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## Natural Resources, Energy Politics, and Environmental Consequences

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### Introduction

Life on Earth is undergoing major changes due to the converging and rapidly accelerating climate, biodiversity, pollution, and other environmental crises and emergencies. Global environmental and ecological constraints, consequences, and politics are becoming mainstream and necessary components to include in analysis across scientific fields. Over-extraction of resources in destructive ways is leading key ecosystems into states of collapse, species and habitats are being lost at record rates, and tipping points are cascading to produce a chaotic transformation. In this setting, resource extraction, in its varied forms, needs to be urgently analyzed in terms of its impacts and politics to understand, explain, transform, regulate, and govern the way natural resource sectors and actors affect the web of life. To this end, this article opens up natural resource *politics*, and how their unfolding has been analyzed globally and sectorially. Most of the studies related to or discussing the topic of extraction focus on the negative impacts of these projects, their developmental impacts, or the characteristics of conflicts related to extraction. Fewer studies focus on explaining what are the *politics* that lead to negative impacts, development, or conflicts. The studies on the politics behind extractive investment outcomes discuss the causal paths from political actions to extraction in different contexts mostly tangentially. Yet, constructivist studies by social scientists on natural resources have shown how resources and spaces of extracting resources are also created in social and political processes, which are typically international and related to existing power relations. Resources do not just exist out there, but are imagined when a part of nature is framed as a natural resource, and some areas are turned into sacrifice zones for extraction. These are places being destroyed as they do not matter to their extractors. The span of these localities has expanded over nations and subcontinents, placing us all in the sacrifice zone now, as Naomi Klein elucidates in *This Changes Everything: Capitalism vs. the Climate*. This bibliography covers first the textbooks, followed by an assessment of the key dynamics in which resource politics are embedded, such as conflicts and developmental interventions, and their key actors: civil society, corporations, states, and global actors. Last, the particularities for different targets and sectors of extraction are assessed, including trees and forests, minerals, hydrocarbons and energy, water, and food and feed. For databases and resources, journals, and methodology of studying resource politics, please see the *Oxford Bibliographies* article "Politics of Extraction: Theories and New Concepts for Critical Analysis" which focuses on the key theories and organizing concepts.

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### Textbooks

The extraction of resources, and their turning into commodities, are used for many purposes in complex global politics and power relations. Van de Graaf, et al. 2016 reviews the international political economy of energy, which is the most central sector of extraction studied in international relations (IR). Yet many important extractions that deeply affect global affairs remain hidden, cast outside the scope both of most studies and of policymaking circles, as illustrated by the discussion of blood diamonds by Smillie 2014: diamonds and their international trade have become key tools for illicit actions ranging from tax evasion to money laundering, and weapons and drug trade. The focus on global resource dynamics is thus central for deepening the understanding of hidden yet crucial aspects of IR, which in the end also flow through material exchanges. The pushing, capitalist side of corporate resource extraction is well covered by Patel and Moore 2017 and Arboleda 2020, the latter of which also theorizes on the crucial role of technological changes for extraction localities and styles. Uranium cuts across several of the most central topics of IR, including security, the rise of global powers and hegemony, war, energy, and technological development, making its study imperative. Burke 2017 introduces the different facets of uranium in geopolitics. Likewise, food, analyzed by Clapp 2020, is a cross-cutting theme, and food and feed have become ever more central as worries over food security and campaigns for peasant-based food sovereignty have risen since the 2008 financial crisis, which directed considerable investment attention to tangible targets such as land and resources. Natural resource politics are affected by distinct politics and regional contexts, a topic Deonandan and Dougherty 2016 opens up by surveying the correlations and relations between extraction and politics in Latin America. A more global take on recent conflicts and activism around extraction is provided by

Willow 2018. Some actors are key in natural resource politics: Klare 2019 explains how the Pentagon is deeply worried and preparing the US armed forces for the coming climate catastrophes, and the new geopolitics these will create, even if corporations or politicians would not be so worried about these issues.

**Arboleda, Martín. *Planetary Mine: Territories of Extraction under Late Capitalism*. London: Verso Books, 2020.**

Explains the centrality of mining in contemporary capitalism, and how extraction and its technologies help to explain more broadly our current times. Offers a critical and neo-Marxist perspective.

**Burke, Anthony. *Uranium*. Cambridge, UK: Polity Press, 2017.**

Explains how the extraction of uranium is typically an uneven process, harming especially indigenous populations, and how the geopolitics of uranium are central in IR. Good discussion on the looming challenges of uranium-based versus other energy sources, and the dangers of nuclear armament.

**Clapp, Jennifer. *Food*. 3d ed. Cambridge, UK: Polity Press, 2020.**

A pathbreaking book on the often-overlooked global food industry, explaining how unequal global trade rules and the concentration of power to a few corporations have contributed to dire problems, to whose correction the book also provides suggestions and ways forward.

**Deonandan, Kalowatie, and Michael L. Dougherty, eds. *Mining in Latin America: Critical Approaches to the New Extraction*. London: Routledge, 2016.**

Recommended to understand the global mining sector and how it is playing out in Latin America, reshaping its current politics by new extraction. Also contains chapters on the role of North American "mining imperialism," investment rights regimes, and norm diffusion beyond Latin America. Illustrative of how a focus on particular resource sector dynamics can yield insights more generally for global studies.

**Klare, Michael T. *All Hell Breaking Loose: The Pentagon's Perspective on Climate Change*. New York: Henry Holt, 2019.**

The author's latest book in a series of extremely important and impactful analyses on global resource extraction, war, security, and geopolitics. Essential for understanding the gravity of coming climate disruptions—and for understanding that one cannot conflate states with all their distinct institutions and governments, or the politicians occupying them at certain points of time.

**Klein, Naomi. *This Changes Everything: Capitalism vs. the Climate*. London: Penguin, 2015.**

Suitable for undergraduates, but also contains good insights and introductions about contemporary extractivism and climate politics and realities for those not so familiar with natural resource politics.

**Patel, Raj, and Jason W. Moore. *A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature, and the Future of the Planet*. Berkeley: University of California Press, 2017.**

A must-read starting point to understand the role of capitalism in the world-ecology, and how "cheapening" directed at all aspects of life is a core mechanism in the political economy and ecology of the globe currently. Studies how global capitalism has treated food, energy, lives, care, work, money, and nature as resources that can be appropriated for accumulation. Excellent for undergraduates and introductory courses.

**Smillie, Ian. *Diamonds*. Cambridge, UK: Polity Press, 2014.**

An insider look into the blood diamonds, running from violence at the sites of extraction to the global criminality involved in diamonds trade, and the attempts to govern these ills.

**Van de Graaf, Thijs, Benjamin K. Sovacool, Arunabha Ghosh, Florian Kern, and Michael T. Klare, eds. *The Palgrave Handbook of the International Political Economy of Energy*. London: Palgrave Macmillan, 2016.**

Key scholars provide a robust handbook, whose chapters are essential for understanding the political economy of energy.

**Willow, Anna J. *Understanding ExtrACTIVISM: Culture and Power in Nature Resource Disputes*. London: Routledge, 2018.**

Geared mostly toward North American undergraduate students and others interested in the activism and conflicts related to extractive projects, this timely book offers mostly an anthropological overview of many global conflicts. Opens up the cultural transformations extractive disputes partake in centrally creating, especially among activist groups.

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## Natural Resource Politics: Actors and Dynamics

Analysis of natural resource politics refers to assessment of how different political actors and their interactions have molded the contours, dynamics, and outcomes of resource extraction, including access, control, style, and pace of extraction. The typical actors involved in and studied in natural resource politics are, firstly, social movements and the conflicts their mobilizations and resistance either create or change. The second focus of attention has been the actions of corporations, especially through corporate social responsibility, public-private partnerships, social license to operate, and other schemes closely related to natural resource politics. A third strand of scholarship has focused on developmental paths, and how state structures, institutions, and policies affect the developmental outcomes of resource extraction. A fourth strand of scholarship, linked to and building on the movement-, corporate-, and state-focusing literatures, is the study of the rapidly changing global setting. Many global trends make the dynamics of global resource politics quite different from those of the past, and this requires rethinking explanatory frameworks, finding new research agendas, and looking in different ways at the changing international dynamics and the key global actors in natural resource politics. These include the rise of authoritarian regimes, runaway climate emergencies, chaos in world systems, unexpected events such as the COVID-19 pandemic, and needs for new global governance arrangements by new sets of actors, such as indigenous populations becoming ever more vocal in challenging global hyper-extraction and promoting alternatives.

## Social Movements and Conflicts

Natural resource politics seeks to study in detail the politics around resources, instead of focusing most attention on their developmental outcomes. The focus is at dynamics, and how one can explain outcomes and key causalities. The role of different actors is best studied in conjunction, but most analyses typically focus on either the social movement, state, corporate, or some transnational aspects or dynamics. Kröger 2013 offers a framework for analyzing the roles of social movements, states, and corporations in influencing investment outcomes. Most outcomes of resource politics are still mediated through state-level politics. O'Neill 2012 offers excellent guidelines on how to compare environmental movements by reviewing the literature of political science. Giugni and Grasso 2015 reviews a large array of studies on the broad changes in environmental movements, based particularly on social movement studies. Temper 2019 illustrates how there are thousands of different kinds of conflicts globally, these sharing the character of poor and ethnically marginalized populations bearing the brunt of extractivist and polluting practices. Lesbirel and Shaw 2005 theorizes the specificity of struggles around industrial facility siting in the chain of extraction. McAdam and Boudet 2012 offers explanations on when opposition emerges to energy projects. Resistance can use many strategies. McNeish 2016 opens up the increasingly important role of popular consultations in resource politics, detailing these techniques of community-based resource democracy. Mamonova 2016 highlights how one must understand the context to understand why resistance uses particular forms of protesting, for example. Social movements are also increasingly vocal actors within resource sectors, steering and attempting to reform these globally. Santos and Milanez 2015 uses global production network analysis to uncover the patterns of extraction and contestation. Bloomfield 2017 uses a similar approach to analyze how activists have influenced mining through brand-targeting within the global gold jewelry production network.

**Bloomfield, Michael John. "Global Production Networks and Activism: Can Activists Change Mining Practices by Targeting Brands?" *New Political Economy* 22.6 (2017): 727–742.**

Explains how activists have tried to influence the global production networks also through targeting particular brands, thus inserting themselves into these global politics of the production network. Available online.

**Giugni, Marco G., and Maria T. Grasso. "Environmental Movements: Heterogeneity, Transformation, and Institutionalization." *Annual Review of Environment and Resources* 40 (2015).**

A superb article on the key characteristics of environmental movements, offering insights into what is still missing in this literature.

**Kröger, Markus. *Contentious Agency and Natural Resource Politics*. London: Routledge, 2013.**

Offers a panorama on the political economy of global tree plantation expansion and its conflict parameters and dynamics, and analyzes the system of global forestry and movements resisting rampant tree plantation expansion, such as the Brazilian Landless Movement (MST) and indigenous groups. The grievances, dispossession, and developmental factors related to expansion of industrial monocultures are also analyzed.

**Lesbirel, Sidney Hayden, and Daigee Shaw, eds. *Managing Conflict in Facility Siting: An International Comparison*. Cheltenham, UK: Edward Elgar, 2005.**

An example of the "siting" strand of conflict and movement scholarship, which focuses on analyzing the politics of siting industrial facilities, which are often polluting and part of extractive networks.

**Mamonova, Natalia. "Naive Monarchism and Rural Resistance in Contemporary Russia." *Rural Sociology* 81.3 (2016): 316–342.**

A brilliant article broadening the understanding on how the form resistance takes varies depending on the polity. In Vladimir Putin's Russia, protestors attempt to show themselves as being on the side of Putin, asking for him to correct the wrongs of local powerholders, both to protect themselves from repression, and to trigger active one of the few working mechanisms of resistance in that political setting. Available online by subscription.

**McAdam, Doug, and Hilary Boudet. *Putting Social Movements in Their Place: Explaining Opposition to Energy Projects in the United States, 2000–2005*. New York: Cambridge University Press, 2012.**

An important book with an impressive methodological apparatus. Provides guidelines for assessing systematically the role of opposition to extractive projects.

**McNeish, John-Andrew. "Voting to Derail Extraction: Popular Consultation and Resource Sovereignty." *Third World Quarterly* 38.4 (2016): 1128–1145.**

A detailed look at how referendums have been used and can be utilized as tools for pursuing local sovereignty over resource access.

**O'Neill, Kate. "The Comparative Study of Environmental Movements." In *Comparative Environmental Politics: Theory, Practice, and Prospects*. Edited by Paul F. Steinberg and Stacy D. VanDeveer, 115–142. Cambridge, MA: MIT Press, 2012.**

An excellent review categorizing existing studies on environmental movements in political science.

**Santos, Rodrigo Salles Pereira, and Bruno Milanez. "The Global Production Network for Iron Ore: Material, Corporate Strategies, and Social Contestation in Brazil." *Extractive Industries and Society* 2.4 (2015): 756–765.**

A state-of-the-art study exemplifying how the global production network approach helps in uncovering the role of commodity particularities and corporate and civil society actions in global extraction.

**Temper, Leah. "Environmental Justice: Approaches, Dimensions, and Movements." In *Oxford Bibliographies in Ecology*. New York: Oxford University Press, 2019.**

A brilliant bibliography that overviews origins of environmental justice movements in the United States, as well as the 21st-century situation, where environmental justice struggles around the world share similar framings and injustices. Also offers an excellent overview of the many scholarly, activist-contributed, and other databases that gather and offer data on conflicts and mobilizations related to politics of extraction.

## Corporate Social Responsibility

Banerjee 2018 explains how corporate social responsibility (CSR) is related to politics of extraction, offering a transnational perspective on the negative impacts of corporate extraction. Hilson 2012 reviews the literature on CSR of mining and oil companies in the Global South, arguing that a strong rule of law must exist and be exercised before CSR schemes can add to further improve that setting. This is however a far cry, given the many political barriers to regulate extraction or make it legally responsible, typically by the same corporations that pursue CSR agendas, as Watts 2005 elucidates for oil, and Rajak 2011 for mining. The most famous case is the still-ongoing Chevron pollution in the Ecuadorian Amazon, for which local courts ordered the company to pay \$9.5 billion, a damage award Chevron is radically resisting by suing and blaming the Ecuadorian courts and attorneys for fraud, as Yeager and Smith 2017 discusses. CSR is also related to local norms, values, and beliefs: for example, when it comes to offering licenses to operate to extractive corporations, and social licenses from the local populations, whose views on what is legitimate vary community by community, as shown by Ehrnström-Fuentes 2016. Zhouri and Valencio 2014 further elucidates how public consultations and ombudsmen can be steered to ease corporate resource exploitation, arguing that there are serious limits, dangers, and violence involved in so-called stakeholder dialogues. These dialogues have also been on the rise in the international arena, particularly through so-called roundtables for sustainable production: Dauvergne 2018 assesses the many dilemmas and dangerous dynamics involved in these certification schemes, which allow for further extraction to continue. Gustafsson 2017 provides further political analysis on the role of private politics, explaining how corporate-community relations take many shapes, and offering tools for recognizing the variety of interactions. In a similar vein, Golub 2014 can be used to check if one has taken a too-reified prior notion of what the actors in politics of extraction are, and how corporate and indigenous actors are created, interactively.

**Banerjee, S. B. "Transnational Power and Translocal Governance: The Politics of Corporate Responsibility." *Human Relations* 71.6 (2018): 796–821.**

A key article summarizing much of the critical management and organization studies literature on how CSR typically functions as a political tool that aids corporate resource extraction.

**Dauvergne, Peter. "The Global Politics of the Business of 'Sustainable' Palm Oil." *Global Environmental Politics* 18.2 (2018): 34–52.**

An excellent article on the framing of some palm oil production as sustainable, and how this allows for further destruction and corporate expansion through extraction. Abstract available online.

**Ehrnström-Fuentes, Maria. "Legitimacy in the Pluriverse: Towards an Expanded View on Corporate-Community Relations in the Global Forestry Industry." PhD diss., Hanken School of Economics, Helsinki, 2016.**

An award-winning dissertation making several theoretical contributions by uniting a critical management studies perspective to the study of Latin American local realities, wherein a pluriverse of place-based communitarian imaginaries defines what is legitimate. Includes also an analysis on the interface between social license to operate and legitimacy of extractive operations.

**Golub, Alex. *Leviathans at the Gold Mine: Creating Indigenous and Corporate Actors in Papua New Guinea*. Durham, NC: Duke University Press, 2014.**

An anthropological study that questions the pre-existence of categories such as mining company and local resistance movements or indigenous groups, or their dynamics, based on an ontological analysis of how these categories are created in a complex mining

conflict in the Papua New Guinea. Offers a theoretical-methodological challenge particularly to rigid comparative politics apparatuses that need to reify certain actor or structural categories for comparing them.

**Gustafsson, Maria-Therese. *Private Politics and Peasant Mobilization*. Cham, Switzerland: Springer International, 2017.**

Opens up from the viewpoint of political science the varied forms of community-corporate relations, through analysis of mining cases in Peru.

**Hilson, Gavin. "Corporate Social Responsibility in the Extractive Industries: Experiences from Developing Countries." In *Special Issue: Corporate Social Responsibility in the Extractive Industries: Experiences from Developing Countries*. Edited by Gavin Hilson. *Resources Policy* 37.2 (2012): 131–137.**

Reviews the literature on multinational mining and hydrocarbon corporations' reactions to the social responsibility challenge in the Global South, and introduces a special issue on the topic. Recognizes that much needs to be done still in terms of more effective and broader regulation for CSR to be of use. Available online.

**Rajak, Dinah. *In Good Company: An Anatomy of Corporate Social Responsibility*. Stanford, CA: Stanford University Press, 2011.**

An excellent book explaining the attempts by a mining multinational to present itself not only as interested in extraction, but also as a socially responsible company. Based on a rare ethnography within the corporation.

**Watts, Michael J. "Righteous Oil? Human Rights, the Oil Complex, and Corporate Social Responsibility." *Annual Review of Environment and Resources* 30 (2005): 373–407.**

A landmark review of the links between and the coexistence of CSR, human rights violations, and claims of ethical behavior by oil corporations, especially in the Global South. Abstract available online.

**Yeager, Matthew G., and Jade L. Smith. "Global Pollution, Multinational Oil Companies and State Power: The Case of Yaiguaje v. Chevron Corporation." In *Environmental Crime in Latin America*. Edited by David Rodríguez Goyes, Hanneke Mol, Avi Brisman, and Nigel South, 117–140. London: Palgrave Macmillan, 2017.**

Reviews the highly important Chevron Ecuador pollution lawcase, showing how global politics of extraction currently intertwine with national legislative frameworks. Provides evidence on de facto corporate impunity.

**Zhuri, Andréa, and Norma Felicidade Lopes da Silva Valencio, eds. *Formas de matar, de morrer e de resistir: Limites da resolução negociada de conflitos ambientais*. Belo Horizonte, Brazil: Editora UFMG, 2014.**

The chapters in this theoretically important book explain the new forms of violence and politics in the new panorama of rising stakeholder dialogues that coexist in extractive zones with old forms of extreme violence. In Brazilian Portuguese. (Title translation: Forms to kill, to die, and to resist: Limits of negotiated resolution of environmental conflicts.)

## Development and State Politics

O'Neill, et al. 2018 shows how no country is currently within its share of planetary boundaries to satisfy social well-being standards, which suggests that current states are key actors in maintaining unsustainable extraction, and their role and policies need thus to be remolded. Livingston 2019 opens up the typical impacts that extractive investments marketed as developmental have had, calling such "development" self-devouring growth. Escobar 2011 argues that the concept of development itself is Western-based, being a negative project particularly due to its destructively extractive character. Ferguson 1994 uses cases of privatization of commons and rising inequality to analyze how "development" functions as a discursive fantasy in the political realm. According to Ferguson, when "development" is presented as a merely economic and technical intervention, without recognizing the broader impacts and ties that developmental projects have, the concept functions as an anti-politics machine. Mitchell 2002 provides insights on international

development as a process that tries to render broad economic and resource system transformations as nonpolitical, with this resulting in experts having major power especially in non-Western contexts. Scott 1998 opens up in detail the crucial role of state-building in destructive developmental expansions. Other publications contain tools for assessing when development is a positive process, and how politics of the state are crucial in this. In Nugent and Robinson 2010, competition and distribution of resource access are shown to be causally related to developing more value-adding goods and sectors, this fostering also the building of democracy. Poteete 2009 similarly explains how resource endowments are not fate, but that politics, especially coalition-building, can provide better outcomes developmentally; however, Livingston 2019 altogether challenges this account based on Botswana, emphasizing the ecological destruction involved. Yet, focusing on social policy, Arrighi, et al. 2010 emphasizes that a process of accumulation without dispossession is possible, and leads to better results than the primitive accumulation some theorists see as necessary for development. Walker 2001 explains how extraction yields need to be divested to non-extractive sectors, especially education, finance, and the support of strong state structures, to facilitate development. Thus, a region can become a global progenitor and leader in a given sector, and thus also kicking away the ladder for later-comers. Walker 2001 does not however fully integrate an analysis of the indigenous genocide and other major extinctions that the process of successful development entailed in the progenitor case of California.

**Arrighi, Giovanni, Nicole Aschoff, and Ben Scully. "Accumulation by Dispossession and Its Limits: The Southern Africa Paradigm Revisited." *Studies in Comparative International Development* 45 (2010): 410–438.**

An important work highlighting the importance of agrarian reform in attaining development. Challenges the notion of neo-Marxist scholars, particularly David Harvey, by arguing that accumulation by dispossession is not the only, the best, or the necessary path for developing capitalist growth or development. Argues that accumulation without dispossession is a possible option, meaning that growth is possible without rural and other enclosures.

**Escobar, Arturo. *Encountering Development: The Making and Unmaking of the Third World*. 2d ed. Princeton, NJ: Princeton University Press, 2011.**

A classic book where the author explains how development as a whole is a negative process, based on unsustainable, unethical, and unjust extraction of resources from the Third World.

**Ferguson, James. *The Anti-politics Machine: "Development," Depoliticization, and Bureaucratic Power in Lesotho*. Minneapolis: University of Minnesota Press, 1994.**

A pathbreaking work arguing that the development apparatus created at the end of the 1940s is a continuation of colonial rule. Explains how development aid projects can go wrong, opening up how this "development" imagination starts by casting some regions as underdeveloped, and then observing only those factors which are seen from a narrow Western rationality to be governable by the state and its interventions, and disregarding other explanations.

**Livingston, Julie. *Self-Devouring Growth: A Planetary Parable as Told from Southern Africa*. Durham, NC: Duke University Press, 2019.**

A deep critique of development-as-usual as being a self-destructive process, based on detailed long-term ethnographic work in Botswana, which is lauded by many as a success story of how a nation can escape the resource curse and develop. This book is essential reading for understanding the dire costs of these transformations.

**Mitchell, Timothy. *Rule of Experts: Egypt, Techno-politics, Modernity*. Berkeley: University of California Press, 2002.**

A key source for explanations on how Western aid has functioned as intervention in IR. A classic on how technocratic logic and creation of nation-states render nonpolitical and hide many problems in the expansion of Western-based development. Important also for analyses of so-called technical experts and how their power is created in a particular hierarchical, international chain.

**Nugent, Jeffrey B., and James A. Robinson. "Are Factor Endowments Fate?" *Revista de Historia Economica/Journal of Iberian and Latin American Economic History* 28 (2010): 45–82.**



A pathbreaking analysis on how political factors are crucial in explaining different development paths related to land- and resource-based growth. Colombia's path is argued to have been more developmental due to the country never having consolidated a single elite group, unlike Central American nations, where a single elite of large landowners has been able to postpone distributive land reforms.

**O'Neill, Daniel, Andrew Fanning, William Lamb, and Julia Steinberger. "A Good Life for All within Planetary Boundaries." *Nature Sustainability* 1.2 (2018): 88–95.**

Explores the relation between well-being and over-extraction and consumption across countries, showing how all countries need to transform their models of development.

**Poteete, Amy R. "Is Development Path Dependent or Political? A Reinterpretation of Mineral-Dependent Development in Botswana." *Journal of Development Studies* 45.4 (2009): 544–571.**

Argues that under the right conditions of political steering, competition, regulation, and coalition-building, mining can escape the resource curse.

**Scott, James. *Seeing Like a State*. New Haven, CT: Yale University Press, 1998.**

A pathbreaking book that theorizes the centrality of state-led developmental initiatives and their violence in ordering territories and people, the state being the key player in making extraction possible.

**Walker, Richard A. "California's Golden Road to Riches: Natural Resources and Regional Capitalism, 1848–1940." *Annals of the Association of American Geographers* 91.1 (2001): 167–199.**

A state-of-the-art developmental analysis on when and how resource booms might be used as a basis for globally and regionally robust development of capitalism and economic growth. Explains how the setting of political controls by regulatory movements of farmers and other water users were essential in ensuring that the most destructive forms of extraction were curtailed in 19th-century California. Largely omits genocides and environmental destructions however.

## Global Trends

COVID-19 (coronavirus disease 2019) shook the world: Lal 2020 explains how the continuing soil degradation through extraction feeds a "poverty-hunger-malnutrition-political unrest nexus," which is exposed and becomes critical for the survival of hundreds of millions in times of global crises such as COVID-19, and demands a soil protection treaty. Indigenous mobilizations are gaining weight in global resource politics with the falling credibility of Western and modern ways of relating to nature, whose catastrophic impacts on the planet are becoming ever more clear with the climate emergency, as McElwee, et al. 2018 discusses. However, this path is rocky and dangerous, due to the simultaneously rising trend of rural authoritarianism and the rising violence against environmental defenders analyzed by the authors of Middeldorp and Le Billon 2019. They find that especially those land defenders who have popular support and propose an alternative model to the unequal and destructive agenda of authoritarian elites are targets of homicides. The 2010s have seen the rise of new authoritarian populist regimes around the world, a dynamic having drastically negative impacts due to an authoritarian hyper-extraction through violent rhetoric and practices targeting ethnic minorities, whose confrontation Scoones, et al. 2018 and McCarthy 2019 call for. Uncertainties, risks, catastrophes, and major unexpected events and turns in global development are likely with the rapidly expanding climate emergency and the neglect thus far presented by powerholders to control the expansion of uncertainties. As Gills, et al. 2020 elucidates, we are now entering the period of chaos that world-systems analysts have for long expected to be coming: this requires according to them a radical transformation of the agenda of global studies, as prior explanatory frameworks of IR are unfit to explain much of the new global trends. Transnational capital plays a huge role in global extraction, as the authors of Galaz, et al. 2018 show in their analysis of the crucial role of tax havens in channeling capital to extraction of fish, beef, and soybean. Areas beyond national jurisdiction have been especially targeted for destructive extraction. De Santo, et al. 2019 shows how there have been some recent moves by the United Nations to try to create protections for these areas, but these attempts have been marred by the current setting where science and its interpretation are increasingly politicized. Last but not least, China's rise as the new key actor of extraction is a momentous change in the overall global dynamics, and much about its future role is still uncertain and under debate, as Shapiro 2018 explains.

**De Santo, Elizabeth M., Áslaug Ásgeirsdóttir, Ana Barros-Plataiu, et al. "Protecting Biodiversity in Areas beyond National Jurisdiction: An Earth System Governance Perspective." *Earth System Governance* 2 (2019): 100029.**

Analyzes the urgent need and huge barriers for setting up marine biodiversity protection, especially in areas outside of national waters, to prevent overfishing and other predatory practices. Available online.

**Galaz, Victor, Beatrice Crona, Alice Dauriach, Jean-Baptiste Jouffray, Henrik Österblom, and Jan Fichtner. "Tax Havens and Global Environmental Degradation." *Nature Ecology & Evolution* 2.9 (2018): 1352–1357.**

A superb article detailing how extractive operations in the Amazon and fishing around the world are dependent on transnational financing channeled through tax havens. The existing global structure of these tax haven areas outside of global or state regulation that would curb negative effects of financial deals needs to be considered in analyses of extraction. Available online.

**Gills, Barry, Hamed Hosseini, James Goodman, and Sara Motta. *The Routledge Handbook of Transformative Global Studies*. London: Routledge, 2020.**

The best available source on how the research agendas of IR need to change in the rapidly transforming global setting. A broad handbook with contributions by leading scholars from different fields. Climate change and resource politics are cross-cutting themes, with several chapters explicitly focusing on these topics. Highly recommended.

**Lal, Rattan. "Soil Science beyond COVID-19." *Journal of Soil and Water Conservation* 75.4: 79A–81A (2020).**

Surveys how COVID-19 may be a symptom of excessive resource extraction through deforestation and other habitat loss, and how the crisis revealed the deep fragility of global food production. Highlights the dangers of land degradation for ensuring healthy and good life on this planet, as exposed by the COVID-19 crises, which dramatically and abruptly worsened food insecurity, showing the fragility of current systems. Demands a global Soil Quality Act. Abstract available online.

**McCarthy, James. "Authoritarianism, Populism, and the Environment: Comparative Experiences, Insights, and Perspectives." In *Special Issue: Environmental Governance in a Populist/Authoritarian Era*. Edited by James McCarthy. *Annals of the American Association of Geographers* 109.2 (2019): 301–313.**

The introductory chapter to a large special issue by political ecologists and geographers on the rise of new authoritarian populist regimes across the world, and how these are affecting and being promulgated to power via environmentally damaging practices, rhetoric, and support to fading extractive operations. Available online.

**McElwee, Pamela, Álvaro Fernández-Llamazares, Marian Ahn Thorpe, et al. "Indigenous Ecologies." In *Oxford Bibliographies in Ecology*. New York: Oxford University Press, 2018.**

An excellent assessment of how indigenous mobilizations in general are more than often based on a clash between resource extraction and indigenous ecologies. The literature on how indigenous ecologies are built by specific relationships with the surrounding environment is reviewed inter-disciplinarily, thus offering a deep explanation on the roots of international indigenous movements, legislation, and politics. Transnational indigenous mobilizations seek to challenge or outright ban extraction.

**Middeldorp, Nick, and Philippe Le Billon. "Deadly Environmental Governance: Authoritarianism, Eco-populism, and the Repression of Environmental and Land Defenders." *Annals of the American Association of Geographers* 109.2 (2019): 324–337.**

An outstanding analysis on the linkages between extraction and homicides of environmentalists, making clear the connections between authoritarian regimes and the currently rising deaths of land defenders, especially across Latin America. Available online.

**Scoones, Ian, Marc Edelman, Saturnino M. Borrás Jr., Ruth Hall, Wendy Wolford, and Ben White. "Emancipatory Rural Politics: Confronting Authoritarian Populism." *The Journal of Peasant Studies* 45.1 (2018): 1–20.**

Argues for the need of a new research agenda and activism for emancipatory rural politics in the face of new top-down governments that care little for the environment or progressive social movements, yet are basing their support on rural populism. This highly influential approach, a new development in the land-grabbing literature, has spurred several research groups on regional authoritarian resource politics. Available online.

**Shapiro, Judith. "As China Goes, So Goes the Planet: The Environmental Implications of the Rise of China." In *Global Environmental Politics*. Edited by Gabriela Kütting and Kyle Herman, 143–154. London: Routledge, 2018.**

Argues that China is the new key player in global environmental governance, and that what Chinese citizens do will be a key determinant of future IR of extraction.

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## Sectors, Targets of Extraction

Each natural resource has particular political dimensions and sectorial politics of extraction. There are specific studies and literatures on the international and global dimensions of different commodity and resource extracting sectors. Forests are targeted for timber, and tree plantation expansion is also part of the global forestry industry. Deforestation is caused by many extractive sectors. Metal and non-metal minerals underground are also targets of extraction for the mining industry. Hydrocarbons such as oil, natural gas, and coal have their own literatures, linked to analyses of global energy and power relations. Analyses of water and politics are closely linked to energy politics via dam-building projects, but these water-related politics include also struggles for bottled water and privatization of freshwater sources. There is a specific literature discussing the food-feed-fuel-fiber complex, looking at the complexities in this. Often these conflicts and politics intersect, and while it has been shown that it is crucial to study each sector and subsector in particular studies to isolate the possible endowment-based and sector-based political dynamics, and assess them, new studies that understand the growing flexibility and interconnections between natural resource sectors have also surged. For example, conflicts over access to water are seen by the mining industry as their biggest future challenge; these battles over water are being waged with agriculture, including industrial agriculture, which also requires large amounts of fresh and clean water for its purposes. The sections to follow canvass the specificities of sectorial resource politics.

## Forests and Trees

The literature studying the global politics around forests and trees can be divided into two broad categories. There is a distinct literature on the global expansion of tree monocultures and other types of tree plantations, for the extractive usage of the global forestry industry. This sector, expanding industrial forestry, partly overlaps with the politics of natural and semi-natural forests, whose deforestation is a key topic. Deforestation is partially caused by the expansion of tree monocultures, resulting in a major qualitative shift in forest and tree-based landscapes. Both deforestation and plantation expansion are gaining ever more importance as topics of natural resource politics, due to demands to expand non-fossil-fuel-based and non-mineral-based production, and agricultural plantations for food and feed cultivation. Climate change, bioeconomy, and other major global shifts have placed ever more pressure on forest conservation, their conversion for industrial uses, and deforestation for agriculture, mining, and hydropower purposes, forest politics thus intersecting with many other sectorial politics. A thorough understanding of forest politics requires therefore the understanding of other sectorial politics and global political economies of extraction. A good place to start, however, is to first understand how the global industrial forestry and deforestation have played out in their own right, as systems and processes battling over the transformation or retention of tree and forest-based land uses.

## Global Industrial Forestry

Carrere and Lohmann 1996 and Marchak 1995 are classic global analyses of industrial tree plantation expansion, making critical notes and political economic analyses on the global forestry sector. Gerber 2010 explains why tree plantation expansion has been a very conflictive endeavor in the Global South. Kröger 2013 under Social Movements and Conflicts investigates global forestry expansion and how social movements have been able to impact tree plantation expansion. Ehrnström-Fuentes 2016 under Corporate Social Responsibility opens up why forestry corporations have not been able to secure social license to operate. Natural forests and tree plantations are often conflated by obscure concepts and reporting, and it is often difficult to know what policy documents are referring

to, forests or plantations. Vandergeest and Peluso 2015 explains how forests are used for political means, and how politics defines what a forest is. This creation of “political forests” has resulted in situations where areas of land are still called “forests,” although they might be deforested or covered by monoculture tree plantations. This is particularly problematic in the current setting of rising demands for tree planting to capture carbon: Lyons, et al. 2014 suggests that many so-called carbon offsetting schemes have been found not only to replicate the problems of tree plantations dispossessing locals in general, but also to be based on deforestation and rising carbon emissions. More sustainable timber production has been sought for through pressuring of large wood product retailers, discussed by Dauvergne and Lister 2011. However, the rise of the bioeconomy has signified that forests are seen ever more in productivist terms, where environmental conservation is not the key goal, argues Pülzl, et al. 2014. One of the hottest debates currently is whether and in which forestry and industrial practices trees capture carbon, and how much: these “new forest wars” around carbon include also rising concerns for loss of biodiversity and forest-dwelling traditional populations’ lived environments due to tree plantation expansion. Kröger 2016 analyzes how the global bioeconomy of trees is currently ongoing a major transformation, as tree-based products that could replace plastics, cement, and other more polluting materials are developed. These new uses of trees indicate that the forestry industry is becoming intermeshed in a complex way with the petrochemical, construction, and other industries, which signifies that merely sectorial analyses need to be replaced by a broader analysis.

**Carrere, Ricardo, and Larry Lohmann. *Pulping the South: Industrial Tree Plantations and the World Paper Economy*. Atlantic Highlands, NJ: Zed Books, 1996.**

A pathbreaking book opening up the details of the global industrial forestry system, and how it has led to massive deforestation and dispossession.

**Dauvergne, Peter, and Jane Lister. *Timber*. Cambridge, UK: Polity Press, 2011.**

A short book introducing several different sectors of the global timber trade. Useful analysis on the role of large consumer goods stores in the timber trade.

**Gerber, Julien-François. “Conflicts over Industrial Tree Plantations in the South: Who, How and Why?” *Global Environmental Change* 21.1 (2010): 165–176.**

Reviews the conflicts around tree plantations, based on cases around the world.

**Kröger, Markus. “The Political Economy of ‘Flex Trees’: A Preliminary Analysis.” *The Journal of Peasant Studies* 43.4 (2016): 886–909.**

Explains the complex transformations the forest industry is undergoing currently, and what awaits trees and forests, as new usages are being fast developed for trees. The current drive is to establish wood-based bioproduct mills, which can produce feed, plastic replacements, biofuels, pulp, textiles, and other products in industrial scale. This has major impacts on the political and economic dynamics of global forestry and forests.

**Lyons, Kristen, Carol Richards, and Peter Westoby. *The Darker Side of Green: Plantation Forestry and Carbon Violence in Uganda*. Oakland, CA: Oakland Institute, 2014.**

Opens up the dangers and unethical sides in development cooperation projects and other ventures aiming at mitigating climate change impacts through carbon forestry.

**Marchak, Patricia. *Logging the Globe*. Montreal: McGill-Queen’s University Press, 1995.**

A classic book canvassing both the illegal logging and tree plantation expansion.

**Pülzl, Helga, Daniela Kleinschmit, and Bas Arts. “Bioeconomy—An Emerging Meta-discourse Affecting Forest Discourses?” *Scandinavian Journal of Forest Research* 29.4 (2014): 386–393.**

Explains the broad changes in global forest discourses, the latest key discourse being bioeconomy.

**Vandergeest, Peter, and Nancy Lee Peluso. "Political Forests." In *The International Handbook of Political Ecology*. Edited by Raymond L. Bryant, 162–175. Cheltenham, UK: Edward Elgar, 2015.**

A classic text introducing the highly useful concept of political forests, by which the authors refer to the dilemma where one cannot know if a land area called as "forest" actually has a forest, but how politics, policies, regulations, and definitions are used to define what is a forest in each context. Available online.

## Deforestation

The international system has been unable to lessen and effectively govern deforestation. Especially tropical deforestation continues at alarming rates, as Humphreys 2006 elucidates for the globe, and Fearnside 2017 for the crucially important Amazon forests. The Amazon is currently at a tipping point where it starts to turn into savanna and becomes a source of emissions instead of a sink, due to the warming caused by deforestation: Pereira and Viola 2019 emphasizes that this is a key dynamic that also social science research needs to place at the top of the agenda. Besides clear-cutting of larger areas, forest fragmentation and degradation through different logging, mining, forestry, and other activities targeting forestlands have increased and placed whole forests under risk of disappearance as the ecosystem services they would provide as natural forests become seriously imperiled through fragmentation, as assessed in Kettle and Koh 2014. All of these analyses are global in character, and open up important political dynamics, such as the extractive politics underlying deforestation. Bhagwat, et al. 2017 opens up the different measures of governance that have been tried, such as international payments for lessened deforestation analyzed by Humphreys 2013, but these have not yielded effective and broad-enough results. A key problem is that global forest governance is regularly trumped by the interests of powerful regional actors. Policies for curbing deforestation are specific and not ingrained within all deforesting sectors' policies, but treated as externalities. Radkau 2012 illuminates how the reasons for this are multiple and historical, tied to the hundreds of years of development where wood has been framed as a resource. Hecht and Cockburn 2010 opens up the key causes of developmentalist attitude and projects, where violence reigns in forested frontier regions that are left at the mercy of would-be developers. Barbosa 2015 links the ongoing deforestation to the 2000s and 2010s commodity supercycle and the policies of key commodity-exporting countries such as Brazil. Barbosa 2015 also opens up how locals have been able to resist the destruction of their forests through activism. In another politics of deforestation, however, this term has also been used as a global political weapon to blame peasants and those using traditional farming and pastoralist practices, argues Fairhead and Leach 2003 through detailed analysis of West Africa, this illustrating the need for careful analysis of deforestation discourses within IR.

**Barbosa, Luiz C. *Guardians of the Brazilian Amazon Rainforest: Environmental Organizations and Development*. London: Routledge, 2015.**

An excellent book opening up through political economy the key actors and policies explaining how national and global dynamics are leading to increased deforestation, and how place-based, forest-dwelling activists have been crucial in saving large parts of forests from deforestation. Recommended for undergraduates.

**Bhagwat, Shonil, David Humphreys, and Nikoleta Jones. "Forest Governance in the Anthropocene: Challenges for Theory and Practice." In *Special Issue: Forest Governance in the Anthropocene: Challenges for Theory and Practice*. Edited by Shonil Bhagwat, David Humphreys, and Nikoleta Jones. *Forest Policy and Economics* 79 (2017): 1–7.**

An excellent introduction to a special issue on the anthropogenic causes of deforestation in the past and now, reframing the terms of debate on governing forests through an innovative conceptual lens.

**Fairhead, James, and Melissa Leach. *Reframing Deforestation: Global Analyses and Local Realities: Studies in West Africa*. London: Routledge, 2003.**

A pathbreaking book opening up how one needs to conduct careful ethnographically oriented field research to understand what are the key actors of would-be deforestation, and how the impacts of traditional land uses are often framed in exaggerated terms globally, blaming the wrong actors and misjudging the process.

**Fearnside, Philip.** "Deforestation in Brazilian Amazonia." In *Oxford Bibliographies in Environmental Science*. New York: Oxford University Press, 2017.

The best available summary of the myriad factors related to Amazon deforestation by a leading global climate change scholar.

**Hecht, Susanna B., and Alexander Cockburn.** *The Fate of the Forest: Developers, Destroyers, and Defenders of the Amazon*. Chicago: University of Chicago Press, 2010.

A groundbreaking political ecology of Amazon deforestation, analyzing the key actors and developmentalist processes behind destruction.

**Humphreys, D.** *Logjam: Deforestation and the Crisis of Global Governance*. London: Earthscan, 2006.

A classic IR text on the problems of decreasing global deforestation. The key problem is that resistance by many governments and corporations has made the United Nations measures repeatedly ineffective for controlling runaway deforestation.

**Humphreys, David.** "Deforestation." In *The Handbook of Global Climate and Environment Policy*. Edited by Robert Falkner, 72–88. Chichester, UK: Wiley, 2013.

Discusses the rise of REDD+ (an international framework aiming at reducing emissions from deforestation and forest degradation, conservation of existing forest carbon stocks, sustainable forest management and enhancement of forest carbon stocks) to the field of global deforestation politics, and the broad lines of studying deforestation within IR. Available online.

**Kettle, Chris J., and Lian Pin Koh, eds.** *Global Forest Fragmentation*. Wallingford, UK: CABI, 2014.

An important edited volume on the many aspects of forest fragmentation around the world. Covers both the social scientific and ecological background for understanding fragmentation and what would need to change to govern it.

**Pereira, Joana Castro, and Eduardo Viola.** "Catastrophic Climate Risk and Brazilian Amazonian Politics and Policies: A New Research Agenda." *Global Environmental Politics* 19.2 (2019): 93–103.

An important article highlighting how crucial it is for social scientists to understand the tipping points and no-return points that collapses of ecosystems the size of the Amazon pose for life on this planet.

**Radkau, J.** *Wood: A History*. Cambridge, UK: Polity Press, 2012.

The long history of deforestation and wood usage, especially in the West.

## Minerals

Mining is deeply embedded within the dynamics of modern politics and IR. Alimonda 2015 argues that mining in Latin America was central to erecting the projects of modernity and coloniality. Mining has been so central for many regions of the world that whole identities of the populations and workforce in these extractive zones have been deeply ingrained and intermeshed, tied to the extracted resources, as Kojola 2019 illustrates through the support given to Donald Trump by mining communities who felt their identities threatened. Yet, the "war on coal" and other recent pressures on heavily polluting mining operations have placed the mining industry in the spotlight, which is starting to change the risk perceptions among mining companies. Ernst and Young 2019 provides a yearly assessment of the top ten business risks that the directors of the largest multinational mining companies see as facing them, emphasizing that the industry is facing a larger pressure than ever before. Global mining corporations have started to look for polities which would provide better security for mining investments. Kröger 2015 lists the key reasons behind the new mining boom in the context of the Global North and the Arctic, and opens up how new commodity frontiers expand through the creation of new social, symbolic, and physical power for extraction. Kirsch 2013 offers tools for understanding the crucially important politics of time, space, and place in mining. Conde 2017 and Özkaynak, et al. 2015 discuss a large number of cases and publications of mining conflicts.

Mining has been fiercely resisted around the world, but the responses are not at all uniform; rather, they depend on the polity, context, type of mineral extracted or targeted, style of extraction, and activist capacities. The regulation and reforming of the industry have also been studied. Auld, et al. 2018 reviews the literature on transnational governance of mining, and argues that future studies need to accommodate for the diversity of governance initiatives, many of which are mineral-specific. Lahiri-Dutt 2011 emphasizes the need to include further studies of gender and mining's complex gender impacts and dynamics to the agenda of reforms. Arce and Siefkas 2019 reviews how different types of mineral extractions differ, both in terms of political dynamics and economic outcomes of each mineral: gold, uranium, bauxite, diamonds, iron ore, chrome, nickel, cobalt, copper, lithium, graphite, coal, peat, and so forth require distinct analyses.

**Alimonda, Héctor. "Mining in Latin America: Coloniality and Degradation." In *The International Handbook of Political Ecology*. Edited by Ramond L. Bryant, 149–161. Cheltenham, UK: Edward Elgar, 2015.**

A historical account of how mining has shaped the whole global system, especially through the mining of Latin America. An insightful take on the power of extraction in shaping politics and broad international dynamics. Available online.

**Arce, Moises, and Adrian Siefkas. "Comparative Political Economy of Resource Extraction." In *Oxford Bibliographies in Political Science*. New York: Oxford University Press, 2019.**

Explores a wide variety of literature discussing the different aspects of comparative political economy of mining, especially in the Andes. Reviews also the literature on "resource curse," and compares different types of mining and oil extraction for their potential political difference.

**Auld, Graeme, Michele Betsill, and Stacy D. VanDeveer. "Transnational Governance for Mining and the Mineral Lifecycle." *Annual Review of Environment and Resources* 43 (2018): 425–453.**

Reviews the IR and other literature on the emerging transnational attempts to govern the mining sector. Available online.

**Conde, Marta. "Resistance to Mining: A Review." *Ecological Economics* 132 (2017): 80–90.**

A good literature review, covering especially the ecological economics viewpoint and publications on mining resistance.

**Ernst and Young. *Business Risks Facing Mining and Metals in 2019–20*. 2019.**

An important source for insights into the corporate side of how mining CEOs think about the changing political setting for extraction. The 2019–2020 assessment argues that the industry is facing its largest-ever disruption, as nationalist states and ever-more-critical and -knowledgeable stakeholders place the licenses to operate into question or cancel them. Available online.

**Kirsch, Stuart. *Mining Capitalism: The Relationship between Corporations and Their Critics*. Berkeley: University of California Press, 2013.**

An insightful anthropological study based on years of engaged scholarship in Papua New Guinea on transnational mining conflicts with indigenous populations. The author presents important conceptual distinctions, such as the politics of time and politics of space, which resistance can use.

**Kojola, Erik. "Bringing Back the Mines and a Way of Life: Populism and the Politics of Extraction." *Annals of the American Association of Geographers* 109.2 (2019): 371–381.**

An excellent article opening up how Trump and other recent populist leaders have married their political careers to supporting further extraction, especially the mining extraction framed ever more within the climate emergency as unsustainable and in need of transition. Shows how local and national dynamics need to be studied to explain how pro-extraction politicians rise to leading positions. Available online.

**Kröger, Markus.** “Spatial Causalities in Resource Rushes: Notes from the Finnish Mining Boom.” *Journal of Agrarian Change* 16.4 (2015): 543–570.

Explains how changes in physical spaces need to be analyzed in tandem with their causalities of changes in social and symbolic spaces, in order to understand how resource booms are either expanded or discontinued through politics. Shows empirically how the Arctic resource rush has largely failed thus far in producing low-cost commodities, as profit rates are mostly negative for the mining corporations expanding for example in Finland.

**Lahiri-Dutt, Kuntala, ed.** *Gendering the Field: Towards Sustainable Livelihoods for Mining Communities*. Canberra: Australian National University E Press, 2011.

A rare collection focusing on studying how gender is involved in and affected by mining operations.

**Özkaynak, Begüm, Beatriz Rodríguez-Labajos, Cem İskender Aydın, Ivonne Yanez, and Claudio Garibay.** *Towards Environmental Justice Success in Mining Conflicts: An Empirical Investigation*. EJOLT Report No. 14 (2015).

A large study on mining conflict dynamics and their characteristics based on many cases around the world.

## Hydrocarbons and Energy

A key dilemma in the IR of energy is that energy security is still mostly conceived of as security to have access to energy, instead of security threats posed by continuing usage of fossil fuels. Nyman 2018 explores this energy paradox, which actually creates insecurities, while energy transitions should be taking place much faster and more radically. Practical ways in which new global governance tools could be developed to reduce the extraction of fossil fuels are explored in Newell and Simms 2019, while a treaty to phase out coal usage is canvassed by Burke and Fishel 2020. A key impediment in realizing these radical changes is tied to the historical roots of energy as an abstract and Western concept that has been used for imperial aims to flatten other ways of understanding energy: Daggett 2019 argues that energy has to be decoupled from wage labor, and altogether rethought, as the current understanding of energy limits the possibilities of transformation. These problems are not limited to hydrocarbons, argues Hecht 2012 in an analysis of lopsided global nuclear politics, in which Africans at the sites of uranium extraction pay the cost for former imperial powers to be today's nuclear powers. Specific literatures on hydrocarbons and dilemmas of transitions to renewables in these geopolitics of energy are detailed in the subsections below. The discussion on energy politics here is divided into two specific subsections, the first of which focuses on hydrocarbons and the politics around them, and the second on the geopolitics and current transitions in the field of energy.

**Burke, Anthony, and Stefanie Fishel.** “A Coal Elimination Treaty 2030: Fast Tracking Climate Change Mitigation, Global Health and Security.” *Earth System Governance* 100046 (2020).

Lays out the many threats that continued coal usage poses for the planet, and details how a new treaty for eliminating coal is needed, offering examples of what this treaty could look like, and how to achieve these. New norms are needed in international law to reflect the reality of climate and health crises caused by coal.

**Daggett, Cara New.** *The Birth of Energy: Fossil Fuels, Thermodynamics, and the Politics of Work*. Durham, NC: Duke University Press, 2019.

A fresh retheorizing of energy and labor based on the genealogy of energy's cultural roots in the imperial 19th century's division of labor. Provides good conceptual tools for political ecologies of energy. “Energy” was invented as a key tool for putting the planet to work: as a tool of commensurability and measurement for empire-building.

**Hecht, Gabrielle.** *Being Nuclear: Africans and the Global Uranium Trade*. Cambridge, MA: MIT Press, 2012.

An award-winning rethinking of the global nuclear politics and unequal trade, opening up the deeper social, health, and political impacts that uranium extraction and trade have, especially in Africa, a major source.



**Newell, Peter, and Andrew Simms. "Towards a Fossil Fuel Non-proliferation Treaty." *Climate Policy* (2019).**

A parallel treaty to nuclear nonproliferation is suggested for fossil fuels. The article lays out the urgency and possibilities for such a treaty, and how to implement it justly, based on the prior example of nuclear and other global treaties. This would allow leaving major carbon sources in the ground.

**Nyman, Jonna. *The Energy Security Paradox: Rethinking Energy (In)security in the United States and China*. Oxford: Oxford University Press, 2018.**

Major book on how the pursuit for energy security must be understood as actually creating many insecurities in IR. The biggest problem is that the primacy of national energy security thinking has sidelined climate crisis concerns, another problem being the conflictive race for energy resources by global powers. The budding resistance to this energy paradox is also discussed.

## **Oil, Natural Gas, and Coal**

Coal, oil, and natural gas are the key energy resources of the modern world system, and there are benefits in studying them both separately and in conjunction. Geopolitics and global political economy of oil and other hydrocarbons have received large amounts of attention, from different perspectives, introduced in Bridge and Le Billon 2017. Much of world politics revolves around oil, explains Yetiv 2016. Both conservative and so-called progressive governments have been deeply immersed in the oily political economy of IR, as the gambling on future high oil prices and betting on development through building a petro-populist state by the Ecuadorian government studied by Lyall and Valdivia 2019 illustrates. Bridge 2010 reviews the literature on carbon politics, providing an important distinction of upstream and downstream politics, the former focusing on boycotts and consumer conscientization, and the latter on resistance at the points of production, arguing that it depends on the type of resource which politics is used more and is the more effective one. The relation between oil and democracy has also received attention. Brückner, et al. 2012 suggests that increases in oil prices support the building of democratic institutions in exporting countries. Ezeonu 2018 challenges this view, arguing that the global petroleum industry is a deeply criminal activity, as visible in its manifestations in state-corporate actions and pollution in Nigeria for example. Mitchell 2011 is the key to understand the complex relations between hydrocarbons and political dynamics, elucidating how the current Western democracies might to very large extent be carbon democracies, reliant on the cheap and continuous flow of hydrocarbons on which modern societies and economies, as well as polities, are built. Mitchell makes important analyses on how the local and global politics around resources have varied, depending on whether the global energy system was built around coal or oil. Oil, natural gas, and coal have complex, intertwining, complementary, and competing market and political dynamics, as Bradshaw and Boersma 2020 and Belyi 2016 elucidate for natural gas, and Thurber 2019 for coal. These books together help to understand how coal is used primarily due to its cheap costs and established patterns, while natural gas supporters struggle to establish themselves as an alternative to coal: natural gas would require the building of better transportation capacities, for example, to gain the globality that oil and coal have. The flaring used in liquid natural gas (LNG) production causes black carbon, these emissions potentially weakening the expansion of LNG.

**Belyi, Andrei V. *Transnational Gas Markets and Euro-Russian Energy Relations*. New York: Springer, 2016.**

Explains how the rise of natural gas has led to new politics, as the transportation of gas through pipelines or other forms requires the building of massive new infrastructure. The control of these transport logistics, and their building, are having major geopolitical impacts.

**Bradshaw, Michael J., and Tim Boersma. *Natural Gas*. Cambridge, UK: Polity Press, 2020.**

Good to read in conjunction with oil and coal studies, to understand the particular complexities and key roles that building of gas pipelines and transportation technologies currently play in international politics of extraction.

**Bridge, Gavin. "Resource Geographies 1: Making Carbon Economies, Old and New." *Progress in Human Geography* 35.6 (2010): 820–834.**

First of a superb series of articles on the role of resources from a geographical and global perspective. Excellent notes and conceptualizations on carbon and the politics of resisting destructive extraction.

**Bridge, Gavin, and Philippe Le Billon. *Oil*. 2d ed. Cambridge, UK: Polity Press, 2017.**

Probably the best available introduction to the political economy and geopolitics of oil. Recommended for undergraduates across differing fields.

**Brückner, Markus, Antonio Ciccone, and Andrea Tesei. "Oil Price Shocks, Income, and Democracy." *Review of Economics and Statistics* 94.2 (2012): 389–399.**

Offers evidence from the perspective of economics on the correlation between oil exports and democracy-building. Abstract available online.

**Ezeonu, Ifeanyi. *Market Criminology: State-Corporate Crime in the Petroleum Extraction Industry*. Abingdon, UK: Routledge, 2018.**

An important book that links the study of international criminology with an international political economic critique of neoliberal extractive policies and actors.

**Lyll, Angus, and Gabriela Valdivia. "The Speculative Petro-State: Volatile Oil Prices and Resource Populism in Ecuador." *Annals of the American Association of Geographers* 109.2 (2019): 349–360.**

An excellent article showing how the development promised by oil has led to complicated political conundrums for would-be progressives. Exemplifies how oil and other resource boom-bust cycles make and unmake populist leaders who convince electorates they could make use of these features of global capitalism, but more than often fail in this.

**Mitchell, Timothy. *Carbon Democracy: Political Power in the Age of Oil*. London: Verso, 2011.**

An innovative book arguing that coal participated in producing different kinds of politics in comparison to oil, due to differing logistical chains, which allowed for coal and logistical workers in the past to control the flow of the crucial commodity better than the more global and fluid oil production currently does.

**Thurber, Mark C. *Coal*. Cambridge, UK: Polity, 2019.**

A crucial book to understand why coal is still the most used global electricity source, and the challenges coal faces as the climate and environmental crises escalate.

**Yetiv, Steve. "Politics of Oil." In *Oxford Bibliographies in Political Science*. New York: Oxford University Press, 2016.**

There is a wide literature on oil, and this bibliography provides a magnificent overview on the many facets of oil and politics. Includes a survey of research on oil politics in different regions and historical moments, and a collection of references to sources of information on this commodity. The importance of oil in shaping the modern way of life and IR since the late 19th century is covered well.

## Energy Geopolitics and Transitions

The geopolitics of energy, principally of hydrocarbons but also of renewables, have received the most attention of all resource sectors in IR. Ahmed, et al. 2016 reviews the geographical scholarship on the role of energy in IR, including the key roles of the United States and some other nations, principally Russia and China, in controlling global energy supply by different means. McNeish, et al. 2015 explains why transitions to renewables are difficult, emphasizing the in-built momentum and power of hydrocarbon corporations and the states backing these in making transitions demanding. It has been very difficult to curb the consumption of hydrocarbons, for which reason Le Billon and Kristoffersen 2019 suggests that supply-side interventions should be marched onto the stage of global energy transitions: this curbing of coal, oil, and natural gas production at the points of production would have also major geopolitical implications. The authors of Bieler and Morton 2015 argue that the Iraq War was a symptom of the oil corporations having gained a very strong standing within US state structures, and suggest that the roles of such particular interests are central in explaining what they see as imperialistic

interventions. Foster and Clark 2004 provides a deeper ecological history on the imperialistic character of extraction. Until the 2000s, most of the geopolitics of energy assumed that scarcity and peak oil are forthcoming. However, new extraction technologies and accessing of ever-more-remote deposits, the rise of renewable energy, and the need to curb greenhouse gas emissions have remolded the panorama to one where an assumption of abundance, not scarcity, is shifting the dynamics of geopolitics: Klare 2017 reviews the new tensions this creates. The rise of renewables will create new actors, winners, and losers, argue Scholten 2018 and Vakulchuk, et al. 2020. Vakulchuk, et al. 2020 emphasizes the importance of not overlooking the actions of states and corporations dependent on coal, oil, and natural gas: how these corporations react to the energy transitions threatening them is the key factor. Lehmann 2017 lists many reasons not to expect the future to be greener, or more peaceful, starting from the direct linking of energy, of which the great majority still comes from hydrocarbons, with power in IR, making increased competition more likely than cooperation. As an example, Belcher, et al. 2019 details the heavy reliance of the US military on carbon-based fuels, explaining how militaries are powerful and key actors in global oil markets, and show little diversification away from hydrocarbons.

**Ahmed, Waqar, Reed Underwood, and Travis Lee. "Energy and Geopolitics." In *Oxford Bibliographies in Geography*. New York: Oxford University Press, 2016.**

A thorough review of geographical and other literature on the interface of energy resource geology, geopolitics, and political economy. Helpful in supplementing the analysis of political ecology that criticizes simplistic accounts of resource curse and the relation between endowments, politics, and development. An excellent discussion of diplomacy, security, and conflict related to extraction is provided in the end of the article.

**Belcher, Oliver, Patrick Bigger, Ben Neimark, and Cara Kennelly. "Hidden Carbon Costs of the 'Everywhere War': Logistics, Geopolitical Ecology, and the Carbon Boot-Print of the US Military." *Transactions of the Institute of British Geographers* (2019).**

An excellent article providing analysis on the role of particular key actors in current geopolitical ecology, in particular militaries, detailing the massive contributions of the US Air Force and Navy to carbon emissions and other ecologically damaging extractive operations. Argues that hidden powers with vested interests need to be scrutinized by analytical frameworks such as geopolitical ecology introduced in the article. Available online.

**Bieler, Andreas, and Adam David Morton. "Axis of Evil or Access to Diesel? Spaces of New Imperialism and the Iraq War." *Historical Materialism* 23.2 (2015): 94–130.**

Much has been written about oil wars and the Iraq Wars in particular; this article provides a neo-Marxist reading. Opens up the centrality of existing and foreseen changes in global power as transmitted by the established hydrocarbon political economies. Good remarks on the relation between transnational capital, class, and the state, and how these are formed through extractive interests. Available online.

**Foster, John Bellamy, and Brett Clark. "Ecological Imperialism: The Curse of Capitalism." *Socialist Register* 40.40 (2004): 186–201.**

Draws on the concept of environmental historian Alfred Crosby to gauge how IR and development have been affected in the past by ecological imperialism, whose danger the authors see as rising, due to the core requirement of capitalism to extract new resources for accumulation elsewhere to be possible, and the negative ecological impacts of this, a process Marx called a metabolic rift. Available online.

**Klare, Michael T. "From Scarcity to Abundance: The New Geopolitics of Energy." *Current History* 116.786 (2017): 3.**

The geopolitics of energy has witnessed a huge transformation between the 2000s and 2010s, reviewed in this piece. The rapid transformations suggest that analyses in this sector can fast become obsolete, which provides an ample arena for frequent updates by scholars on the evolving dynamics. Available online.

**Le Billon, Philippe, and Berit Kristoffersen. "Just Cuts for Fossil Fuels? Supply-Side Carbon Constraints and Energy Transition." *Environment and Planning A: Economy and Space* (2019).**

A pathbreaking article suggesting concrete ways forward for starting to reverse the trend of rising carbon emissions, by curbing hydrocarbon extraction at the points of production. A good toolkit for understanding the role of power relations in energy transitions is suggested. Available online.

**Lehmann, Timothy C., ed. *The Geopolitics of Global Energy: The New Cost of Plenty*. Boulder, CO: Lynne Rienner, 2017.**

An excellent book by leading scholars on the role of energy in global politics and economy. Highly recommended for those wanting to introduce themselves to the geopolitics of energy, as well as for deeper and contrasting theorizations on extraction, energy, and global power.

**McNeish, John-Andrew, Axel Borchgrevink, and Owen Logan, eds. *Contested Powers: The Politics of Energy and Development in Latin America*. London: Zed Books, 2015.**

Opens up the deeper roots and dynamics of energy politics, explaining through a comparison of fossil and renewable industries how these are intertwined, and how inequality in terms of underlying financial and political power would need to be addressed before a true transition to renewables can take place.

**Scholten, Daniel, ed. *The Geopolitics of Renewables*. New York: Springer, 2018.**

Reviews well the way renewables can be studied from the perspective of IR theories, and how the rise of renewables might affect IR. Chapters by different authors on an assortment of interesting topics.

**Vakulchuk, Roman, Indra Overland, and Daniel Scholten. "Renewable Energy and Geopolitics: A Review." *Renewable and Sustainable Energy Reviews* (2020): 109547.**

An excellent article reviewing the state of the art in understanding how renewables increasingly transform the winners and losers in the geopolitics of energy. Calls for systematic analysis that does not lump together all renewables, as these have radically differing dynamics. Reviews also how and which fossil fuel corporations fight against transitions, and the bottlenecks in terms of required extracted minerals for transitions to so-called clean energy technologies. Available online.

## Water

Water has been and will be an extremely important feature of IR. Feldman 2012 provides a broad overview of the wars that have been fought over water access and control: freshwater conflicts abound around the damming of rivers, construction of irrigation channels, water pipelines, access to clean water, and water contamination by different extractive sectors and user groups. Conflicts related to the use and control of freshwater (as a target of extraction) have specific dynamics. Political ecologists study conflicts and inequalities of water from the perspective of hydrosocial territories in Boelens, et al. 2017. Specialists on water and international conflict analyze how fears of losing access to international water basins foster the preparedness to go to war in the special issue introduced in Rahaman 2012. There are almost 3 billion people who live within transboundary river basins, for which reason the experts on international water governance in the handbook on international water law introduced by McCaffrey, et al. 2019 foresee a very difficult future for retaining peaceful and just distribution of water access. This is already visible in the highly conflictive and violent politics where dam-builders frame dams as "renewable," and those resisting them are frequently assassinated, as Del Bene, et al. 2018 analyzes. River basin politics have complex dynamics: Räsänen, et al. 2017 opens up the multiple stressors driving water-related risks and vulnerabilities, and the importance of contextual specificities. There are also generalities: Khagram 2004 provides an international assessment of the broad political dynamics important for understanding when dam projects are stalled or expanded. The criticism of the "water leads to war" thesis is reviewed by the authors of Dell'Angelo, et al. 2018. They argue that while water wars are less likely in the future than water peace, there are hidden socioenvironmental costs in the transnational transfer of water. Incera, et al. 2017 opens up how this refers particularly to the transfer of heavily water-utilizing and water-contaminating agricultural, industrial, and extractive activities to global peripheries, where water is extracted and polluted in a hidden manner, referred to as gray-water footprint in the literature. Water

contamination and usage are typically centralized in key hotspots. Different products and sectors have been calculated for their water footprints: Evans, et al. 2019 argues that agricultural water contamination is increasing and should be paid much more attention to.

**Boelens, Rutgerd, Ben Crow, Jaime Hoogesteger, Flora E. Lu, Erik Swyngedouw, and Jeroen Vos, eds. *Hydrosocial Territories and Water Equity: Theory, Governance, and Sites of Struggle*. London: Routledge, 2017.**

Political-ecological perspective to water governance and conflicts, with focus on hydrosocial territories and hydrosocial interactions.

**Del Bene, Daniela, Arnim Scheidel, and Leah Temper. "More Dams, More Violence? A Global Analysis on Resistances and Repression around Conflictive Dams through Co-produced Knowledge." *Sustainability Science* 13.3 (2018): 617–633.**

An outstanding article opening up the multiple forms of violence that resistance to dams continues to face, based on a globally unique, large, and qualitatively innovative database with input from practitioners.

**Dell'Angelo, Jampel, Paolo D'Odorico, and Maria Cristina Rulli. "The Neglected Costs of Water Peace." *Wiley Interdisciplinary Reviews: Water* 5.6 (2018): e1316.**

An excellent review of the water wars debate, plus an analysis of the hidden costs in the so-called virtual water trade. Available online.

**Evans, Alexandra E., Javier Mateo-Sagasta, Manzoor Qadir, Eline Boelee, and Alessio Ippolito. "Agricultural Water Pollution: Key Knowledge Gaps and Research Needs." *Current Opinion in Environmental Sustainability* 36 (2019): 20–27.**

Analyzes the broad global drivers behind rising water pollution, and how the current agricultural systems will reduce clean water. Details the many forms and avenues of current and forthcoming pollution. Available online.

**Feldman, David L. *Water*. Cambridge, UK: Polity Press, 2012.**

A landmark book of many aspects of political economy of water, including discussion of geopolitics, control, and environmental justice.

**Incera, André Carrascal, André F. T. Avelino, and Alberto Franco Solís. "Gray Water and Environmental Externalities: International Patterns of Water Pollution through a Structural Decomposition Analysis." *Journal of Cleaner Production* 165 (2017): 1174–1187.**

A groundbreaking article assessing the countries and sectors in which water pollution, through transfer of industrial processes and growth of agricultural activities, is concentrating. China has led the figures by far in all the sectors since 1995, followed by India, the United States, Russia, and Brazil. Available online.

**Khagram, Sanjeev. *Dams and Development: Transnational Struggles for Water and Power*. Ithaca, NY: Cornell University Press, 2004.**

A pathbreaking study on global dam struggles, making important claims on the global and local dynamics that explain success of social movements.

**McCaffrey, Stephen C., Christina Leb, and Riley T. Denoon. "Introduction to the Research Handbook on International Water Law." In *Research Handbook on International Water Law*. Edited by Stephen C. McCaffrey, Christina Leb, and Riley T. Denoon, 1–10. Northampton, MA: Edward Elgar, 2019.**

A thorough exploration of international water governance and conflict potential.

**Rahaman, Muhammad Mizanur. "Water Wars in 21st Century: Speculation or Reality?" In *Special Issue: Water Wars in 21st Century along International Rivers Basins: Speculation or Reality?* Edited by Muhammad Mizanur Rahaman. *International Journal of Sustainable Society* 4.1–2 (2012): 3–10.**

Introduces a special issue on transnational river basins; the authors discuss whether and how water has led to war, and what the future of ever-scarcer water access might look like. Available online.

**Räsänen, Aleks, Sirkku Juhola, Adrián Monge, Mira Käkönen, Markku Kanninen, and Anja Nygren. "Identifying Mismatches between Institutional Perceptions of Water-Related Risk Drivers and Water Management Strategies in Three River Basin Areas." *Journal of Hydrology* 550 (2017): 704–715.**

A superb article opening up the importance of considering contextual and multiple factors when examining water politics. Available online.

## Food and Feed

The global political economy and ecology of food have received much attention, with key topics including the green revolution and the related global hunger, lopsided consumption, and sustainability crises, and the creation of globalized food systems, regimes, and power hierarchies. Barthwal-Datta 2014 elucidates how the 2008 global financial crisis, the rising consumption of meat, and food and feed import dependencies, especially of many Asian countries, have put food security into the limelight and raised fears of the world not being able to feed all. A world-systems analysis of food regimes is provided by Friedmann 2017, which explores the possibilities of moving toward more sustainable food systems through a historical agro-economic systems perspective. Clapp, et al. 2018 links the impact of global food production to deforestation and other key features of climate change caused by current food systems, discussing also questions of inequality. Increased corporate power has created many tensions with farmers, consumers, states, and multilateral organizations, highlighted by Patel 2013, and led to rising sustainability crises and problems, discussed by Weis 2013. The increasing usage of land for monoculture feed plantations is particularly worrying, also for causing rural exodus. Peasants and peasant societies have been and continue to be important in IR, argues Bernstein, et al. 2018: the role of peasantry is a key theoretical debate, but peasants are also an evolving global actor. Akram-Lodhi 2015 highlights the importance of food sovereignty, especially by peasants, in improving the current food production systems. McKeon 2017 explores the relation of agrifood corporations and transnational movements of small-scale producers in reshaping the United Nations and World Trade Organization institutions governing global food production. A general review of the state of knowledge in IR scholarship focusing on food can be found in Clapp and Scott 2018. Lastly, Borras, et al. 2016 is essential for understanding how the global dynamics around key commodities are rapidly changing with increased industrial possibilities for producing multiple products from key crops, such as soybean, and also are flexibly changing the focus across these product lines as valuations change within global value webs.

**Akram-Lodhi, A. Haroon. "Accelerating towards Food Sovereignty." *Third World Quarterly* 36.3 (2015): 563–583.**

Offers a political ecology perspective to sustainable rural transitions, development, and livelihoods. Provides concrete examples on why food sovereignty is needed, and how to strive toward this internationally. Available online.

**Barthwal-Datta, Monika. *Food Security in Asia: Challenges, Policies and Implications*. Abingdon, UK: Routledge, 2014.**

Lays out the drastic imbalances in food and feed trade between key Asian nations, and the unsustainability and risky current trajectories where domestic and foreign peasants crucial for food production are dispossessed. This is especially worrying given the current environmental crises and rising difficulties of producing food.

**Bernstein, Henry, Harriet Friedmann, Jan Douwe van der Ploeg, Teodor Shanin, and Ben White. "Fifty Years of Debate on Peasantries, 1966–2016." *The Journal of Peasant Studies* 45.4 (2018): 689–714.**

Five key scholars of peasant studies review the history of this field, which has been a key approach to study the transformations and broader political economic impacts of peasant societies, especially within globalizing food production. Explains how peasants were crucial in the Cold War and other key IR. Available online.

**Borras, Saturnino M., Jr., Jennifer C. Franco, S. Ryan Isakson, Les Levidow, and Pietje Vervest. "The Rise of Flex Crops and Commodities: Implications for Research." *The Journal of Peasant Studies* 43.1 (2016): 93–115.**

A pathbreaking introduction to the several articles in the journal that analyze how the increasing number of different uses for key crops and commodities, such as corn, soybean, sugarcane, oil palm, and trees, changes the politics of their global extraction. Includes a new theory on how global value webs are transformed due to increasing flexing possibilities between the new multiple uses.

**Clapp, Jennifer, Peter Newell, and Zoe W. Brent. "The Global Political Economy of Climate Change, Agriculture and Food Systems." In *Special Forum on Climate Smart Agriculture*. Edited by Jennifer Clapp, Peter Newell, and Zoe W. Brent. *The Journal of Peasant Studies* 45.1 (2018): 80–88.**

An introduction to a special issue that delves into the dynamics of global food systems, extractive practices of agriculture, and climate change. Available online.

**Clapp, Jennifer, and Caitlin Scott. "The Global Environmental Politics of Food." In *Special Issue: The Global Environmental Politics of Food*. Edited by Jennifer Clapp and Caitlin Scott. *Global Environmental Politics* 18.2 (2018): 1–11.**

An introduction to a special issue studying food from the perspective of global environmental politics. Available online.

**Friedmann, Harriet. "Paradox of Transition: Two Reports on How to Move towards Sustainable Food Systems." *Development and Change* 48.5 (2017): 1210–1226.**

An example of the vast array of analyses by this key scholar of world-systems analysis of global food regimes, this article tracks the ways for transitioning to sustainable global food production.

**McKeon, Nora. "Civil Society-Public Institution Relations in Global Food Policy: The Case of FAO and the CFS." In *Partnerships in International Policy-Making*. Edited by Raffaele Marchetti, 71–88. London: Palgrave Macmillan, 2017.**

An excellent analysis on how the roles of the FAO and the UN Committee on World Food Security have been reshaped by transnational civil society and corporate actors. Available online.

**Patel, Raj. "The Long Green Revolution." *The Journal of Peasant Studies* 40.1 (2013): 1–63.**

Explores the pitfalls of the green revolution, and critically examines the trajectory of this project, opening up also the key features in the contemporary green revolution, such as land grabs and patenting. Available online.

**Weis, Tony. *The Ecological Hoofprint: The Global Burden of Industrial Livestock*. London: Zed, 2013.**

An important book on the colossal contribution of industrial livestock and meat eating on global methane emissions and other forms of pollution; essential reading.

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