitation of nature was part of a nation-building project whose elite representatives took the infinite availability of natural resources for granted.

As this kind of research suggests, the ecologically destructive trends inherent in the intensified use of natural resources cannot be solely understood by looking at unequal power relations between colonizers and colonized, or between “core” and “periphery”. To avoid teleological interpretations that draw a straight line from European colonial exploitation to environmental destruction brought unto so-called developing countries by imperial powers or multinational companies, historians need to engage with the multiplicity of actors and interests involved. This includes studying the different types of knowledge about the natural environment more systematically. For example, Cribelli demonstrates that Brazilian scientists drew heavily on indigenous knowledge, and that this knowledge left its mark on the ways in which Brazil’s national and international economy developed. Similar work is currently being done on a number of different countries and regions by historians of environment and development.²⁸

Importantly, the goal of increasing yields did not necessarily mean that as many trees as possible were exploited. Economic development approaches in many cases entailed conservationist practices, too.²⁹ Yet the overarching rationale of conserving and protecting natural spaces was that these measures would secure and increase yields in the long run, thus reproducing the exploitative notion inherent in economic development of this kind.

4. Using Nature to Achieve Political Development Goals

The second strand of research is constituted by historians who, broadly speaking, work in the field of political history. They are predominantly interested in how political agendas have played out in developmental interventions into nature. A key example is David Blackbourn’s *The Conquest of Nature*, a diachronic account of the history of German politicians’ and administrators’ efforts to reshape nature and remake Germany’s landscape through interventions into existing water systems.³⁰ Blackbourn’s examples range from Prussian “amelioration” efforts in the eighteenth century to the regulation of the Rhine river in the nineteenth century to the National Socialists’ plans for draining marshes in Eastern Europe. The author argues that the various interventions into nature, which

27 T. Cribelli, “These Industrial Forests”: Economic Nationalism and the Search for Agro-Industrial Commodities in Nineteenth-Century Brazil, in: *Journal of Latin American Studies* 45 (2013) 3, pp. 545–579.

28 See, among others, the contributions in Kirchberger/Bennett (eds.), *Environments of Empire*.

29 See, for example, W. Beinart, *Soil Erosion, Conservationism and Ideas about Development: A Southern African Exploration, 1900–1960*, in: *Journal of Southern African Studies* 11 (1984) 1, pp. 52–83; G. T. Cushman, “The most Valuable Birds in the World”: International Conservation Science and the Revival of Peru’s Guano Industry, 1909–1965, in: *Environmental History* 10 (2005) 3, pp. 477–509; K. Sivaramakrishnan, *Scientific Forestry and Genealogies of Development in Bengal*, in: P. Greenough/A. Lowenhaupt Tsing (eds.), *Nature in the Global South: Environmental Projects in South and Southeast Asia*, Durham 2003, pp. 253–277.

30 D. Blackbourn, *The Conquest of Nature: Water, Landscape, and the Making of Modern Germany*, New York 2006.

were based on increasingly sophisticated engineering technologies, mirrored the political agendas of the actors at the time. His account shows that “the environment” never was a neutral arena but a heavily contested one, and that the landscape bore the physical imprint of social, cultural, and political norms and values. Intervening into nature in the name of development was both an end in itself and a means of presenting to the public the ability to control nature.

Research on the environmental visions and policies of the German and the Italian fascists has made this dual character most visible. In their plans to build fascist empires, both regimes granted a central role to the environment, and they carried out a large number of development projects that relied on and were expressed in interventions into nature.³¹ For example, Roberta Biasillo has shown how the Italian fascist regime tried to stabilize its reign over colonial Libya by means of transforming the country’s environment. The Italian experts and administrators involved aimed to engineer Libyan environmental conditions in a way that would allow for the large-scale settlement of Italian migrants, and to introduce agricultural methods that were in line with fascist ideas about the allegedly Italian superiority in terms of socioeconomic structures, “racial” characteristics, and relation to the land. In practice, the Italian interventions were short-lived but had lasting consequences. They did not stop at the eradication of indigenous plants to make space for Italian ones, or at the introduction of Italian livestock and machinery that marginalized Libyan agricultural practices. They also implied the violent expulsion of Arab settlers in the name of creating space for Italian agricultural communities that, allegedly, represented the Italian spirit.³² These and similar analyses make clear that the notion of development was rarely a benign one. Yet the promise of a heroic future held great attraction to many, and the sense of human superiority over nature, including the allegedly “lower races” who were considered to be closer to the natural world, spoke to the eugenic beliefs and the biological racism of the time.

A very different ideological approach resulted in similar practices, as research on the Soviet Union’s development policies and practices and their underlying understanding of nature shows. For example, in the 1920s and 1930s, Soviet engineers, with support from international private corporations, planned and carried out large-scale infrastructure projects throughout the USSR, among them hydroelectric dams, irrigation systems, and agricultural extension. The projects were supposed to contribute to achieving a number of interrelated goals: spurring the industrialization process, increasing agricultural production, speeding up the “modernization” of rural society, and establishing control

31 See, among others, M. Armiero/R. Biasillo/W. Graf von Hardenberg, *La natura del duce: Una storia ambientale del fascismo*, Torino 2022; M. Armiero/W. Graf von Hardenberg, *Green Rhetoric in Blackshirts: Italian Fascism and the Environment*, in: *Environment and History* 19 (2013) 3, pp. 283–311; F. Uekötter, *The Green and the Brown: A History of Conservation in Nazi Germany*, Cambridge 2006.

32 Cf. R. Biasillo, *Socio-Ecological Colonial Transfers: Trajectories of the Fascist Agricultural Enterprise in Libya (1922–43)*, in: *Modern Italy* 26 (2021) 2, pp. 181–198. Similarly, see M. Sollai, *How to Feed an Empire? Agrarian Science, Indigenous Farming, and Wheat Autarky in Italian-Occupied Ethiopia, 1937–1941*, in: *Agricultural History* 96 (2022) 3, pp. 379–416.

over it.³³ With the onset of the Cold War, the degree of radicalism with which nature was instrumentalized to pursue political and strategic goals increased even further. The ecological, social, and cultural costs associated with the exploitation and re-design of nature and the effects of those interventions on the inhabitants of the locations in question received little attention at best. What mattered was control over nature, which was closely tied to control over society.³⁴

At this point, it is necessary to mention one of the most influential arguments about the nexus between political power and control over natural resources, especially water: Karl Wittfogel's theory of the hydraulic society, which he first proposed in the 1930s. Wittfogel, a committed communist at the time, argued that establishing control over water resources presented the key to the establishment of an effective bureaucratic apparatus run by the state. Persecuted by the National Socialists, Wittfogel fled to the United States, where he turned staunchly anti-communist and revised his theory into one that was informed by his critique of the USSR as a totalitarian state. In his 1957 book *Oriental Despotism*, he argued that state control over water for irrigation purposes morphed into totalitarian control of society.³⁵ Wittfogel's concept has been debated and challenged by scholars from a variety of disciplines ever since it was presented. Historians have gone to great lengths to argue that the theory did not translate into practice as neatly as suggested. For all of the efforts by government actors and administrators at different points in history and in different parts of the world to use the conquest of nature as a tool of power, there have been very few cases in which the effects were as clear-cut as expected.³⁶ More generally speaking, while interventions into nature certainly did change spatial, social, economic, and power arrangements, they rarely did so in ways that would have resulted in full control by the regime in power over the respective regions and their inhabitants.³⁷ This is a finding that has been fruitfully applied in Eastern European history, a field that in recent years has seen a rapid rise in research environmental issues, many of which were, as has been noted above, related to development projects in the widest sense.³⁸ For example, Julia Obertreis has studied how critics of the environmental effects

33 See, among others, M. Peterson, US to USSR: American Experts, Irrigation, and Cotton in Soviet Central Asia, 1929–1932, in: *Environmental History* 21 (2016) 3, pp. 442–466.

34 Cf. P. Josephson, War on Nature as Part of the Cold War: The Strategic and Ideological Roots of Environmental Degradation in the Soviet Union, in: J. R. McNeill/Corinna R. Unger (eds.), *Environmental Histories of the Cold War*, New York 2010, pp. 21–49. Also see idem, Introduction: The Stalin Plan for the Transformation of Nature, and the East European Experience, in: D. Olšáková (ed.), *In the Name of the Great Work: Stalin's Plan for the Transformation of Nature and Its Impact in Eastern Europe*, New York 2016, pp. 1–41.

35 K. A. Wittfogel, *Oriental Despotism: A Comparative Study of Soviet Power*, New Haven 1957. On Wittfogel and his theory, see Radkau, *Nature and Power*, p. 91.

36 See C. Sneddon, *Concrete Revolution: Large Dams, Cold War Geopolitics, and the US Bureau of Reclamation*, Chicago 2015, 148; C. Teichmann, *Leviathan on the Oxus: Water and Soviet Power on the Lower Amu Darya, 1920s to 1940s*, in: N. B. Breyfogle (ed.), *Eurasian Environments: Nature and Ecology in Imperial Russian and Soviet History*, Pittsburgh 2018, pp. 97–112.

37 See V. Lagendijk, *Infrastructures*, in: Unger et al. (eds.), *Routledge Handbook on the History of Development*, pp. 161–173.

38 For an overview, see N. B. Breyfogle, *Toward an Environmental History of Tsarist Russia and the Soviet Union*, in: idem (ed.), *Eurasian Environments*, pp. 3–19.

of resource exploitation began to make themselves heard in Soviet academic and political circles in the mid-1970s. There had been plans to divert the flow of Siberian rivers to feed the Aral Sea, which was experiencing dramatic siltation because its main feeders had been canalized for irrigation purposes in order to increase cotton production. The growing critique and the dire warnings of the ecological and health effects of such a measure in the 1970s and 1980s undermined the approach, and the central government stopped the plans for Central Asia's river diversion in 1986.³⁹

Overall, however, many river development projects took place against the will of the inhabitants of the regions in question. Importantly, this was true not only of authoritarian settings but also of democratic ones. The representatives of the most famous river development project, the Tennessee Valley Authority (TVA) in the United States, succeeded in presenting their efforts as an inherently democratic form of rural development.⁴⁰ Yet in practice the TVA contained many non-democratic characteristics, with in-built racism as just one of them.⁴¹ The notion of a technocratic elite deciding on the development path for a country or region was pronounced in mid-twentieth century Western Europe, too. The fascination with modern, industrial lifestyles and consumer practices drove energy demand, and the understanding that rural spaces were backward and in need of infrastructural projects that would connect them with cities as the progressive centers of the nation convinced politicians that interventions were necessary. The construction of a plethora of smaller and bigger hydroelectric dams was one of the responses, some of them funded by national governments, others by transnational ones like the European Investment Bank.⁴²

In parallel, many of the newly independent countries in Africa and Asia embraced rapid industrialization plans in the 1950s and 1960s, which encouraged the building of hydroelectric dams, often with financial support from international organizations like the World Bank or from national governments (capitalist and socialist) as part of development assistance programs.⁴³ The Cold War competition over influence on the former colonies led to a veritable race among providers of technical and financial resources to identify opportunities to fund such projects, hoping that the physical presence would also have favorable political repercussions.⁴⁴ The fact that the inhabitants of the places

39 J. Obertreis, *Soviet Irrigation Policies under Fire: Ecological Critique in Central Asia, 1970s–1991*, in: Breyfogle (ed.), *Eurasian Environments*, pp. 113–129, at 123–124.

40 D. Ekbladh, *The Great American Mission: Modernization and the Construction of an American World Order*, Princeton 2009.

41 N. Grant, *TVA and Black Americans: Planning for the Status Quo*, Philadelphia 1990; R. Rook, *Race, Water, and Foreign Policy: The Tennessee Valley Authority's Global Agenda Meets "Jim Crow"*, in: *Diplomatic History* 28 (2004) 1, pp. 55–81.

42 See J. Cellini, *Banks and Environmental Protection: The History of the European Investment Bank's Environmental Strategy from the 1970s to the 1990s*, unpublished manuscript, January 2023.

43 See V. Legendijk/F. Schulze (eds.), *Dam Internationalism: Rethinking Power, Expertise and Technology in the Twentieth Century*, London 2023 (forthcoming).

44 N. Cullather, *Damming Afghanistan: Modernization in a Buffer State*, in: *The Journal of American History* 89 (2002) 2, pp. 512–537; P. Josephson, *Introduction: The Stalin Plan for the Transformation of Nature in Czechoslovakia*, in: Olšáková (ed.), *In the Name of the Great Work*, pp. 1–41; V. Legendijk, *Divided Development: Post-War*

that were flooded to create reservoirs for electricity production lost their homes and, in many cases, their livelihoods, was not considered a problem for a long time. National development trumped individual aspirations. Neither were the ecological consequences taken seriously, given the overarching need for economic growth – a goal that was shared across all ideological and political divides.

5. The Ecological and Social Effects of Development Projects

Following the perspectives of the historical actors at the time, the emphasis on the political and economic interests tied to dam-building and similar infrastructural interventions into nature for a long time has overshadowed the environmental implications these projects had on the specific localities. Environmental historians have paid more attention to this issue. For example, in his book *Drowned and Dammed*, Rohan D'Souza analyzes the political economy of development efforts in the framework of what he calls colonial capitalism. Specifically, he studies how British administrators throughout the nineteenth and early twentieth centuries tried to control the flow of rivers in Eastern India in order to realize their economic and political interests. As D'Souza demonstrates, the British irrigation efforts in India were more than just technical engineering projects reflecting colonial political agendas: They had real and lasting consequences on the natural environment in that they resulted in a turn from "a *flood-dependent* agrarian regime into a *flood-vulnerable* landscape".⁴⁵ This shift affected the local and regional ecology and ecosystems in lasting ways, which, in turn, changed the lives and livelihoods of the region's inhabitants.

Similarly, Thomas Robertson, in an article on the effects of post-1945 American development assistance programs, shows how a US development project in a Nepalese valley had long-term consequences on the local environment. The Rapti Valley was "discovered" by US foreign policy observers in the 1950s. As part of their efforts to prevent the spread of communism, they advocated the socioeconomic modernization of the valley, which, they believed, had been inhibited by the presence of malaria-carrying mosquitoes. The wide-scale application of DDT seemingly solved this problem by eradicating malaria. A large number of migrants moved into the newly inhabitable space. To practice agriculture, the immigrants "cut down trees, diverted streams, and, with the help of American tractors, ploughed under the area's distinctive grasses." As wildlife disappeared rapidly due to these interventions, agricultural production increased exponentially. With some exceptions, the new settlers fared much better than the indigenous inhabitants, who lost

Ideas on River Utilisation and Their Influence on the Development of the Danube, in: *The International History Review* 37 (2015) 1, pp. 80–98; Sneddon, *Concrete Revolution*; R. P. Tucker, *Containing Communism by Impounding Rivers: American Strategic Interests and the Global Spread of High Dams in the Early Cold War*, in: McNeill/Unger (eds.), *Environmental Histories of the Cold War*, pp. 139–163.

45 R. D'Souza, *Drowned and Dammed: Colonial Capitalism and Flood Control in Eastern India*, New Delhi 2006, p. 2. Italics in the original.

their land and livelihoods as “environmental change made herding and traditional construction methods impossible”.⁴⁶

In many cases, the problematic ecological and social effects of development projects did cause concern and conflict among the actors involved – yet not so much because of the destruction of nature and people’s livelihoods but because of the perceived political and strategic failure. For example, German colonial administrators and engineers in the late nineteenth and early twentieth centuries tried to build a port in Swakopmund in Southern Africa that would serve as the bridgehead of the German colony. However, their engineering work faced continuous challenges from the attacks of salt water, sand, and naval shipworms, which ate away the wooden piers they built. All of the environmental challenges brought on only seem to have reinforced the German administration’s will to conquer nature by whatever means necessary. As Martin Kalb shows in his account of the case, the trust in the power of technology, the sense of racial and civilizational superiority, and the political interest in securing a German colony in Southern Africa resulted in continuous budget increases for the undertaking until the First World War put an end to it.⁴⁷

Many other examples exist that speak of a paradoxical understanding of the relationship between environment and development: On the one hand, the environment in a given place was regarded as a strategic resource on which development seemed to be depending; on the other hand, the environmental degradation many extractive development projects entailed presented a clear challenge to the sustainability of a given development approach. For example, in their history of pesticide use in tobacco production in Southern Rhodesia, Elijah Doro and Sandra Swart detail how the British authorities after World War II advocated the large-scale use of synthetic pesticides to increase tobacco yields in Southern Rhodesia. The fact that the application of pesticides presented a grave health hazard to the Black workers did not seem to have concerned the white tobacco farm owners or the political administrators. Racist assumptions about the alleged characteristics of Black people and pronounced disregard for their well-being produced a situation in which intensified tobacco production appeared as an economic strategy that would benefit Southern Rhodesia’s white settler minority. Only when health concerns by tobacco consumers in Europe grew more pronounced did the first steps towards restricting the use of pesticides in tobacco production set in.⁴⁸ Concern about the environment as such – about functioning ecosystems, biodiversity, and resilience – played a secondary role at best.

46 T. Robertson, *Cold War Landscapes: Towards an Environmental History of US Development Programmes in the 1950s and 1960s*, in: *Cold War History* 16 (2016) 4, pp. 417–441, at 440.

47 M. Kalb, *Water, Sand, Molluscs: Imperial Infrastructures, the Age of Hydrology, and German Colonialism in Swakopmund, Southwest Africa, 1884–1915*, in: *Environment and History* 26 (2020) 2, pp. 175–206.

48 Cf. E. Doro/S. Swart, *A Silenced Spring? Exploring Africa’s “Rachel Carson Moment”: A Socio-Environmental History of the Pesticides in Tobacco Production in Southern Rhodesia, 1945–80*, in: *International Review of Environmental History* 5 (2019) 2, pp. 5–39.

6. Conclusion and Outlook

As this selective overview of recent research suggests, incorporating the environment as a key category of analysis has the potential to go far beyond merely adding an overlooked element in the history of development. The different approaches and accounts indicate that understandings of the environment play a crucial role in conceptualizing what the future of a given region or country should be, and thereby co-determine development interventions. In this issue, a number of articles demonstrate how environmental history perspectives can be applied to different historiographical fields and historical topics in fruitful ways.

Rohan D'Souza provides a historiographical analysis of how political discussions in South Asia since the 1970s have influenced and co-shaped historical interpretations about the role of the environment in the regional or national development process. As he shows, none of the three approaches he identifies was neutral with regard to the importance its representatives gave to nature; each reflected a specific understanding of the relevance of "nature" to the past and to the future of South Asia. His analysis makes clear how deeply rooted development thinking is in (implicit) assumptions about the nature of the environment, and how much the latter are a reflection of a society's self-understanding at a given historical moment.

Tomás Bartoletti's article takes up this notion by demonstrating the degree to which the professionalization of entomology in the early twentieth century was a result of particular scientific and political interests. Challenging the understanding of entomology being a discipline with American origins, he investigates the role of German and Italian scientists who took part in their nations' efforts to secure colonial empires abroad. Fighting insects that presented threats to agricultural yields was one way of establishing a country's claim to colonial power status. The environment thus served a functional role to political and economic interests, while scientists benefitted from the opportunity of drawing on colonial and imperial networks to carry out research across the globe and to exchange knowledge across cultural and political divides.

As Giovanni Tonolo demonstrates in his article on the history of palm oil production in twentieth-century Dahomey/Benin, political and economic agendas could well trump ecological realities. Over the course of several decades, French entrepreneurs and administrators argued that palm oil trees in Dahomey were close to extinction and needed to be conserved by all means. Their misreading of the regional ecology was closely tied to racial and cultural assumptions about Dahomey and its indigenous inhabitants, who were believed to be ignorant of basic botanical facts. French efforts to increase palm oil production remained largely unsuccessful because they ignored the ecological and climatic conditions of the region in question. The postcolonial Beninese government continued the French approach of intensification and took it a step further by establishing monocrop plantations that relied on the massive use of synthetic herbicides.

The article by Amalia Ribi Forclaz and Corinna R. Unger relates to the use of chemical inputs in postwar agriculture. It investigates the origins of international efforts to regu-

late the use of synthetic pesticides, and it does so by analyzing debates among experts in a variety of organizations, including the International Labour Organisation, the Food and Agriculture Organization, the World Health Organization, and the European Economic Community. As the article shows, experts were aware of the health risks associated with synthetic pesticides much earlier than the early 1960s, when Rachel Carson's *Silent Spring* triggered wide-spread ecological concern. However, despite increasing scientific evidence of the grave effects of exposure to pesticides and their residues, for a long time the emphasis of international expert discussions was on the benefits of pesticides in the interest of productivity and food security.