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Carbon Colonialism: Power, Oil, and Ecology in the Netherlands and its Empire, ca. 1920-1955

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This thesis is a product of the pandemic. Instead of going on exchange to vibrant Berlin, I was stuck in my room in 2020. I started to delve into the history of oil and gas in the Netherlands and look for colonial connections with help of Gertjan Plets and the Carbon Cultures project at Utrecht University. When I came to Leiden University, I let the theme rest for a while. Cátia Antunes encouraged me to pursue the project and commented on an early proposal. This year Cátia was a great supervisor.

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Note on translations and Spelling

I refer to place names as they are spelled today (Djambi becomes Jambi), but I spell personal names as they were written by contemporaries (Tjipto Mangoenkoesoemo remains Tjipto Mangoenkoesoemo). All translations, unless indicated otherwise, are mine.

Reference of the image on the thesis' cover: *Putbrand op het boorterrein van de Nederlandsch-Indische Aardolie Maatschappij te Pangkalansoesoe bij Pangkalanbrandan,* Photograph, Leiden University Library Digital Collections, KITLV 16735, ca. 1925, http://hdl.handle.net/1887.1/item:787555.

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Introduction

Oil and gas fuelled the late-colonial Dutch East Indies and the post-war Netherlands. Oil powered the ships and aeroplanes tying the islands of the colony to the metropole, it galvanised industry, and through spills and leaking it scarred the landscapes of Sumatra, Java, and Drenthe. Gas brought warmth to households, billions to the state, and earthquakes to Groningen. If we live today in the Anthropocene – the period in which humans are a geological force – then the extraction of fuel from the depths of the earth is the most poignant expression of this new human role.[1] By changing the subterranean structure of the earth, altering landscapes in zones of extraction, and driving global greenhouse gas emissions the oil and gas industry played a key part in shaping our current ecological predicament.[2] Indeed, the fossil-fuel industry is the cardinal driver of global warming and an emblem of the Anthropocene.

Yet, we understand surprisingly little about where the fossil-fuel industry in the Netherlands comes from. Studies on the past and present of energy in the Netherlands suffer from methodological nationalism. Social scientists today are the most perceptive observers and interpreters of the state and structure of the Dutch fossil-fuel economy.[3] In their analyses, they thoroughly document how the energy sector operates today and identify blockages for the energy transition.[4] These studies take the nation-state as the natural unit of analysis. To explain events in Groningen, however, gas shortages in Italy and gas supplies from Russia are as relevant as decisions made in The Hague are. Only focusing on the Netherlands, in other words, leads to impoverished explanations. In the work of social scientists, the past of the energy sector, furthermore, remains in the shadows.

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[1] Paul J. Crutzen, "The 'Anthropocene,'" in *Earth System Science in the Anthropocene: Emerging Issues and Problems*, ed. Eckart Ehlers and Thomas Krafft (Heidelberg: Springer, 2006), 13; See for a critical discussion of the term: Elaine Gan et al., "Introduction: Haunted Landscapes of the Anthropocene," in *Arts of Living on a Damaged Planet: Ghosts of the Anthropocene*, ed. Anna Lowenhaupt Tsing et al. (Minneapolis; London: University of Minnesota Press, 2017), 3; The most poignant critique of the concept comes from Jason Moore who argues that it is not the human per se, but rather the capitalist that acquired geological agency. Despite this valuable perspective, I agree with Gan et al. to keep on using the term Anthropocene while taking into account the inequalities between humans instead of reverting to Moore's metahistorical-Marxist perspective. Jason W. Moore, "The Capitalocene, Part I: On the Nature and Origins of Our Ecological Crisis," *The Journal of Peasant Studies* 44, no. 3 (2017): 594–630.

[2] Brenda Ekwurzel et al., "The Rise in Global Atmospheric CO2, Surface Temperature, and Sea Level from Emissions Traced to Major Carbon Producers," *Climatic Change* 144, no. 4 (2017): 579–90.

[3] W. Max Corden and J. Peter Neary, "Booming Sector and De-Industrialisation in a Small Open Economy," *The Economic Journal* 92, no. 368 (1982): 825–48; Johannes Kester, "Energy Security and Human Security in a Dutch Gasquake Context: A Case of Localized Performative Politics," *Energy Research & Social Science*, 24 (2017): 12–20; Melanie M. Bakema, Constanza Parra, and Philip McCann, "Analyzing the Social Lead-up to a Human-Induced Disaster: The Gas Extraction-Earthquake Nexus in Groningen, The Netherlands," *Sustainability* 10, no. 10 (2018): 3621-41; Michiel Köhne and Elisabet Dueholm Rasch, "Belonging to and in the Shale Gas Fields. A Case-Study of the Noordoostpolder, the Netherlands," *Sociologia Ruralis* 58, no. 3 (2018): 604–24.

[4] Oxenaar and Bosman, "Managing the Decline of Fossil Fuels in a Fossil Fuel Intensive Economy: The Case of The Netherlands."

Energy historians can shine some light on the past of the fossil-fuel economy in the Netherlands.[5] Work on the coal mines of Limburg and energy transitions shows how societal transformations were underpinned by changes in the provision of energy. Yet, the energy history of the Netherlands also finds its explanations and context to understand the impact of coal, oil, and gas solely within the borders of the Dutch nation-state. Consequently, energy history cannot understand the object of its study. The story of oil presented in this thesis speaks to an essential, yet unexplored, characteristic of the Dutch fossil-fuel economy. A decisive influence on the Dutch fossil-fuel economy came from the Dutch East Indies.

All the arguments and considerations of this thesis arise from the following premise: to understand Dutch energy history we need to go back to the Dutch East Indies. Contrary to histories that depict the rise of fossil fuels as starting in the West and spreading to the Rest, I argue that the colony was the principal laboratory for petromodernity.[6] Oil extraction started in the Dutch East Indies and gave rise to the corporate behemoth Royal Dutch (later known as Royal Dutch/Shell and today as Shell), intimate contacts between the Dutch state and energy corporations, and severe pollution. The question is *how* did the political, social, and environmental practices of hydrocarbon extraction in the colony shape those in the Netherlands?

Writing the history of oil from the perspective of the colony leads to a reconsideration of the concept of power in colonial historiography. I retrace the advent of oil extract in the Netherlands to the late-colonial Dutch East Indies in order to broaden the notion of power within historiography. Discussions of power in the Dutch East Indies are currently couched in familiar terms: extreme violence, the Foucauldian power-knowledge nexus and biopolitics,

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[5] Ben Gales, "Mijnbouw," in *Delfstoffen, machine- en scheepsbouw, stoom, chemie, telegrafie en telefonie*, ed. Harry Lintsen, 5 vols., Geschiedenis van de techniek in Nederland: 4 (Zutphen: Walburg Pers, 1993), 13–36; J.W. Schot et al., eds., *Delfstoffen, energie, chemie*, Techniek in Nederland in de twinstige eeuw: 2 (Zutphen: Walburg Pers, 2000); Rick Hölsgens, "Sustainability Challenges of the Mid-Nineteenth-Century Dutch Energy System," *TSEG-The Low Countries Journal of Social and Economic History* 13, no. 3 (2016): 29–50; Rick Hölsgens, "Resource Dependence and Energy Risks in the Netherlands since the Mid-Nineteenth Century," *Energy Policy* 125 (2019): 45–54; A recent exception to methodological nationalism is: Frank Veraart, Jan-Pieter Smits, and Erik van der Vleuten, "Connected by Oil: A Framework to Analyze the Connected Sustainability Histories of the Niger and Rhine Deltas, 1950-2015," *The Extractive Industries and Society* 7, no. 1 (2020): 50–67.

[6] Andreas Malm, *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming* (London; New York: Verso, 2016); Megan Black, *The Global Interior: Mineral Frontiers and American Power* (Cambridge, Massachusetts: Harvard University Press, 2018); Carola Hein and Alan Lessoff, "The Original North American Petroleumscape: Oil-and-Gas Empire, Petrochemical Nation," in *Oil Spaces: Exploring the Global Petroleumscape*, ed. Carola Hein (New York: Routledge, 2021), 21–42; See for the idea that the colony is the laboratory of modernity: Gwendolyn Wright, "Tradition in the Service of Modernity: Architecture and Urbanism in French Colonial Policy, 1900-1930," in *Tensions of Empire: Colonial Cultures in a Bourgeois World*, ed. Ann Stoler and Frederick Cooper (Berkeley: University of California Press, 1997), 322–45; See for the concept of petromodernity: Stephanie LeMenager, "The Aesthetics of Petroleum, after Oil!," *American Literary History* 24, no. 1 (2012): 60.

Gramscian hegemony, and performances.[7] Historians describe how power was exercised in the Dutch East Indies, the fragmented nature of the colonial state, and continuously underscore the limits of colonial power.[8] The late-colonial state was fundamentally a weak state that ruled with great ambivalence and inconsistent means.

The writer A. Alberts wrote that: "[a] colony is but a human."[9] This sentence captures the view of empire and power that undergirds the historiography of the Dutch East Indies: it is but a human phenomenon. The frequent invocation of Foucault's thought and his concept of "biopolitics" more specifically shows how this works.[10] The *bios* [life] of biopolitics stands for the *bios* of the *Anthropos* [human]. In other words, the subject of colonial politics, discipline, and violence is human. Colonial historians and anthropologists have fruitfully dislodged Foucault's thought from the narrow European focus of his writings and applied it to the Dutch East Indies.[11] Most recently, Albert Schrauwers showed how biopolitical techniques circulated between the colony and metropole and between the state and corporations, thus expanding the literature on biopolitics to the corporation and the interplay between metropole and colony.[12] Schrauwers underscores that new forms of colonial power never remain isolated in the colony and, eventually, will arrive in the metropole. This is a theme this thesis picks up. However, as other authors do, Schrauwers reproduces Foucault's focus on subjects. Indeed, only humans figure in his narrative.

A conception of power that only considers humans as building blocks of empire has little explanatory value for understanding the relationship between empire and the Anthropocene.

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[7] Rémy Limpach, *De brandende kampongs van generaal Spoor* (Amsterdam: Boom, 2016); Ann Stoler, *Carnal Knowledge and Imperial Power: Race and the Intimate in Colonial Rule*, U(Berkeley, CA [etc.]: University of California Press, 2010); Maarten Manse, "Promise, Pretence and Pragmatism: Governance and Taxation in Colonial Indonesia, 1870-19140" (PhD diss., Leiden University, 2021); Albert Schrauwers, *Merchant Kings: Corporate Governmentality in the Dutch Colonial Empire, 1815-1870* (New York: Berghahn, 2021); Arnout van Der Meer, *Performing Power: Cultural Hegemony, Identity, and Resistance in Colonial Indonesia* (Ithaca: Cornell University Press, 2020); Bart Luttikhuis, "Negotiating Modernity : Europeanness in Late Colonial Indonesia, 1910-1942" (PhD diss., European University Institute, 2014).

[8] Elsbeth Locher-Scholten, *Sumatraans sultanaat en koloniale staat: De relatie Djambi-Batavia (1830-1907) en het Nederlandse imperialisme* (Leiden: KITLV Uitgeverij, 1994); Marieke Bloembergen, *Uit zorg en angst: De geschiedenis van de politie in Nederlands-Indië* (Amsterdam; Leiden: Boom; KITLV Uitgeverij, 2009); Eric Tagliacozzo, "Before the Gangrene Set In: The Dutch East Indies in 1910," in *Asia Inside Out: Changing Times*, ed. Eric Tagliacozzo, Helen Siu, and Peter Perdue (Cambridge: Harvard University Press, 2015), 226–49; David Kloos, "A Crazy State: Violence, Psychiatry, and Colonialism in Aceh, Indonesia, ca. 1910–1942," *Bijdragen Tot de Taal-, Land-En Volkenkunde/Journal of the Humanities and Social Sciences of Southeast Asia* 170, no. 1 (2014): 25–65.

[9] A. Alberts, *Een kolonie is ook maar een mens* (Amsterdam: Van Oorschot, 1989).

[10] Michel Foucault, *The Birth of Biopolitics: Lectures at the Collège de France, 1978-79* (Basingstoke; New York: Palgrave Macmillan, 2008), 21; For the broader project of Foucault's work see: Michel Foucault, "The Subject and Power," *Critical Inquiry* 8, no. 4 (1982): 777–95.

[11] This finds its origin in: Stoler, *Carnal Knowledge and Imperial Power*, 140–61.

[12] Schrauwers, *Merchant Kings*.

To understand how specific humans exploited the earth and all that lived on it and brought carbon from the depths of the earth to the skies, it is vital to not only study human relations. This thesis joins a growing body of scholarship that considers empire as a more-than-human affair.[13] Writing the history of empire in light of the Anthropocene means reimagining the Dutch East Indies as a theatre in which trees, animals, and fossil fuels were as important constituents of empire as generals, revolutionary leaders, and armed forces.

Carbon Colonialism

To broaden the notion of power in the historiography of the Dutch East Indies, this thesis introduces the concept of '*carbon colonialism*' to describe the form of power that emerged at the intersection of the colonial state, oil corporations, and fossil fuels. *Carbon* denotes that this power emanated from the control over oil and oil revenue. As the different chapters show, control over oil generated the power to squeeze the living standards of people and to restructure the economy by powering certain industries. Furthermore, oil extraction and oil transportation lead to the pollution and degradation of landscapes. The power over oil always entailed the power to pollute. It is a *colonial* form of power because it operated with scant disregard for indigenous people, their ecologies, and because it systematically elevated profit over the concerns of colonial subjects. Carbon colonialism, however, did not remain confined to the colony. When decolonisation restricted access to the oil fields of Indonesia, carbon colonialism came to the Netherlands. There it transformed into the *Nederlandse Aardolie Maatschappij* (NAM). Through NAM, carbon colonialism lies at the root of the current Dutch fossil-fuel economy and its many discontents.

Studying oil in Dutch East Indies, its connections to the Netherlands, and minting the concept of carbon colonialism is important because it points to a pattern and a form of power neither studied nor conceptualised by the international literature on the carbon economy. In the past years, different authors have launched new concepts to reimagine how states, societies, and economies function when read against the backdrop of the fossil-fuel economy. The need for new words marks the fact that we are entering unexplored terrain. Just as Heidegger needed neologisms to rethink the concept and history of being, historiography invents new terms to

[13] Kathleen D. Morrison, "Empires as Ecosystem Engineers: Toward a Nonbinary Political Ecology," *Journal of Anthropological Archaeology* 52 (2018): 196–203; Corey Ross, *Ecology and Power in the Age of Empire: Europe and the Transformation of the Tropical World* (Oxford: Oxford University Press, 2017); Katja Bruisch, "Nature Mistaken: Resource-Making, Emotions and the Transformation of Peatlands in the Russian Empire and the Soviet Union," *Environment and History* 26, no. 3 (2020): 359–82; Emma Gattey, "Global Histories of Empire and Climate in the Anthropocene," *History Compass* 19, no. 8 (2021): 1–13.

rethink history through the prism of energy.[14] The concepts today are not "*Seinsvergessenheit*" or "*Geworfenheit,*" instead "energopower," "carbon democracy," "carbon technocracy," and "coalonialism" light the way.[15] None of these concepts is, or aspires to be, a master category. These terms map parts of the entanglement of power and fossil fuels. By introducing yet another neologism I intend to think with and against the emerging framework.

"Carbon democracy" describes how the switch from coal to oil in the United States and Western Europe undercut the power of organised labour and increased the power of capital.[16] Whereas coal mines and their rigid supply lines required large amounts of labour, oil is capital-intensive and has flexible avenues of delivery. A strike in the mines could be fatal to an economy and this fact handed power to unions. A strike in the oil industry, on the other hand, could be overcome by importing oil from a different source or using a different refinery. Carbon colonialism, on the contrary, shows that the newly-established democracy in the Netherlands in the early twentieth century extended democratic control over oil. Oil did not weaken democracy in the metropole. In the colonial zone of extraction, however, emerging mass movements were denied a say over oil. The concept of carbon colonialism thus maps how oil functioned within the hierarchical structure of colony and metropole.

The related concept "carbon technocracy" shows how states in East Asia managed coal mines and harnessed coal energy to transform societies and build up industries.[17] The focus of this concept lies on the state and its experts and how they encouraged "the exploitation of fossil fuels for statist ends."[18] Carbon technocracy revolves around the state. The political economy undergirding carbon colonialism is a different one, however. In the colonial petroleum industry, oil and oil money was neither fully public nor fully private. This industry and the power it generated emerged at the intersection of corporate and state institutions. Solely focusing on the state obscures the importance of corporations in large parts of the twentieth-century energy landscape and sector. Instead of centring the analysis on the state, carbon colonialism focuses on the interplay between oil corporations and the state.

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[14] Thomas Rentsch, *Martin Heidegger, Sein Und Zeit*, Band 25, Klassiker Auslegen (Berlin: De Gruyter, 2015).
[15] Dominic Boyer, "Energopower: An Introduction," *Anthropological Quarterly* 87, no. 2 (2014): 325; Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (London; New York: Verso, 2011), 8–9; Victor Seow, *Carbon Technocracy: Energy Regimes in Modern East Asia*, *Carbon Technocracy* (Chicago: University of Chicago Press, 2022), 15; On Barak, *Powering Empire: How Coal Made the Middle East and Sparked Global Carbonization* (Oakland, California: University of California Press, 2020), 8.
[16] Mitchell, *Carbon Democracy: Political Power in the Age of Oil*, 38–41.
[17] Seow, *Carbon Technocracy*, 4–17.
[18] Seow, 4.

"Energopower" is an anthropological concept that highlights the efforts states and other actors make to govern, secure, and enable flows of energy.[19] Instead of primarily engaging in corporate social responsibility programs or biopolitical campaigns, anthropologists observe that energy corporations primarily seek to secure the electrical grid, pipelines, or tankers. Thus, whereas in 'carbon democracy' oil is a source of power, energopower describes energy as an object of power. Carbon colonialism takes this concern on board but embeds energopower in an ecological context. Transporting oil is vital to an oil company and this involves reshaping ecologies and landscapes to build a pipeline. Carbon colonialism thus connects energopower to environmental history.

Lastly, "coalonialism," perhaps the most awkward neologism, captures the spatial and environmental transformation the coaling stations of the British Empire brought to the Middle East.[20] Coalonialism shows the transformative impact of the empire-fossil-fuel nexus. The city of Aden, for instance, grew around a coaling depot. To supply this growing city with meat, the British started encouraging cattle farming in Somaliland, remaking the ecology on both sides of the Gulf of Aden. The spatial imprint of oil, however, is different. Coal's geography consists of mines, railroads, and coaling stations. Oil, however, travels through pipelines and relies on refineries. Carbon colonialism maps the entanglements of oil and empire and the impact of this nexus on the environment, thus mirroring coalonialism in this way.

Shell, Sources, and Silence

This is a history of the Dutch East Indies, the Netherlands, and oil without the archives of the most iconic oil company in Dutch history: Shell. Shell was so kind to receive me at its The Hague offices and let me read some documents from its archives. Shell's generosity, however, was conditional on me signing a contract to not publish based on its archives unless the company agreed to the final text. Shell may or may not accept the narrative and arguments of this thesis. Every employee or representative of the company is free to read my thesis. So is everyone else. I do not want Shell to have a say over whether or not my thesis is fit to be published or distributed beyond a small circle of academics. Therefore, I will not draw on the material I saw in Shell's basement.

Instead, I do what historians have done since the French Revolution: publicly available research based on publicly accessible sources. The fact that the sources I draw on are freely and easily available, however, does not mean historians have already studied the relevant collections. On

[19] Boyer, "Energopower," 310–27.
[20] Barak, *Powering Empire*, 8–12.

the contrary, the archives of *Waterschappen,* municipalities, and the documents relating to oil companies in the National Archives have been overlooked. Carbon colonialism is a function of the corporate-state nexus. Indeed, the state was deeply involved in the oil industry and thus its archives are full of traces, hints, and stains of oil. As the chapters of this thesis will show, the material scattered over different archives in the Netherlands is not only a necessary but also a sufficient condition for writing oil into the history of the Netherlands and the Dutch East Indies.

The real hiatus of this thesis, thus, is not the corporate archive. Rather the archives of the colonial state and its postcolonial successor in Indonesia form the missing link. Throughout the narrative, I try to include the perspectives of those standing outside the state and corporations. However, the source material available to me in the Netherlands has its limitations in this regard. Some voices cannot be heard in the colonial archive, however hard you try to listen.[21] I seek, in those instances, to recognise the violence meted out by the colonial state and fossil-fuel corporations and to not reproduce the violence of the colonial archive.[22]

The limits of the colonial and corporate archive, however, are not the limits of this thesis. I contextualise state archives and corporate documents with alternative sources to capture parts of historical reality that fell outside the purview or interest of elite actors. Scientific studies on ecology and pollution make visible what was of little interest to oil companies and civil servants: oil dramatically impacts the environment with which it comes into contact. Photographs of oil fields and infrastructural works also form a valuable source. Whereas most studies of colonial photography tend to trace the agency of photographers or the representation or framing of colonial society, in this thesis I read photographs as "raw histories" that contain insights into history beyond the intentions of the photographers and the discursive frames that give meaning to the photographs.[23] Photographs captured more of reality than the producer of the photographs and distributer might have suspected. In the context of the oil industry, ecological harm "exceeds the frame" of an oil corporation's promotional photographs and that is why these photographs are a valuable source.[24] Lastly, the work of a sociologist who visited a Dutch

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[21] Gayatri Chakravorty Spivak, "Can the Subaltern Speak?," in *Can the Subaltern Speak?: Reflections on the History of an Idea*, ed. Rosalind Morris (New York: Columbia University Press, 2010), 61–63.
[22] Michel-Rolph Trouillot, *Silencing the Past: Power and the Production of History* (Boston: Beacon Press, 2015), 26; 48–55.
[23] Elizabeth Edwards, *Raw Histories: Photographs, Anthropology, and Museums* (Oxford: Berg, 2001), 4; For photography in the Dutch East Indies see: Susie Protschky, ed., *Photography, Modernity and the Governed in Late-Colonial Indonesia* (Amsterdam: Amsterdam University Press, 2015); G. J. Knaap, *Cephas, Yogyakarta: Photography in the Service of the Sultan* (Leiden: KITLV Press, 1999); Paul Bijl, *Emerging Memory: Photographs of Colonial Atrocity in Dutch Cultural Remembrance* (Amsterdam: Amsterdam University Press, 2015); Liesbeth Ouwehand, "Van een reconstructieruzie tot een afscheid boordevol albums: Enkele albums uit de collectie van het KITLV," *Indische Letteren* 26 (2011): 61–72.
[24] Judith Butler, *Frames of War: When Is Life Grievable?* (London; New York: Verso, 2009), 9.

oil field in the 1950s provides unique insights into the social history of oil in the Netherlands.[25] The fragments of interviews with local inhabitants he published are the only source on the lived experience of people who witnessed the rise of oil extraction in the Netherlands. I use these snippets not as a source on how oil extraction actually worked, but as a lens on how people experienced the oil industry.

Subject and Structure

In this thesis, I tell the story of two joint ventures. One of them is forgotten, whilst the other haunts the lives of tens of thousands of Dutch citizens. Neither of them has been the subject of independent, critical, and archivally-based scholarship: the *Nederlandsch-Indische Aardolie Maatschappij* (NIAM) and the *Nederlandse Aardolie Maatschappij* (NAM). My thesis explains what is already evident in the names of the two joint ventures: they are intimately related. NAM emerges from NIAM if you leave out *Indische,* or decolonise Indonesia.

Telling the history of oil in the Dutch empire means thinking about "the value of oil" (chapter 1). As the twentieth century progressed oil increasingly became a valuable commodity. The wider use of oil and, at times, increasing prices put two questions to the Dutch empire: who profits from oil and who can use it for what purpose? The rise of democracy and mass politics in the metropole transformed the state into the arena where these questions were settled. The state in the last instance decided on the value of oil. Carbon colonialism in this context means that citizens of the metropole could enter this stage as protagonists, whereas colonial subjects could only watch from the wings or appear on stage as muted side characters. The story of NIAM illustrates the dynamics of the political economy of oil in the Dutch empire. Social scientists today observe that the Dutch state and energy corporations are inextricably entangled. As I show in this chapter, the decades-long struggle over the oil fields of Jambi sealed the lock-in between oil corporations and the state.

Once the parameters of oil extraction had been set by distant governments, corporate boards, and parliament, the work on the ground had yet to start in Jambi, Sumatra. The history of "oil and the forest" (chapter 2) destabilises the assumptions of environmental historians about the temporality of ecological violence. Most historians assume that pollution only has effects after a long period of time. NIAM, on the contrary, immediately changed the dynamics of the rainforest in which it operated, for the worse. Deforestation, oil leaks, and hunting constituted an ecocide in the forest. Combined with the eradication of indigenous ways of living, or cultural

[25] P. de Jong, *Schoonebeek: De ontmoeting tussen een oude Drentse boerensamenleving en de moderne aardoliewinning* (Utrecht: sociologisch Instituut der Ned. Herv. Kerk, 1954).

genocide, oil violently remade the forest. Carbon colonialism showed its destructive potential in Jambi's rainforest and foreshadowed what would happen when the oil industry set foot in the Netherlands.

After the Japanese occupation of the Indonesian archipelago, the Dutch state tried to recapture the oil industry of Indonesia. In 1949 it had to admit it lacked the means to achieve this objective. Dutch oil corporations, however, remained active in Nusantara. This, however, was not the only legacy of colonial oil. The encounter of "peat bogs and carbon colonialism" (chapter 3) was another result of the tumultuous 1940s. Colonial oil found its way to Drenthe. There carbon colonialism transmuted into NAM. South-eastern Drenthe was not an internal colony. The state and oil corporations, however, did draw on the colonial repertoire developed in Jambi, amongst other places. NAM delivered valuable oil to the Netherlands in a time of acute post-war scarcity. As such carbon colonialism fuelled the reconstruction of the Netherlands while poisoning the peat bogs. Since its founding, NAM formed the cornerstone of the Dutch energy sector. This cornerstone was chiselled out of a colonial mould.

The Value of Oil

On the eve of the 1922 Dutch general elections, the former minister of colonies A.W.F. Idenburg (1861-1935) felt the need to defend his party. After twenty years of debate and struggle, parliament had in the year before the elections finally settled the question of who should exploit the oil fields of Jambi, Sumatra. "Against fierce opposition" the oil company led by Idenburg's party member H. Colijn (1869-1944) received the concession.[26] In the months leading up to the election, opponents accused Idenburg's *Anti-Revolutionaire Partij* of corruption. This amounted to "defamation" and "slander," according to Idenburg.[27] His party had never been "disparaged" in such a way before.[28] That a leading party figure had to speak out against accusations of corruption shows that oil had entered the political domain and that its entrance had not gone unnoticed.

This chapter tells the history of the contest over the Jambi oil fields and the founding of the *Nederlands-Indische Aardolie Maatschappij* (NIAM) in 1921. The founding of NIAM was the result of a twenty-year-long struggle in the Netherlands and the Dutch East Indies among political and economic elites and burgeoning mass movements. This struggle played out against the backdrop of the First World War and the rise of the American empire. What was at stake was a question that went to the heart of the political economy of the Dutch empire: what is oil? Is oil a revenue-generating commodity, a utility that should be provided by the state, or the fuel that ties the archipelago to the metropole? For the first time, oil became the object of (increasingly) democratic politics in the metropole. As a result, the state became the stage on which these questions had to be settled. NIAM speaks to the relative success of the metropolitan democratic politicisation of oil. As a result, the Dutch state, became a shareholder in the oil industry together with the *Bataafsche Petroleum Maatschappij* (BPM), a subsidiary of Royal Dutch/Shell. Through ownership, the state wanted to financially profit from oil. However, by prioritising the export of oil over the affordable use of oil in the colony, NIAM engendered resistance. Indeed, by withholding affordable oil to colonial subjects the state fuelled resistance.

NIAM embodies a major reconfiguration of the political economy of oil in the Dutch empire. The debate over Jambi's oil made the colonial state a shareholder in the oil industry.

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[26] A.W.F. Idenburg, *De waarheid over Djambi: Overzicht van de officieele gegevens betreffende het ontwerp tot oprichting der Nederlandsch-Indische Aardolie-Maatschappij.* (Amsterdam: De Standaard, 1921), 1.
[27] Idenburg, 5.
[28] Idenburg, 5.

Furthermore, one of the results of the contest over Jambi was a series of legislative changes forcing the state to debate special contracts for every new oil concession. Instead of informally supporting the expansion of oil companies and handing out concessions in a standard way as it had previously done, the colonial state would start to set the terms of new concessions. As the debate over Jambi shows, the result of these changes was that the state became the arbiter of the value and use of oil. The state, however, was not a monolithic institution that unilaterally imposed its will on the oil industry. Rather, the state transformed into a platform for competing claims on oil. Oil corporations, popular movements, and special interest groups sought to mobilise (parts of) the state on their behalf with varying degrees of success.

Today the boundaries between the state and fossil-fuel corporations are neither clear nor hard. Social scientists studying the energy transition observe how a "fossil fuel historical block" dominates the Dutch energy sector today."[29] That is, the state and energy corporations, like Shell, are inextricably entangled. In this chapter, I trace this entanglement to the founding of NIAM. Since the late-nineteenth century, a revolving door connected the colonial state to BPM and Shell. However, with NIAM the relationship between the oil sector and the state changed qualitatively. As the state became a shareholder in the oil industry, the state and oil industry "locked in."[30] The state and BPM on an institutional and financial level got entangled. This was not the result of Big Oil capturing the state through corruption or collusion. Rather, democratic claims on oil and political mobilisation transformed the role of the state. Left-leaning parts of parliament achieved a partial victory on this front.

This chapter narrates how this happened and thus shows the political economy undergirding 'carbon colonialism' and how it came into existence. The new function of the state gave it the power to decide over the value and use of oil. As the importance of oil increased during the opening decades of the twentieth century, this form of power grew with it. As this chapter will show, in times of inflation and high oil prices siding with oil corporations and not the people results in profits for one and a squeeze for the others.

[29] Sam Oxenaar and Rick Bosman, "Managing the Decline of Fossil Fuels in a Fossil Fuel Intensive Economy: The Case of The Netherlands," 143.
[30] Gregory C. Unruh, "Understanding Carbon Lock-In," *Energy Policy* 28, no. 12 (2000): 817; Karen C. Seto et al., "Carbon Lock-in: Types, Causes, and Policy Implications," *Annual Review of Environment and Resources* 41, no. 1 (2016): 425–52.

Use and Exchange Value

The twenty-year-long struggle over Jambi's oil revolved around the uses of oil. To understand the debate it is necessary to distinguish between the "use value" and "exchange value" of a commodity, as Marx did.[31] The use value is the capability of a commodity to satisfy human needs. The use value of oil lies, for instance, in heating or lighting. The exchange value, on the other hand, is the value of the commodity in relation to another commodity or capital. Disregarding barter for the moment, the exchange value of oil is expressed in the price oil is sold for. To oil companies, oil mainly has an exchange value. Bringing oil from well to market is their business model. For consumers, the use value of oil dominates, because they need oil to heat their homes or propel planes. In the case of the Dutch East Indies and Jambi, the use value and exchange value of oil came into conflict. The desire to sell oil to the highest bidder on the global market made it impossible for people and shipping companies to use oil in the ways they needed. Use and exchange value, thus, existed in a dialectic. As this chapter will show, the outcome of the dialectic of use and exchange value had serious economic consequences.

Furthermore, understanding the development of resources in the Dutch East Indies as a dialectic between use and exchange value shows the one-sided approach of two bodies of literature. Firstly, the work of historians focusing on the economic and political-economic history of the Dutch East Indies. This literature focuses on export revenue, profits, and assets.[32] It shows, for example, how the opening up of regions outside Java by the colonial state was partly driven by the world market's need for more resources. Furthermore, it highlights that interest groups of capitalists, such as the sugar industry, influenced the colonial bureaucracy and pushed their agenda. The colonial state, on the other hand, sent proposals to capitalist interest groups for comment. The interests of capitalists were thus partly dictating the agenda of the colonial state and the prospect of capital accumulation partly drove the expansion of the Dutch empire. The problem with this literature is that it only focuses on the exchange value side of

[31] Karl Marx, *Capital: A Critique of Political Economy*, vol. 1 (London: Penguin, 1990), 125–26.
[32] M. Kuitenbrouwer, *Nederland en de opkomst van het moderne imperialisme: Koloniën en buitenlandse politiek 1870-1902* (Amsterdam: De Bataafsche Leeuw, 1985), 35–38; J. Thomas Lindblad, "Economische aspecten van de Nederlandse expansie in de Indonesische archipel ten tijde van het moderne imperialisme, 1870-1914," in *Imperialisme in de marge: De afronding van Nederlands-Indië*, ed. J. van Goor (Utrecht: HES, 1986), 227–66; A.H.P. Clemens and J. Thomas Lindblad, *Het belang van de buitengewesten: economische expansie en koloniale staatsvorming in de buitengewesten van Nederlands-Indië, 1870-1942* (Amsterdam: NEHA, 1989); Arjen Taselaar, *De Nederlandse koloniale lobby: Ondernemers en de Indische politiek, 1914-1940* (Leiden: Research School CNWS, School of Asian, African, and Amerindian Studies, 1998); J.N.F.M. à Campo, "Steam Navigation and State Formation," in *The Late Colonial State in Indonesia: Political and Economic Foundations of the Netherlands Indies 1880-1942*, ed. Robert Cribb (Leiden: KITLV Press, 1996), 11–29; G. Roger Knight, "Descrying the Bourgeoisie: Sugar, Capital and State in the Netherlands Indies, circa 1840-1884," *Bijdragen tot de Taal-, Land-en Volkenkunde/Journal of the Humanities and Social Sciences of Southeast Asia* 163, no. 1 (2007): 34–66.

commodities; it ignores the other roles and functions of commodities. Western companies and the state pursued the exchange value of commodities, however, other, often more marginalised, people made different claims on resources. It is important not to assume the primacy of exchange value in historical analysis because that primacy was not self-evident. That the exchange value dominated over concerns over use value was the result of a struggle amongst different groups within the empire. Being able to ignore other claims on resources and visions of nature is a form of power, and this chapter shows how the Dutch colonial state and oil corporations wielded that power.

The use value of commodities and the potential of use value to conflict with exchange value are not analysed by the political-economic literature. Environmental historians focusing on the use value, however, disregard the exchange value.[33] Corey Ross, for example, sees the imperial project as revolving around "tapping [ecological] subsidies" from colonial peripheries to fuel the centre or metropole.[34] Resources from the colonies in his eyes helped Europe escape the ecological boundaries of the continent. The use of resources lies in fueling Europe. However, as the Jambi story will show, the exchange value of resources partly determined where resources could be put to use. Exchange and use value are, in other words, sides of the same coin and thus need to be studied in the same analytical frame.

Commodity histories provide one solution to this problem.[35] A focus on the commodity itself could unite exchange and use value in analysis. However, as others have recently argued, in many cases a commodity is not a stable unit of analysis.[36] The word 'oil' is deceptive. It implies that it refers to one substance.[37] In fact, 'oil' refers to many different substances. There is oil almost as thick and viscous as asphalt and there is extremely fluid oil. Different oil reservoirs have different forms of oil. Furthermore, refining can turn monolithic, crude oil input into many different outputs, such as gasoline, kerosene, paraffin, etc. Different types of oil have different uses and refining different types of oil yields different quantities of benzine, kerosene, or paraffine. The question driving the Jambi debate was which types of oil could be considered

[33] Gattey, "Global Histories of Empire and Climate in the Anthropocene," 3–8.
[34] Corey Ross, *Ecology and Power in the Age of Empire: Europe and the Transformation of the Tropical World*, 13–14.
[35] Sven Beckert et al., "Commodity Frontiers and the Transformation of the Global Countryside: A Research Agenda," *Journal of Global History* 16, no. 3 (2021): 435–50; Eric Vanhaute and Hanne Cottyn, "Into Their Land and Labours. A Comparative and Global Analysis of Trajectories of Peasant Transformation," *ICAS Review Paper Series* 8 (2017): 1–21.
[36] Rebecca Gruskin, "The Value within Multiform Commodities: North African Phosphates and Global Markets in the Interwar Period," *Journal of Global History* 16, no. 3 (November 2021): 315–35.
[37] Deborah Gordon, *No Standard Oil: Managing Abundant Petroleum in a Warming World* (New York: Oxford University Press, 2022), 4–5.

an export commodity and thus have exchange value and which types of oil, if any, should be a utility and thus have primarily a use value. Assuming the commodity form in analysis thus will not help, because whether oil is a commodity is what was at stake here.

This chapter tells the history of NIAM in order to unearth the roots of the contemporary, intimate ties between the state and energy corporations. Furthermore, the chapter shows the consequences of promoting exchange value over use value for colonial subjects, something existing scholarship fails to do. Instead of beginning from the commodity, this chapter studies the political economy that determined the shape, substance, and form of the commodity. By drawing on parliamentary records, macro-economic data, the archives of the colonial state, and shipping business, this chapter shows how different factions within the Dutch empire competed over what oil was and the uses of the Jambi oil fields. The chapter begins with a description of the context in which this took place and then proceeds to describe the unfolding events in four chronologically ordered sections: Pre 1910, 1910-1913, 1913-1918, and 1918-1921.

Context

The Dutch East Indies already had a blossoming oil industry in the last decades of the nineteenth century. A host of small companies extracted oil in the archipelago. In the twentieth century, however, oil became an era-defining commodity. As the primary use of oil went from a source of light to a source of motion through the internal combustion engine, oil powered the navy and commercial fleets that tied empires together. This greater importance of oil in the twentieth century reflects itself in the export revenue of oil for the Dutch East Indies. Whereas in 1900 oil generated five million guilders of export revenue, this grew to 38 million guilders in 1910 and 137 million guilders in 1914, i.e. 20% of the colony's total export earnings.[38] Oil became one of the colony's most important commodities and the oil industry with it one of the most dominant economic sectors. A series of mergers and takeovers accompanied the rising profits in the oil industry. *Koninklijke Olie* (or Royal Dutch) started to buy up its smaller competitors.[39] In 1907 Royal Dutch tied itself to the Anglo Shell company. They founded the Anglo-Dutch Royal Dutch/Shell group, of which Royal Dutch held 60% of the shares. That year the two companies also founded the *Bataafsche Petroleum Maatschappij* (BPM), a joint venture that absorbed both companies' activities in the Dutch East Indies. By the start of the First World War Royal Dutch/Shell through BPM had a monopoly in the oil industry of the Dutch

[38] Jan Luiten van Zanden and Daan Marks, *An Economic History of Indonesia: 1800-2010* (London: Routledge, 2012), 82.
[39] J. Thomas Lindblad, "The Petroleum Industry in Indonesia before the Second World War," *Bulletin of Indonesian Economic Studies* 25, no. 2 (1989): 60.

East Indies. The increasing profits generated by oil thus all flowed into the pockets of one company.

At the beginning of the twentieth century, the government, on the other hand, only levied a 4% tax on the gross earnings of the oil industry. Government spending, however, increased significantly in the early twentieth century following the adoption of the Ethical Policy. Increasing spending meant rising public debt in the colony.[40] The relationship between the Dutch colonial state and the oil industry, apart from taxes, was intimate. Colonial territorial expansion, especially in Aceh, was partly driven by petroleum interests.[41] However, the rise of petroleum as fuel and source of income and the state of public finance in the Dutch East Indies destabilised this relationship. The rest of this chapter addresses this instability and shows how the new settlement between corporations and the state in the oil industry came about.

Before 1910

Before 1910 there were two regimes of mineral and hydrocarbon extraction in the Dutch East Indies. On the one hand, the Dutch colonial state owned and operated two important mines.[42] The state inherited a tin mining operation on the island Banka from the VOC. The proceeds of tin sales were an important source of state income and crucial to balancing the colonial state's budget. The other state mine, the Ombilin coal fields on Sumatra, was less profitable.[43] This mine was nevertheless important because it was a source of fuel for the Dutch navy and commercial fleets. The state by operating this mine, had no longer to solely rely on imported English coal.

Other mining operations and all petroleum companies were privately owned and privately operated. The liberal government Pierson (1897-1901) in the person of plantation magnate and minister of colonies J. Th. Cremer (1847-1923) favoured this form of exploitation. In 1899 Cremer introduced the Indies mining bill to Dutch parliament. The bill sought to: "[f]urther the development of private mining, hence all obstacles to private enterprise should be removed."[44]

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[40] P.J.C. van der Stork, "Gouvernements-exploitatie in Nederlandsch-Indië" (PhD diss., Leiden University, 1913), 294.
[41] H. Bakker, "Het economisch belang van Noord-Sumatra tijdens de Atjehoorlog, 1873-1910," in *Het belang van de buitengewesten: Economische expansie en koloniale staatsvorming in de buitengewesten van Nederlands-Indië 1870-1942*, ed. J. Thomas Lindblad and A.H.P. Clemens (Amsterdam: NEHA, 1989), 41–66.
[42] E.P. Wellenstein, *Het Indische mijnbouwvraagstuk* ('s Gravenhage: Martinus Nijhoff, 1918), xv; 8.
[43] Freek Colombijn, "Uiteenlopende spoorrails: De verschillende ideeën over spoorwegaanleg en ontginning van het Umbilin-kolenveld in West-Sumatra, 1868-1891," *BMGN-Low Countries Historical Review* 107, no. 3 (1992): 437–58; Erman Erwiza, *Miners, Managers and the State: A Socio-Political History of the Ombilin Coal-Mines, West Sumartra, 1892-1996* (PhD diss., University of Amsterdam, 1999).
[44] Stork, "Gouvernements-exploitatie in Nederlandsch-Indië," 156.

One of these obstacles standing in the way of miners was fiscal. From 1899 onwards all mining operations had to pay a mere 4% tax over gross revenue.

The 1899 mining bill seemed to settle the question of who should extract minerals and fossil fuels in the Dutch East Indies in favour of private enterprises. However, as one commentator remarked: "[t]he bill was in every sense a compromise."[45] The compromise was neither supported by a strong coalition nor a shared vision of the future of mining. There was no consensus in Dutch parliament over how mineral and hydrocarbon extraction should be governed. Socialists and left-leaning Catholics were in favour of state exploitation of all of the colonies' mineral resources. Some liberals wanted to hand the colonial treasures to private enterprises, whereas other liberals together with confessional politicians advocated a compromise between these two positions. The consequence was that the 1899 law gave rise to exceptions that would eventually rewrite the rule.

Jambi

After a three-year-long military campaign, the Dutch empire incorporated Jambi on Sumatra in 1902. Jambi's petroleum deposits triggered commercial and state interest in the region.[46] Following the spirit of Cremer's law, the state opened up Jambi for private mining in 1902.[47] What followed was an ordeal that would last almost twenty years.

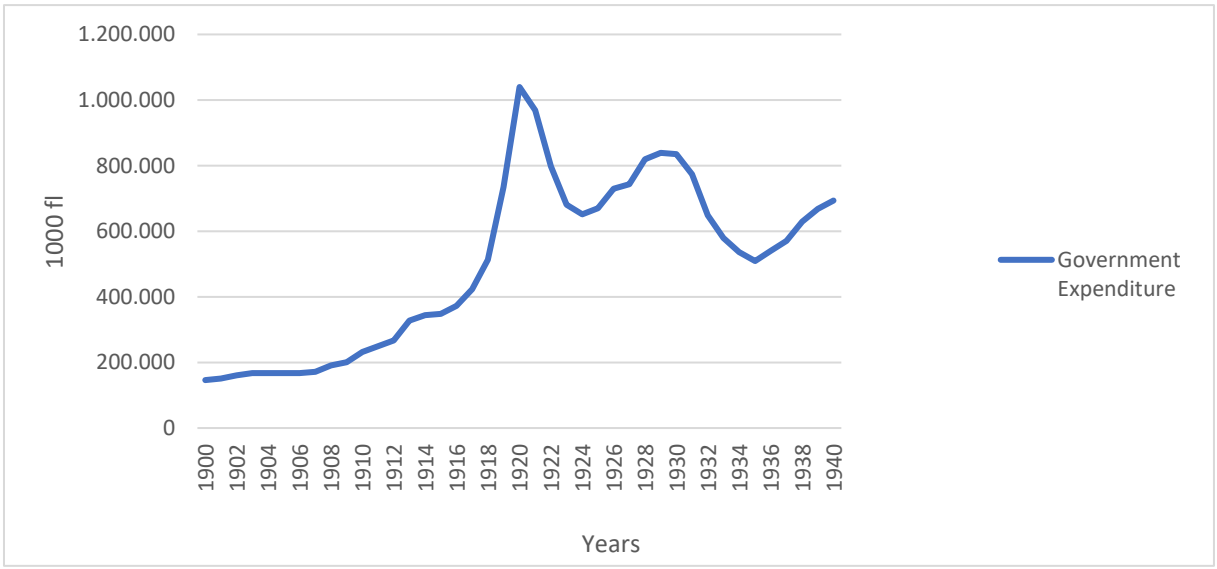
The government in Batavia received 2092 applications to exploit the petroleum resources of the newly acquired territory.[48] 1660 of those met the criteria of the call. A lottery took place. However, when J. van Heutsz (1851-1924) was appointed governor general of the Dutch East Indies he reconsidered the matter. Van Heutsz declared all applications for the concession void and closed Jambi Residency for private enterprise.[49] With this decision, Van Heutsz underscored the weakness of Cremer's compromise.

The liberal government De Meester (1905-1908) followed Van Heutsz's decision. Instead of reopening Jambi for private enterprises, the liberal government declared the first of two objectives for the state in the Jambi matter. The administration stipulated that the state would not exploit Jambi's oil fields, however, the concession would be granted through "a special kind of contract, which should give the government more privileges and advantages than the current

[45] Stork, 160.
[46] Locher-Scholten, *Sumatraans sultanaat en koloniale staat: De relatie Djambi-Batavia (1830-1907) en het Nederlandse imperialisme*, 235–39.
[47] Locher-Scholten, 231.
[48] Locher-Scholten, 231–33.
[49] Locher-Scholten, 234.

mining law prescribes."[50] The state wanted to reap more profits than the 1899 law allowed. To achieve this the government indicated that it would change the mining law.[51] The structural need to gather extra income for the state came from growing government expenditure in the Dutch East Indies. As graph 1 shows, government spending rose from 1907 onwards at an increasing pace. Growing government expenses created the need to structurally generate extra income for the state.

Graph 1, Government Expenditure in the Dutch East Indies, 1900-1940



Source: Jan Luiten van Zanden and Joost Mellegers, "Expenditure Neth East Indies 1848-1940."[52]

In 1909 the new, confessional Heemskerk administration (1908-1913) brought the change to the mining law initiated by De Meester to parliament.[53] The amendment revolved around one section, 5a. This section allowed the state to explore and exploit minerals in the colony on its own or negotiate separate contracts that would deliver more profits to the state than the 4% tax of the 1899 mining law. With increased state intervention in mining matters also came more public oversight. The law passed in 1910 demanded that parliament had the final say over 5a contracts.

[50] Handelingen Tweede Kamer (henceforth HTK), 1907-1908, 11-11-1907, 326, https://repository.overheid.nl/frbr/sgd/19071908/0000351900/1/pdf/SGD_19071908_0000145.pdf.
[51] HTK, 1907-1908, 11-11-1907, 326.
[52] Jan Luiten van Zanden and Joost Mellegers, "Expenditure Neth East Indies 1848-1940," *Public Finance of Indonesia* (2018), data distributed by Utrecht University, doi.10.24416/UU01-ER9ZDI.
[53] HTK, 1910-1911, 10-11-1910, 262, https://repository.overheid.nl/frbr/sgd/19071908/0000351900/1/pdf/SGD_19071908_0000145.pdf; Peter de Ruiter, "Het Mijnwezen in Nederlands-Oost-Indië 1850-1950 " (PhD diss., Utrecht University, 2016), 130–34.

1910-1913

The 1910 amendment allowed for a new attempt to resolve the Jambi problem. The newly appointed minister of war, Colijn declared the government's position on the Jambi concession that year in parliament: "I wish that the concession will be handed out on special terms, as meant by the recent amendment to the mining law."[54] In 1912 the government opened a new call for the Jambi concession.[55] It decided to divide the concession area into two parts, which two different companies could exploit. The call had two conditions. Firstly, in their applications, the companies should indicate what percentage of their gross revenue they would transfer to the government. Secondly, the concession holder should serve the "national interest."[56] In practice, this meant that the company should not be foreign.

Several oil companies sent in their bids for the Jambi concessions. The decision-making process began in Batavia. The governor general and high-ranking civil servants made the initial selection. They dismissed several applications outright because these offered too little profit to the state.[57] Three companies were left: a subsidiary of Standard Oil, which offered a 40% share of its gross profit to the Dutch state; BPM which offered a 50% stake, and the *Zuid-Perlak Oliemaatschappij* which offered 62,5% to the state. Because of its relatively meagre offer and its American identity, the Standard Oil subsidiary was dismissed.[58] The delegation in Batavia met the offer of Zuid-Perlak with incredulity. 62,5% of gross profit after deduction of tax and other costs could entail a government claim of 80 up to 100% on the net profit of the company.[59]

The civil servants in Batavia did not believe the company would be viable in this configuration. However, the company had three advantages that would help it in The Hague and Batavia. Firstly, the company's owner was a friend of the father of Protestant politics A. Kuyper (1837-1920). Kuyper wrote regularly to his friend, the governor general of the Dutch East Indies Idenburg to plead for the cause of his friend.[60] Secondly, Deen's company was the only company that was fully Dutch. BPM had an English component through its shareholder Shell. Deen capitalised on this by writing a pamphlet called *Baas in eigen huis.*[61] Deen's pamphlet resonated with the Dutch desire to remain neutral in the tumultuous world of high-imperial

[54] HTK, 1910-1911, 10-11-1910, 262.
[55] Handelingen Eerste Kamer (hencefort HEK), 1912-1913, 20-9-1912, 26, https://repository.overheid.nl/frbr/sgd/19121913/0000340554/1/pdf/SGD_19121913_0000010.pdf.
[56] HEK, 1912-1913, 20-9-1912, 26.
[57] Nationaal Archief, Den Haag (henceforth NL-HaNA), Ministerie van Koloniën en opvolgers: Dossierarchief, nummer toegang, 2.10.54, inventarisnummer, 1107, Notulen, 10-23, 25-1-1913.
[58] NL-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 1107, Notulen, 23, 25-1-1913.
[59] NL-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 1107, Notulen, 54, 25-1-1913.
[60] J. De Bruin and G. Puchinger, eds., *Briefwisseling Kuyper-Idenburg* (Franeker: T. Wever, 1985), 247.
[61] D. Deen, *De Djambi-concessies: Baas in eigen huis* (Amsterdam: Blikman & Sartorius, 1912).

politics. In this context, being neutral meant controlling strategic resources and not handing them to another empire.[62] Thirdly, the offer was too generous to ignore. Although Deen's generosity was the reason he made it far into the process, it was also the reason for his undoing. The government eventually decided to nominate Deen's company for part of the concession. However, Deen revoked his offer and asked for the same conditions BPM had offered for the concession, i.e. a government share of 50%.[63] This eliminated Deen's competitive advantage and ruled him out of contention.

The colonial state in Batavia immediately deemed BPM's application viable.[64] The company would be able to connect the Jambi oil field to its infrastructure in the neighbouring Palembang Residency. Furthermore, the 50% share of gross revenue was appealing. However, the civil servants in Batavia and the political leadership in The Hague were concerned over the English influence over BPM.[65] Shell's Anglo influence over the company meant that in the event of a conflict the British might seize the oil produced by BPM in the Dutch East Indies. The company, however, indicated that it was willing to meet the concerns of the government. Shell proposed to found a joint venture with the state with exclusively Dutch citizens on its board.[66]

Up until the early negotiations, the exchange value of Jambi's oil dominated the discussion. A broad consensus that the state should receive more revenue from the oil industry replaced Cremer's fragile compromise. Getting a stake in selling oil for profit was the means through which the state could raise more revenue. Minister of War Colijn summarised this consensus as follows:

> We should note that our colonial politics over the past years has become increasingly costly because on all fronts we are developing the people. Yet we have only just started, continuing our policy will strain our budget. … Thus, we should find money by exploiting the *Indischen* soil.[67]

The new mining law, however, was ambiguous over *who* should exploit Jambi's oil. The power to decide this matter now lay in the hands of parliament.

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[62] NL-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 1107, Notulen, 50, 25-1-1913.
[63] NL-HaNA, Ministerie van Koloniën: Openbaar verbaal, nummer toegang 2.10.36.04, inventarisnummer 1466, Eindverslag commissie van rapporteurs, 29-10-1915.
[64] NL-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 1107, Notulen, 14-15, 25-1-1913.
[65] NL-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 1107, Notulen, 50, 25-1-1913.
[66] NL-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 1107, Notulen, 4, 14-2-1913.
[67] H. Colijn, "Onze staatskunde ten aanzien van de buitenbezittingen," in *Neerlands Indië: Land en volk, geschiedenis en bestuur, bedrijf en samenleving*, ed. H. Colijn, 2nd ed., vol. 2 (Amsterdam: Elsevier, 1912), 33.

1913-1918

The Jambi concession, however, was not dealt with in the term of the Heemstra government. After Heemstra, the Van der Linden government, a minority coalition of liberals, came to power (1913-1918). Due to the outbreak of the First World War, the government postponed dealing with the Jambi concession to 1915. Eventually, it proposed to hand Jambi to BPM under the condition that the state would receive 50% of net profits made in the region. The lack of a parliamentary majority provided the social democrats and socialists with the opportunity to push for state exploitation in Jambi. Under the leadership of the social democrat W. Albarda (1877-1957), the left factions of parliament insistently made the case for the founding of a state petroleum company. Albarda and his allies argued that the profits of Jambi should not be siphoned off into the accounts of a multinational such as Royal Dutch Shell.[68] Instead, the state should gather all the profits and spend it for the advancement and modernisation of the Indonesian people to prepare the archipelago for its eventual independence. Furthermore, the state petroleum company could begin to form a counterweight to the power of Royal Dutch Shell, which the social democrat saw as "a state within a state."[69] The state could strengthen itself by usurping Jambi's oil.

One problem Albarda faced was that the civil service did not believe the Dutch colonial state would be able to operate a petroleum company. In an advisory report, a civil servant working for the state mines in Limburg wrote that the government should take an interest in the oil industry.[70] However, the state would not be able to refine the oil and sell it. The head of the *gouvernementsbedrijven* in the Dutch East Indies H.J.E. Wenckebach (1861-1924) who negotiated with oil companies over the concession, agreed with his metropolitan colleague.[71] The state deemed itself unfit for the petroleum business and thought it would drown in oil rather than grow because of it.

Besides left-wing pressure, the liberal government also faced a rebellion in its ranks over the concession. The former cabinet leader Th. H. De Meester (1851-1919) led a group of liberal members of parliament who agreed with the left that under the current proposal the state would

[68] HTK, 1915-1916, 10-11-1915, 74, https://repository.overheid.nl/frbr/sgd/19151916/0000333224/1/pdf/SGD_19151916_0000449.
[69] HTK, 1915-1916, 10-11-1915, 99.
[70] W. A. J. M. van Waterschoot van der Gracht, *Rapport over de opsporing van delfstoffen in Nederlandsch Indië* ('s-Gravenhage: Algemene Landsdrukkerij, 1915), 40–41.
[71] H.J.E. Wenckebach, *Indisch Genootschap. Vergadering van 13 Maart 1916. De Djambi-contracten en hoe nu verder met de aardolie-ontginning in Nederlandsch-Indië* ('s-Gravenhage: Martinus Nijhoff, 1916), 135–38.

have too little influence over the operation of the Jambi oil field.[72] Although the state stood to benefit from exploitation, it could not influence the course of extraction. If BPM, for example, decided to half production there was little the state could do. However, these liberals rejected the option of state exploitation. Instead, they proposed a compromise. Following the example of the Suez Canal in which the British state held a stake, the state would own half of the shares of the company exploiting the Jambi concession.[73] This should ensure the state's influence and control over the oil fields.

Both the left and the liberals wanted to ensure that extraction in Jambi would go at the maximum pace. The type of exploitation most beneficial to the state, in their eyes, was full exploitation. Maximum production would allow for maximum oil sales and thus the most substantial revenue for the state. In other words, the liberal and socialist counterproposals were geared toward maximising the exchange value of oil.

In the vote that followed a coalition of socialists, social democrats, Catholics, and liberals voted the government's proposal down.[74] The proposal of the social democrats to take the exploitation of Jambi into the state's hands was passed by a smaller majority of the left, Catholics, and liberals. However, the Senate was unlikely to vote in favour of state exploitation of the concession, and the government was unwilling to go down this path. Therefore, a decade after Van Heutsz closed Jambi for private enterprise, Dutch political, colonial, and business elites were still looking for a way out of the conundrum.

Before submitting a new proposal to parliament, the government gave fossil fuels – for the first time in colonial legislation – a special legal status. The government changed the important 5a clause. From 1917 onwards, all concessions pertaining to oil and coal had to be either exploited by the state or handed out to a private company through a special contract.[75] Whereas the 1910 5a clause allowed the government to choose whether or not a special contract was necessary, the new clause made the choice for the government. The law made the state into the stage on which the future of oil would be decided. All those seeking to profit from oil had to direct their requests to the state. As the minister of colonies wrote to parliament, this law also ensured that

[72] HTK, 1915-1916, 11-11-1915, 99, https://repository.overheid.nl/frbr/sgd/19151916/0000332932/1/pdf/SGD_19151916_0000177.pdf.
[73] HTK, 1915-1916, 10-11-1915, 84.
[74] HTK, 1915-1916, 11-11-1915, 140-151.
[75] HTK, 1916-1917, 25-5-1917, 1-2, https://repository.overheid.nl/frbr/sgd/19161917/0000330612/1/pdf/SGD_19161917_0000593.pdf.

the state would reap more profits from mining in the colony.[76] The state stood to benefit from every special contract it engaged in with private companies. Making fossil fuels into a special category also allowed the government to resume issuing concessions for minerals, such as gold and diamonds to private companies.

After amending the mining law, the minister of colonies T. B. Pleyte (1864-1926), proposed a new framework for the Jambi concession in 1918.[77] After the parliamentary defeat of 1915, Pleyte marginally shifted his position. Instead of signing away the concession for a share of the profits and minimal government control, the government decided instead to give the concession to a new corporation of which BPM held the shares. The government theoretically could also buy shares, however, Pleyte intended to let wealthy members of the colonial elite buy the remaining ones.[78] Regardless of the ownership of the shares, the state could veto decisions of the company and buy up to 50 % of the company's oil.[79] To make this proposal work Pleyte needed to win over the liberal faction led by De Meester, who advocated a mixed company. In the debate over the proposal, De Meester and his allies made it clear that they "did not think that the current minister of colonies could deliver a satisfactory arrangement for Jambi."[80] The minority government, in other words, could not resolve the Jambi impasse.[81] It would take a new parliamentary landscape to do this.

1918-1921

The First World War and its aftermath brought the use value of oil to the fore. Just before the war, the British admiralty under the leadership of Winston Churchill (1874-1965) decided that the British navy would switch from coal to oil.[82] To ensure supply for the navy, the British state bought 51% of the Anglo-Persian Oil Company's shares (later BP). During and after the war the United States switched many of its vessels to oil.[83] Combined with the rise of the automobile, demand for oil as a fuel increased significantly. After the war, however, the supply of oil was restricted. Revolution and upheaval in important oil-exporting regions such as Baku and

[76] HTK, 1917-1918, 27-1-1918, 1, https://repository.overheid.nl/frbr/sgd/19171918/0000326582/1/pdf/SGD_19171918_0000634.pdf.
[77] HTK, 1917-1918, 07-11-1917, 1-2, https://repository.overheid.nl/frbr/sgd/19171918/0000327157/1/pdf/SGD_19171918_0001070.pdf.
[78] NL-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 1108, Brief Pleyte aan J.Th. Cremer, 17-10-1917.
[79] HTK, 1917-1918, 07-11-1917, 4-5.
[80] HTK, 1917-1918, 5-3-1918, 7, https://repository.overheid.nl/frbr/sgd/19171918/0000327160/1/pdf/SGD_19171918_0001073.pdf.
[81] HTK, 1920-1921, 22-11-1920, 22-11-1920, 1, https://repository.overheid.nl/frbr/sgd/19201921/0000314928/1/pdf/SGD_19201921_0002002.pdf.
[82] Mitchell, *Carbon Democracy: Political Power in the Age of Oil*, 61.
[83] NL-HaNA, Koninklijke Paketvaart Maatschappij en de Koninklijke Java China Paketvaart Lijnen (KPM/KJCPL), nummer toegang, 2.20.35, inventarisnummer 381, Petroleum in de Vereenigde Staten, 28-4-1920.

Mexico drove down production. Furthermore, in 1920 the United States, the world's largest oil producer at that moment, banned oil exports. Motivated by a fear of dwindling resources, the United States wanted to conserve its resources and look for oil abroad.[84] The increased use of oil and lower supply resulted in a higher exchange value, i.e. price.

In the Dutch East Indies, the shipping conglomerate *Koninklijke Paketvaart Maatschappij* (KPM) used fuel oil since the beginning of the twentieth century.[85] Fuel oil is a very thick and viscous type of oil – it is almost asphalt. Before the use of this type of oil, oil companies saw fuel oil as waste. When Royal Dutch had separated oil useful for lighting from the rest, the corporation in Pangkalan Brandan, Sumatra, for instance, burned most of its superfluous products in the rainforest. Until 1898 "[a] heavy, fiery smoke column of thirty meters got to be known in the Malacca Strait as a beacon."[86] Other production sites poured fuel oil into the sea.[87]

Fuel oil was crucial to KPM. KPM, in turn, was crucial to the Dutch East Indies.[88] KPM moved commodities, information, and people through the archipelago. As the price of fuel oil started to increase during the First World War, KPM ran into financial difficulties. Before 1915 KPM paid 12 fl. per ton of fuel oil. In 1915 it paid 15 fl. per ton and in 1917 the price increased to 19 fl. per ton. In 1918 Royal Dutch/Shell, the only provider of fuel oil in the Dutch East Indies, wrote to KPM that it would increase prices yet again, setting them between 20 fl. and 30 fl. depending on the harbour.[89] At that moment 31 KPM ships used fuel oil, whereas 45 used coal as fuel.[90] The doubling of oil prices within four years forced the company to find a source of fuel beyond Shell.

The island Tarakan, just off the coast of northeast Borneo, was the most important site of fuel oil production in the Dutch East Indies. KPM wrote to the governor general imploring him to seize all of Tarakan's production and provide it to KPM.[91] The governor general refused this

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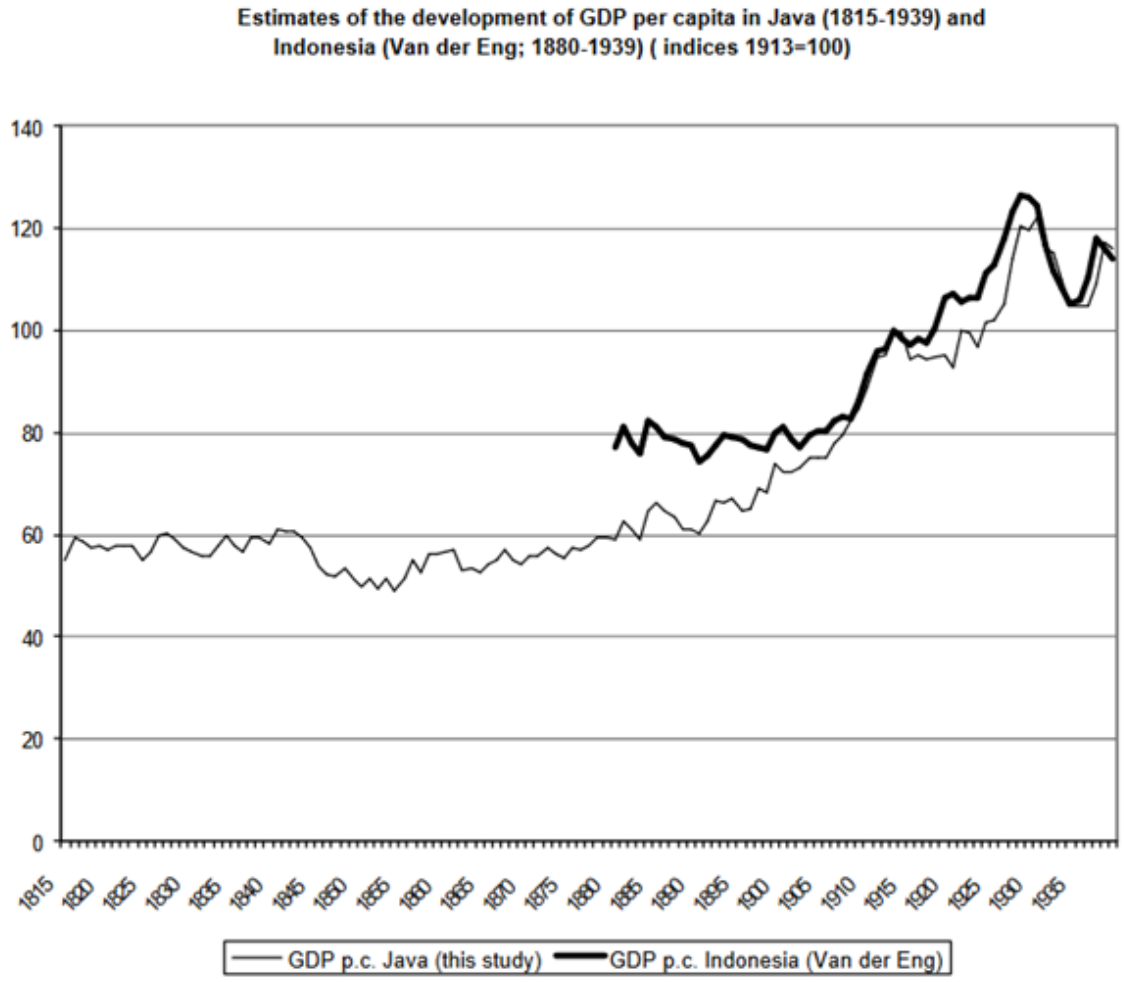
[84] Robert Vitalis, *Oilcraft: The Myths of Scarcity and Security That Haunt U.S. Energy Policy* (Stanford, California: Stanford University Press, 2020), 28–29; See for the broader context of resources in the United States in the early twentieth century: Ian Tyrrell, *Crisis of the Wasteful Nation: Empire and Conservation in Theodore Roosevelt's America* (Chicago, IL: University of Chicago Press, 2015).
[85] NL-HaNA, KPM/KJCPL, 2.20.35, inv.nr., 381, Nota van den directeur in Nederland in zake het stoken van vloeibare brandstof, 1, 21-4-1914.
[86] Stadsarchief Amsterdam, Archief van Dr. J.W. IJzerman, 742, inventarisnummer 175, Olie, 23, n.d..
[87] NL-HaNA, KPM/KJCPL, 2.20.35, inv.nr., 381, Nota van den directeur in Nederland in zake het stoken van vloeibare brandstof, 1, 21-4-1914.
[88] J.N.F.M. à Campo, *Koninklijke Paketvaart Maatschappij: Stoomvaart en staatsvorming in de Indonesische archipel 1888-1914* (Hilversum: Verloren, 1992), 22–33.
[89] NL-HaNA, KPM/KJCPL, 2.20.35, inv.nr., 383, Brief KPM aan gouverneur-generaal, 31-5-1918.
[90] NL-HaNA, KPM/KJCPL, 2.20.35, inv.nr., 381, Nota van den directeur in Nederland in zake het stoken van vloeibare brandstof, 2, 21-4-1914.
[91] Nl-HaNa, KPM/KJCPL, 2.20.35, inv.nr., 383, Vertrouwelijk schrijven van den directeur in Ned.-Indië, 29-6-1918.

contentious move. Then, KPM wrote the following back: "[w]e would like to know whether his Excellency would be willing to work with us to grant a concession to our company for the exploitation of the Jambi oil fields."[92] KPM wanted to produce its own fuel to become independent of the fluctuations in the exchange value of fuel oil. To KPM fuel oil was not just a commodity; it was a resource it needed to operate. Eventually, neither the governor general nor the minister of colonies wanted KPM to exploit Jambi's oil fields. KPM then decided to convert its fuel oil fleet into a coal-powered fleet.[93] To ensure the supply of oil, KPM opened its own mine in Borneo.[94]

Oil was also a useful resource for the people living in the Dutch East Indies. However, they used a lighter type of oil than KPM's fuel oil. Members of the in 1918 established *Volksraad* of the Dutch East Indies declared in 1920 that oil belonged "to the primary goods necessary for life."[95] The member of the council T.F. Vreede (1880-1950) underscored this point: "light is an elementary need" and without oil no light.[96] However, the post-World War I inflation made lighting a home with oil significantly more expensive. Not only oil but also coal and wood, the other sources of heat and light in the colony, sharply rose in price. Rising prices squeezed the budgets of colonial subjects. As graph 2, GDP per capita stagnated and fell between 1915 and 1920, or even 1925.

[92] Nl-HaNa KPM/KJCPL, 2.20.35, inv.nr., 383, Brief KPM aan gouverneur-generaal, 31-5-1918.
[93] Nl-HaNa KPM/KJCPL, 2.20.35, inv.nr., 179, Eenige data uit de geschiedenis van de Parapattan-mijn, 1-3, 28-10-1940.
[94] Nl-HaNa, KPM/KJCPL, 2.20.35, inv.nr. 179, Eenige data uit de geschiedenis van de Parapattan-mijn, 1-3, 28-10-1940.
[95] Handelingen van den Volksraad (henceforth HV), Eerste Zitting, 1920, 25-6-1920, 221, https://kitlv-docs.library.leiden.edu/open/TS/volksraad/1920-1%20zitting%201.pdf.
[96] HV, Eerste Zitting, 1920, 24-6-1920, 32.

Graph 2, GDP Indonesia and Java 1815-1949



Source: Jan Luiten van Zanden, "Economic growth in Java 1815-1939: The reconstruction of the historical national accounts of a colonial economy."[97]

Meanwhile, the colonial state and BPM profited from the hike in resource prices. As a contemporary observer remarked: "[t]he *Indische* government uses scarcity to squeeze as much profit as possible from fuel. The fuel oil from our own soil is for the largest part exported."[98] The colonial state disregarded the use value of oil and supported those who profited from the exchange value of commodities. The Volksraad became the platform that voiced popular protest against this process. In 1919 the council received a request from a local branch of

[97] Jan Luiten van Zanden, "Economic Growth in Java 1815-1939: The Reconstruction of the Historical National Accounts of a Colonial Economy," *Reconstruction National Accounts: Economic Growth in Java 1815-1939* (2018), 26, data distributed by Utrecht University, https://i-lab.public.data.uu.nl/vault-indonesian-economic-history/Reconstruction%20National%20Accounts%5B1536739924%5D/original/jvz-reconstruction.pdf/.
[98] G. P. J. Casperz, "Het brandstoffenvraagstuk in Indië met betrekking tot de spoor- en tramwegen aldaar," *De Ingenieur*, 10-12-1921, 985, https://resolver.kb.nl/resolve?urn=dts:2963069:mpeg21:0003.

Sarekat Islam, a popular movement, to curb "rising sugar and petroleum prices."[99] The Volksraad translated this request into a motion that asked the government to introduce price controls on petroleum.[100] Furthermore, it asked the state to exploit Jambi's oil fields to provide affordable oil to the people. According to the Volksraad, oil should not be an export commodity. Rather the council saw oil as a utility that should be provided to the people. Tjipto Mangoenkoesoemo (1886-1943) voiced his concern in the council that if the government did not act people would start to resist colonial rule.[101] The director of *gouvernementsbedrijven* in the colony, however, disagreed. He argued that the petroleum companies did not have a "social task" to provide the people of the Dutch East Indies with petroleum.[102] Corporations should be free, in other words, to focus on the exchange value of petroleum.

Inflation ate into the living standard of people in the Dutch East Indies. Lighting oil in 1921 was between 57 and 61% more expensive than on the eve of the First World War.[103] To compensate for higher prices colonial civil servants received between 1920 and 1922 an inflation allowance. They deemed this allowance crucial for their standard of living. When the government announced the end of the allowance, representatives of the civil servants wrote that "revoking the inflation bonus next year would bring many, especially European, civil servants on the verge of destitution."[104] The fear of inflation and dwindling spending power brought large numbers of civil servants to a rally in 1922. Although all Dutch and Indonesian attendants wore the immaculate white clothes of the colonial order, the atmosphere in the Batavian park was at moments rebellious. When a speaker attacked the minister of colonies the police interfered, reprimanding the speaker for "stepping out of line."[105] The public voiced "loud protests" against this act of police surveillance and interference.[106] Quickly, however, the speaker and the audience stepped within line and voiced their concerns in a less rebellious tone. The majority of inhabitants of the archipelago, however, had no extra allowances that cushioned the impact of inflation to fight for. For them, life became continuously more difficult during the late 1910s and early 1920s.

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[99] HV, 1919, Tweede Zitting, 6, 28-10-1919, https://kitlv-docs.library.leiden.edu/open/TS/volksraad/1919-1%20zitting-2.pdf.
[100] HV, 1920, Eerste Zitting, 217-218, 25-6-1920.
[101] HV, 1919, Tweede Zitting, 160, 25-10-1919.
[102] HV, 1920, Tweede Zitting, 290, 28-6-1920, https://kitlv-docs.library.leiden.edu/open/TS/volksraad/1920-1%20zitting%201.pdf.
[103] "Levens-standaard en duurte-toeslag," *Het Nieuws van den Dag voor Nederlandsch-Indië*, 26-6-1922, https://resolver.kb.nl/resolve?urn=ddd:010219331:mpeg21:a0003.
[104] *De intrekking van den duurtetoeslag sedert 1 Januari 1920 verleend aan de landsdienaren in Nederlandsch-Indië* (Weltevreden: Indonesische drukkerij, 1922), 10.
[105] Verbond van vereenigingen van landsdienaren, *Stenografisch verslag van de openbare vergadering* (Weltevreden: Indonesische drukkerij, 1922), 42.
[106] Verbond van vereenigingen van landsdienaren, 43.

Despite the *Volksraad's* and Sarekat Islam's pleas, the fate of Jambi's oil fields would be decided in The Hague where a new political landscape made a solution possible. The first election with universal manhood suffrage brought the resolution to the Jambi problem. The elections brought an end to the hegemony of liberals in the Netherlands.[107] The most important liberal party the *Liberale Unie* was left with only six of its 22 seats in parliament. The elections also signalled the beginning of decades of confessional dominance in the Netherlands. Queen Wilhelmina preferred Colijn, who by then was the director of BPM, to form a government. The leader of the Catholic block W.H. Nolens (1860-1931), however, strongly rejected this idea. Nolens stated that a "petroleum cabinet" would never be supported by the Catholics.[108] Hence, Colijn remained at his BPM post and the Catholics led a coalition with the Protestants. Internally this coalition was split over the Jambi issue. Some Catholic members of parliament had voted with the left in 1915 in favour of state exploitation, whereas some Protestants still backed the original 1915 plan to give the concession to a private company in exchange for a part of the profits. The only viable compromise was the amendment proposed by the liberals in 1915: a mixed company.

S. de Graaff (1861-1948) occupied the post of minister of colonies for the Protestants. He negotiated the eventual deal over Jambi with Colijn.[109] The blueprint for the deal had already been established by De Graaff's predecessor Pleyte in 1917. There were only two differences between the proposals. Firstly, the state would provide half of the capital of the company and get 50% of the stocks of the company.[110] These stocks, furthermore, were A-stocks that entitled the government to 60% of the net profits of the company and allowed it to appoint three of the five members of the Board of Oversight (*Raad van Beheer).* Secondly, the government did not get the right to buy a part of the company's production or any other products of BPM.[111] The focus of the deal rested solely on the exchange value of oil.

The leftwing of parliament, predictably, criticised De Graaff's proposal and again pleaded for state exploitation. However, the left no longer spoke with one voice. The elections had brought three communists into parliament who were committed to the immediate independence of the Dutch East Indies. One of the communists, W. van Ravesteijn (1876-1970), attacked the social-

[107] Siep Stuurman, *Verzuiling, kapitalisme en patriarchaat* (Nijmegen: SUN, 1983), 258; 297.
[108] Cees Fasseur, *Wilhelmina: de jonge koningin* (Amsterdam: Balans, 1998), 197.
[109] Nl-HaNa, Ministerie van Koloniën: Geheim Archief [periode 1901-1940] 2.10.36.51, inventarisnummer 205, Memorandum over de exploitatie van nog niet in concessie gegeven oliehoudende terreinen in Ned. Indië, 1-3, 15-2-1919.
[110] HTK, 1920-1921, 22-11-1920, 1-2, https://repository.overheid.nl/frbr/sgd/19201921/0000315724/1/pdf/SGD_19201921_0002639.pdf.
[111] HTK, 1920-1921, 22-11-1920, 1-2.

democratic push for state exploitation. Van Ravesteijn pleaded to leave Jambi's oil in the ground.[112] Extracting oil would strengthen the colonial state instead of benefitting the colonised people. The people of the Indonesian archipelago should decide over the fate of Jambi's subterranean treasures, instead of the coloniser. Van Ravesteijn's motion to "postpone" oil extraction "until the peoples of the Indonesian archipelago achieve self-government" was resoundingly defeated, only his two fellow communists voted with him.[113] The rest of the left continued to adhere to the idea of selling oil for the development of the colony.

Apart from the communists a new voice also entered the chorus of critics. The United States put pressure on the Dutch government to grant the concession to a subsidiary of Standard Oil. In the aftermath of the First World War, the United States emerged as a power to reckon with in Europe and the Pacific. Since 1917 the Dutch state had to set up a special contract for every oil or coal concession in the colony. One requirement of these contracts was that the company signing the contract was Dutch. This ruled Standard Oil out of contention for the Jambi oil fields. The United States government then made it clear to De Graaff that Royal Dutch/Shell's access to American oil fields was to be restricted if the Netherlands kept on excluding Standard Oil.[114] Although De Graaff managed to withstand the pressure in the case of Jambi, he eventually had to give Standard Oil access to the colony to shield the interests of Royal Dutch/Shell. De Graaff misled parliament over this issue, claiming that he had not been in contact with the United States over Jambi.[115] When it became clear that he had been in contact, he earned himself the epitaph "Simon the Lier."[116]

The American controversy highlights the new role the Dutch state played in the world of oil. The United States' government and Standard Oil held the Dutch government to account for developments in the oil industry in the Dutch East Indies. BPM, on the other hand, provided the Foreign Ministry with memos and briefs to counter the claims and accusations of the Americans.[117] Corporations did not settle conflicts or negotiated over new concessions amongst themselves, rather the Dutch state became the locus and intermediary for claims on oil. This

[112] HTK, 1920-1921, 29-4-1921, 2257, https://repository.overheid.nl/frbr/sgd/19201921/0000314274/1/pdf/SGD_19201921_0001462.pdf.
[113] HTK, 1920-1921, 29-4-1921, 2314.
[114] HTK, 1920-1921, 26-5-1921, 2570, https://repository.overheid.nl/frbr/sgd/19201921/0000314284/1/pdf/SGD_19201921_0001472.pdf.
[115] HTK, 1920-1921, 26-5-1921, 2568.
[116] Cees Fasseur, "Graaff, Simon de (1861-1948)," *Biografisch Woordenboek van Nederland,* 12-11-2013, http://resources.huygens.knaw.nl/bwn1880-2000/lemmata/bwn3/graaff.
[117] Nl-HaNa, Ministerie van Buitenlandse Zaken: DEZ-dossiers, nummer toegang 2.05.37, inventarisnummer 1793, Brief BPM aan minister van Buitenlandse Zaken, 13-8-1920.

was a role foisted upon the state by democratic mass movements. However, the social democrats and their allies did not succeed in making the state entirely transparent.

However, with its parliamentary majority, the confessional government knew it could finally settle the Jambi concession. As De Graaff stated in parliament in 1921 this was meaningful because it would "reopen the future for petroleum extraction in the Dutch East Indies."[118] Since 1913 no concessions for petroleum had been granted. After years of negotiations and debates, a new equilibrium between the (colonial) state and the private oil industry was reached. In 1921 the *Nederlandsch-Indische Aardolie Maatschappij* was born.

Conclusion

The question of who would profit and who could use oil, and which types of oil, from the oil fields of Jambi, guided the discussion over the future of oil in the Residency. Different governments and parliament agreed that the revenue streams of oil should be redirected to the state to fund a growing state budget. However, the shipping sector and burgeoning popular movements in the Dutch East Indies wanted to use oil instead of selling it. Eventually different political factions in the Netherlands compromised on the need for state investment in the oil industry to exert control over the sector. Indeed, in order to understand how NIAM came into existence the dialectic between use and exchange value needs to be taken into account. This shows that literature that only focuses on either exchange value or use value is incomplete. Furthermore, this chapter shows how the state and oil sector got entangled. The state became the institution that adjudicated oil concessions and decided over the use of oil. This new role was a source of power for the state and for those that could convince the state to support their cause. In the 1920s the state supported BPM instead of colonial subjects. This chapter thus shows the political economy of carbon colonialism and that carbon colonialism involves the power to decide over the use and value of oil. The entanglement of oil companies and the state persists up until today in the Netherlands. The last chapter of this thesis will show why this is the case. The next chapter, however, will show the environmental and social side of carbon colonialism by focusing on extraction in Jambi.

[118] HTK, 1920-1921, 27-4-1921, 2267, https://repository.overheid.nl/frbr/sgd/19201921/0000314272/1/pdf/SGD_19201921_0001460.pdf.

Oil and the Forest

This chapter examines the violence enacted in a forest. Before large-scale deforestation in the second half of the twentieth century in Jambi, Sumatra, a lowland tropical rainforest stretched from the Batang Hari river deep into the south, reaching into the neighbouring Palembang Residency. The Batang Hari split Jambi Residency in half. The portion of the residency south of the river near the coast consists of peat swamps. Towards the coast of West Sumatra lies a mountainous rainforest. Perched in between these two landscapes was a vast tropical rainforest.

The violence that gripped the forest and all that lived in it casts doubt on one of the central concepts of environmental history and the environmental humanities more generally. Since the publication of *Slow Violence and the Environmentalism of the Poor* "slow violence" is a concept used so widely that it verges on becoming an empty signifier.[119] The confused use of the concept, however, is not just a case of scholars picking up a buzzword without closely examining the context in which it arose. The equivocality of the concept stems from the incoherence of the book that coined it.

In the introduction of *Slow Violence and the Environmentalism of the Poor*, Rob Nixon defines "slow violence" as a type of violence with two essential characteristics.[120] Firstly, slow violence is neither immediate nor spectacular. Instead of being immediate, slow violence plays out over longer time scales.[121] For instance, the gradual, cumulative build-up of toxins in a body only has an effect after decades. This first characteristic is an ontological description of slow violence. The second characteristic is a claim about the representation of slow violence. Nixon argues that because slow violence is not immediate it is hard to recognise and hard to narrate.[122] Our normal way of telling stories about violence presupposes direct impact and direct consequences. Because slow violence is gradual it is often silent violence.

To subsume a violent act under the header of slow violence this act needs to meet the ontological and representational criteria. The problem with the concept is that Nixon and his followers identify violence as slow violence based on the representation of violence, disregarding the ontological status of the instance of violence. In other words, in this case the necessary conditions for describing something as slow violence are not met. In the book, Nixon

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119 Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge, Massachusetts: Harvard University Press, 2011), 2.
120 Nixon, 2.
121 Nixon, 2–3; 8.
122 Nixon, 3–8.

identifies violent episodes with *direct* consequences for people and ecosystems involved as slow, because governments, media, and academics do not immediately recognise this type of violence. He cites, for instance, testimonies from the Niger Delta that speak of:

> '[A]n ocean of crude oil ... swallowing up anything that comes its way. ... There is no pipeborne [sic.] water and yet the streams, the only source of drinking water are coated with oil. ... Men and women forced by hunger have to dive deep in oil to uproot already rotten yams and cassava.'[123]

Hunger and potable water shortages are *immediate* dangers to human life. The consequences of thirst will not be felt after years, or even decades – within 48 hours humans may already die. Scholarship in environmental history reproduces and aggravates the flaws already present in Nixon's foundational work. Megan Black, for instance, in a book on the American Department of the Interior writes that her narrative speaks to slow violence.[124] However, in a chapter on oil the only environmental damage and violence Black presents is a spectacular oil disaster widely covered in the media at the time.[125] This spill was neither slow nor silent; it meets none of the criteria of slow violence. Whereas Black's narrative might be an extreme case, it illustrates the problem of environmental history. Most environmental historians mean silenced or forgotten violence when they invoke the concept of slow violence.

Conceptual clarity is important for its own sake. However, arguing over necessary and sufficient conditions for the application of a concept is not merely a philosophical matter. Conflating silenced violence and slow violence is painful in colonial contexts. The colonial state often did not recognise the violence the colonial system unleashed on the populations under its rule. In the 1930s Sjahrir (1909-1966), later to be prime minister of Indonesia, toured rural Java. There he witnessed the hunger and suffering of many Javanese. He wrote to his wife in Holland: "The misery in the *desa* is becoming more severe, despite the official reports stating that there is no misery and that there is sufficient food."[126] As Sjahrir's poignant letter indicates, the state did not register the immediate problems of its colonised subjects. Consequently, the colonial archives reproduce and perpetuate the silences and blind spots of the colonial state.[127] To conclude from the silence of the archive that the violence of the colonial state is slow is to mischaracterise

[123] Nixon, 106.
[124] Black, *The Global Interior: Mineral Frontiers and American Power*, 10.
[125] Black, 150.
[126] Sjahrir, *Wissel op de toekomst: Brieven van de Indonesische nationalist aan zijn Hollandse geliefde*, ed. Kees Snoek (Amsterdam: Van Oorschot, 2021), 42.
[127] Michel-Rolph Trouillot, *Silencing the Past: Power and the Production of History*, 26–29.

colonial society. Indeed, the violence of the colonial system was often direct and immediate. This is important to recognise.

This chapter narrates the impact of NIAM's oil extraction and transportation on and interaction with the ecosystem of Jambi's rainforest. As the first archival-based environmental history of the colonial oil industry in the Indonesian archipelago, the chapter indicates that the oil industry was the largest polluter of the colony.[128] The impact of the oil industry was direct and immediate. Indeed, the chapter argues that oil extraction together with army policy towards the Batin Sembilan, the indigenous people of the region, is an expression of the cultural genocide-ecocide nexus, as theorised recently by legal scholars.[129] Cultural genocide is the systematic destruction of a way of life, whereas ecocide is the (un)intentional destruction of an ecosystem.[130] By forcefully settling the Batin Sembilan in villages and polluting the rainforest, the army and NIAM unleashed devastating violence on the region that amounted to cultural genocide and ecocide. As such, this chapter charts another aspect of carbon colonialism. Whereas the previous chapter dealt with the power to decide over the use and value of oil, this chapter speaks to the cultural genocidal and ecocidal violence of oil extraction in the colony. industry in the Dutch East Indies. In the forest of Jambi, the colonial desire to 'civilise' indigenous people intersected with the oil industry's transportation needs, resulting in a destructive instance of carbon colonialism.

The sources produced by the colonial state, NIAM, and visitors to the region sometimes fall silent on the scope of oil's violence. Instead of concluding from this silence that the colonial army and the oil company enacted slow violence in the region, this chapter shows the direct *and* indirect violence the colonial system committed by contextualising the colonial archive with scientific literature on rainforest ecology and oil pollution.[131] Furthermore, the chapter draws on photography. In this chapter photographs figure as unprocessed or "raw histories" containing

[128] Corey Ross writes about oil pollution in the Dutch East Indies, but bases his account on published sources and only treats a handful of spectacular disasters: Corey Ross, *Ecology and Power in the Age of Empire: Europe and the Transformation of the Tropical World*, 199–207; See for other regional case studies in the environmental history of oil: Myrna I. Santiago, *The Ecology of Oil: Environment, Labor, and the Mexican Revolution, 1900–1938* (Cambridge: Cambridge University Press, 2006); Jonathan Wlasiuk, *Refining Nature Standard Oil and the Limits of Efficiency* (Pittsburgh: University of Pittsburgh Press, 2017); Sean Kheraj, "A History of Oil Spills on Long-Distance Pipelines in Canada," *Canadian Historical Review* 101, no. 2 (2020): 161–91; David Bond, "Oil in the Caribbean: Refineries, Mangroves, and the Negative Ecologies of Crude Oil," *Comparative Studies in Society and History* 59, no. 3 (2017): 600–628.

[129] Martin Crook and Damien Short, "Marx, Lemkin and the Genocide–Ecocide Nexus," *The International Journal of Human Rights* 18, no. 3 (2014): 298–300.

[130] Tim Lindgren, "Ecocide, Genocide and the Disregard of Alternative Life-Systems," *The International Journal of Human Rights* 22, no. 4 (2018): 525–27.

[131] Today the forest area where NIAM used to operate is a forest regeneration site called Hutan Harapan (Forest of Hope). This led scientists to publish on the workings of the forest.

perspectives on the past that elude the intentions of the photographer.[132] Photographs depict more of history than the photographer might have suspected at the time. In this context, especially the environmental degradation visible in NIAM's photographs "exceeds the frame" of the company's ideas of progress and proud achievements.[133] This makes NIAM's photographs an important source.

The Ecology of the Forest

The lowland rainforest of southern Jambi hosted a very rich ecosystem. The forest depended on seasonal rain that would come during nine consecutive wet months.[134] Drought filled the other three months of the year. The hot and humid atmosphere in the Jambi lowlands fostered a forest full of species. This thriving ecosystem made itself heard to the German-Swiss writer Hermann Hesse (1877-1962) who visited the forest in 1911: "[i]n the rainforest every moment, without pause, big insects and many birds produce a polyphonic sound."[135] Beautiful plants and flowers adorned the trees under the canopy. Ants, termites, and butterflies also straddled the forest floor and lower forest strata. A host of birds lived in and around the forest's canopy. Fifteen hectares of intact rainforest could house 151 species of birds.[136] Some of these birds were as colourful as they were rare, such as the *pitta graatina* and the *picus puniceus.*[137] Hesse tried to shoot other, more common birds such as hornbills.[138] Still others were blander but nevertheless stood out in the forest. Dutch naturalists travelling through the area in the 1870s observed "white herons ... that covered trees as white flowers."[139] They also saw groups of flying foxes, a type of megabat that disperse seeds through the forest by traversing the region.[140] Bands of silvered leaf monkeys danced on the rainforest's canopy by jumping from tree to tree. It was a forest bustling with life, large and small.

Among the largest mammals in the forest were Sumatran elephants, tigers, and clouded leopards. The elephants created a trodden network of paths through the dense forest.[141] Other

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[132] Elizabeth Edwards, *Raw Histories: Photographs, Anthropology and Museums*, 4.
[133] Judith Butler, *Frames of War: When Is Life Grievable?*, 9.
[134] Tony Whitten et al., *The Ecology of Sumatra* (Hongkong: Periplus, 2000), 15–16.
[135] Herman Hesse, *Autobriographische Schriften I*, ed. Volker Michels, Sämtliche Werke 11 (Frankfurt am Main: Suhrkamp, 2014), 345–46.
[136] Whitten et al., *The Ecology of Sumatra*, 237.
[137] "Bird Species," Hutan Harapan, n.d., https://hutanharapan.id/en/birds-species/.
[138] Hesse, *Autobriographische Schriften I*, 347.
[139] F. Snelleman, *Bijdragen tot de kennis der fauna van Midden-Sumatra*, vol. 1, Reizen en onderzoekingen der Sumatra-Expeditie, uitgerust door het Aardrijkskundig Genootschap 1877-1879 4 (Leiden: E. J. Brill, 1887), 1.
[140] Snelleman, 1:16.
[141] Stadsarchief Amsterdam, Archief van de Nederlandse Commissie voor Internationale Natuurbescherming, de Stichting tot Internationale Natuurbescherming en het Office International pour la Protection de la Nature, 1283, 341, Reservaat-gebieden ten behoeve van natuurbescherming in Palembang, 1, 1-5-1931.

animals used this elephantine infrastructure to manoeuvre the forest. Clouded leopards shrouded themselves in mystery by evading humans and stealthily stalking their prey. The Sumatran tiger, on the other hand, did not hide deep in the forest. The tiger flourished at the forest's edge where thick vegetation gave way to a transitional landscape of forest and plains or agricultural fields.[142] In this zone, the tiger is at its most effective. This means that tigers benefitted from the strolling elephants and humans creating forest clearings. Despite its wealth of species, however, the rainforest was a vulnerable ecosystem. The sandy soil underlying the forest was not fertile.[143] Almost all nutrients and minerals sustaining plant life were stored in the plants themselves.[144] If a plant would die others would feed on its remains. Life in the tropical rainforest depended on the demise of plants and trees. Consequently, the forest could not easily regenerate itself if large swaths of forest were cleared; it lacked a fertile foundation to feed off.

The lowland forest of Jambi was not a static garden of Eden before the expansion of the Dutch empire. The forest was always changing. The elephants shaped the paths through the forest and the flying foxes introduced new seeds by flying throughout Sumatra. Humans actively intervened in the forest and produced the landscapes and its ecosystems together with non-human forces. The indigenous people of the forest between Batang Hari and northern Palembang are the Batin Sembilan.[145] The Dutch would later group them with other semi-sedentary people under the "*koeboe"* header, a word they took from Malay.[146] The Batin Sembilan lived for centuries in the forest. They practised shifting cultivation and extracted resources from the forest, such as ivory and wax from trees.[147] Some of these resources they tributed to the Sultan of Jambi.[148]

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[142] P. Boomgaard, *Frontiers of Fear: Tigers and People in the Malay World, 1600-1950* (New Haven: Yale University Press, 2001), 23–24.
[143] Rhett D. Harrison and Tom Swinfield, "Restoration of Logged Humid Tropical Forests: An Experimental Programme at Harapan Rainforest, Indonesia," *Tropical Conservation Science* 8, no. 1 (2015): 6.
[144] Whitten et al., *The Ecology of Sumatra*, 211.
[145] Stefanie Steinebach, "'Today We Occupy the Plantation - Tomorrow Jakarta': Indigeneity, Land and Oil Palm Plantations in Jambi," in *Adat and Indigeneity in Indonesia: Culture and Entitlements between Heteronomy and Self-Ascription*, ed. Brigitta Hauser-Schäublin (Göttingen: Universitätsverlag, 2013), 70–73.
[146] G. J. van Dongen, "De Koeboes in de Onderafdeeling Koeboestreken Der Residentie Palembang," *Bijdragen tot de Taal-, Land- en Volkenkunde van Nederlandsch-Indië* 63, no. 2 (January 1, 1910): 194; G.J. van Dongen, "Nog een en ander over de Koeboes," *Bijdragen tot de Taal-, Land- en Volkenkunde van Nederlandsch-Indië* 67, no. 1 (1913): 73–110.
[147] Freek Colombijn, "Dried-up Dragon's Blood and Swarms of Bees' Nest Collectors: Non-Timber Forest Products in Sumatra 1600-1870," in *Muddied Waters: Historical and Contemporary Perspectives on Management of Forests and Fisheries in Island Southeast Asia*, ed. David Henley and Peter Boomgaard, (Leiden: KITLV Press, 2005), 265.
[148] Nl-HaNA, Koloniën/Politieke Verslagen Buitengewesten, 2.10.52.01, inv.nr, 164, mailrapport 318geh/31, 31-12-1931.

The forest formed the "environmental infrastructure" of the Batin Sembilan.[149] They depended on water and wildlife to survive (environment) and created agricultural fields, paths, and housing (infrastructure). The indigenous people shaped the forest and the forest sustained them. The Dutch did not recognise the intricate ways in which the Batin Sembilan interacted with their environment. All the encroaching imperialists could see was a "virgin forest" inhabited by "wild" people. In 1877 the Dutch colonial state declared all land not used productively to be "*woeste grond"* that henceforth belonged to the state.[150] The state would stimulate the exploitation of these lands and enclose them for commercial use. Using resources, however, in the Dutch East Indies often meant destroying the ecosystems in which they were located.[151] In effect, the state classified the forest as a wasteland that could be polluted by colonial companies.[152] Because nobody did anything of use with the forest, the coloniser could make the forest useful, even if this led to the destruction of the forest.[153] This legal declaration formed the basis for the imperial acquisition of the forest.

However, "covenants, without the sword, are but words."[154] As the Dutch colonial army incorporated Jambi into the empire around 1900, it also encroached on the forest. The army started to forcefully settle indigenous people in villages. In 1905 it founded the first village, Muara Bahar, on the border of Jambi and Palembang and brought Batin Sembilan people captured during patrols there.[155] In the village, the Batin Sembilan were forced to practice agriculture and were not allowed to leave the village during the first half-year. After that period, the men deemed to have been reformed were allowed to go into the forest to hunt while the army, effectively, kept their families hostage. While during the following decades most of the Batin Sembilan were forcefully settled in villages, the army never fully subdued them. Batin Sembilan would regularly escape from the villages and return to their former ways of living.[156]

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[149] Emmanuel Kreike, *Scorched Earth: Environmental Warfare as a Crime against Humanity and Nature* (Princeton; Oxford: Princeton University Press, 2021), 6.
[150] Robert Cribb, "Introduction: The Late Colonial State in Indonesia," in *The Late Colonial State in Indonesia: Political and Economic Foundations of the Netherlands Indies 1880-1942*, ed. Robert Cribb (Leiden: KITLV Press, 1994), 5.
[151] Corey Ross, "The Tin Frontier: Mining, Empire, and Environment in Southeast Asia, 1870s–1930s," *Environmental History* 19, no. 3 (2014): 454–62.
[152] Traci Brynne Voyles, *Wastelanding: Legacies of Uranium Mining in Navajo Country* (Minneapolis; London: University of Minnesota Press, 2015), 8–9.
[153] Max Liboiron, *Pollution Is Colonialism* (Durham, North Carolina: Duke University Press, 2021), 7–16.
[154] Thomas Hobbes, *Leviathan*, ed. J.C.A. Gaskin (Oxford; New York: Oxford University Press, 1998), 111.
[155] Steinebach, "'Today We Occupy the Plantation - Tomorrow Jakarta': Indigeneity, Land and Oil Palm Plantations in Jambi," 72.
[156] H. H. Keereweer, "De Koeboes in de Onder-Afdeeling Moesi Ilir en Koeboestreken," *Bijdragen tot de Taal-, Land- en Volkenkunde* 99, no. 1 (1940): 368.

Incorporation of Jambi

The conquest of Jambi was a protracted process.[157] In 1901 the army started an offensive to subdue guerrilla forces in the region, culminating in the execution of the Sultan of Jambi in 1904 and the incorporation of Jambi as a residency in the Dutch empire in 1906. The resident of Jambi, his few civil servants, and the colonial army had a weak grip on the region. Many small acts of resistance by the local population of Jambi recorded in the archives of the colonial state speak to the tenuous hold of the colonial state on its newly-acquired territory. In 1918, for instance, a government steamship wanted to come ashore at a village on the Batang Hari.[158] When it threw a line at villagers watching the ship manoeuvring the river, the villagers refused to help the ship to dock. As a result, the ship drifted away. When on patrol the local army detachments also encountered resistance. The army hoped to count on the hospitality of the local population but was met with aggression in villages. Hence, they often remained in their barracks to prevent escalation.[159] In 1916 a rebellion over *corvé* labour shook the region. This time the army did leave its barracks and struck down the popular uprising with force.

After the revolt, the reach of Jambi's resident into the region remained limited. The state of the roads was both a symptom and a cause of this situation. The local colonial state could not mobilise the labour force necessary to maintain roads and bridges. As a consequence, "roads are overgrown" and "decayed poles ... indicate where bridges used to stand."[160] The different government spots in the region were not connected by road and travelling was conducted by boat over rivers. As a result, civil servants hardly left their posts to visit the areas nominally under their rule. Roads in poor condition and bridges in a state of disrepair, furthermore, obstructed army patrols. Local officers voiced their concerns to Jambi's resident H.L.C. Petri (1873 - ?).[161] Resident Petri replied: "Can't you understand that the people do not like maintaining roads?"[162] After the Jambi uprising, the resident did not dare to forcefully extract *corvé* duties from the local population.

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[157] Elsbeth Locher-Scholten, *Sumatraans sultanaat en koloniale staat: De relatie Djambi-Batavia (1830-1907) en het Nederlandse imperialisme* (Leiden: KITLV Uitgeverij, 1994), 243–66.
[158] NL-HaNA, Koloniën/Politieke Verslagen Buitengewesten, 2.10.52.01, inv.nr. 162, mailrapport 223/21, 10-1-1921.
[159] NL-HaNA, Koloniën/Politieke Verslagen Buitengewesten, 2.10.52.01, inv.nr. 164, mailrapport 591/28, 9-2-1926.
[160] NL-HaNA, Koloniën/Politieke Verslagen Buitengewesten, 2.10.52.01, inv.nr. 164, mailrapport 591/28, 9-2-1926.
[161] NL-HaNA, Koloniën/Politieke Verslagen Buitengewesten, 2.10.52.01, inv.nr. 162, mailrapport 223/21, 10-1-1921.
[162] NL-HaNA, Koloniën/Politieke Verslagen Buitengewesten, 2.10.52.01, inv.nr. 162, mailrapport 223/21, 10-1-1921.

While the local state slowly developed into an institution that affected progressively more aspects of life in Jambi, the force that would immediately impact the region arrived in 1922 by boat from Plaju, Palembang. In 1921 NIAM's headquarter in The Hague sent a telegram to Plaju, BPM's hub of refinery and extraction closest to Jambi, ordering the start of preparations for NIAM's operations there.[163] The BPM employee turned representative of NIAM, had to "investigate the transport business in Jambi" and "acquire storage facilities."[164] In general, BPM promised to deploy "its resources, reserve material, and personnel in *Indië* for the exploration and exploitation of NIAM's oil fields."[165]

In January 1922 a boat of BPM employees arrived in Jambi city. While staying in the government's guest house, the corporate officials signed up Chinese contractors to ship supplies inland. For its initial headways into the Jambi Residency, NIAM depended on the Batang Hari river and Chinese steamships that could reach Muara Bulian, the place closest to NIAM's drilling sites, in a total travelling distance of eighteen hours. Steam kettles, drilling installations, drilling tubes, caterpillars, and other materials flowed from Plaju via Jambi city to Muara Bulian by boat. This fleet brought NIAM's equipment within 30 km of the drilling site. To bridge this last distance the company could not rely on natural waterways or local middlemen. For that reason, it built a road by cutting a corridor through a "virgin forest."[166] This road went from Muara Bulian to Betung, with a side-track to Bajubang, a drilling site seven and a half kilometres removed from Betung.

Clearing a tropical forest is hard and dangerous work. Cutting trees and other vegetation alters the flow of water in a specific area. In the barren stretch of land the workers created, water stood still instead of being consumed by trees. Mosquitos thrive in these circumstances.[167] In 1926 a doctor visited NIAM's production sites. He concluded that on the production site located the closest to Jambi's coastal swamps "malaria is the most prevalent disease."[168] His advice was to "further clear the forest" and supply mosquito nets.[169] Whereas mosquito nets are effective tools for malaria prevention, forest clearings would only exacerbate the danger.

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[163] Nl-HaNA, Tweede Kamer der Staten-Generaal, nummer toegang 2.02.22, inventarisnummer 639, Jaarverslag van de Nederlandsch-Indische Aardolie Maatschappij over 1921, 1, 1922.
[164] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, Jaarverslag van de Nederlandsch-Indische Aardolie Maatschappij over 1921, 1, 1922
[165] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag en balans over 1922, 2, 1923.
[166] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag en balans over 1922, 3, 1923.
[167] Ho Dinh Trung et al., "Malaria Transmission and Major Malaria Vectors in Different Geographical Areas of Southeast Asia," *Tropical Medicine & International Health* 9, no. 2 (2004): 230–37.
[168] Nl-HaNA, Koloniën/Kabinet-Geheim Archief, 1901-1940, 2.10.36.51, inv.nr. 281, Geneeskundige inspectie Boeajan Boeloeh, 11, 15-7-1926.
[169] Nl-HaNA, Koloniën/Kabinet-Geheim archief, 1901-1940, 2.10.36.51, inv.nr. 281, Geneeskundige inspectie Boeajan Boeloeh, 11, 15-7-1926.

Furthermore, for forest clearings NIAM often recruited Batin Sembilan, thus exposing them to malaria.

The road was the beginning of a network of infrastructure and facilities that began to form around NIAM's drilling sites in the 1920s. Indeed, from 1922 onwards NIAM's infrastructural network would grow and thicken. Local workers constructed corporate housing. Chinese subcontractors began building oil-storage facilities and oil-transport stations. To allow NIAM's oil to flow to BPM's refinery in Plaju, the company had to attach its production sites to BPM's network of drilling sites and pipelines in the neighbouring residency of Palembang. The first pipeline was 82 km long and traversed the hills separating NIAM from BPM's drilling sites.[170]

More roads, more pipelines, and more storage facilities would engrave the company in the landscape of southern Jambi. In the years 1923-1926, the only productive oil field was Betung. NIAM's other oil field Bajubang only became productive in 1927 after years of efforts to make it viable. Geologists circled these two production sites with test-drilling crews. They regularly found other oil deposits but only deemed a handful of these deposits viable. In 1930 NIAM added another site to its structure: Tempino, located south of Betung and Bajubang, perched on the border with the Palembang Residency.[171] Increasing production on a field or establishing a new field involved the construction of new pipelines, roads, housing, and sometimes even a school. NIAM continuously moved around assets and facilities between its production sites and built new roads.

An oil field consisted of a production side and an enclave. The Betung enclave, the most important enclave to NIAM in the 1920s, housed an administrative office. A workshop stood next to this office. There a blacksmith repaired and mended broken equipment. Housing was racially segregated. Workers from the Indonesian archipelago lived in *bangsals*, i.e. communal buildings.[172] European personnel, such as drill masters, had their own separate houses. Food could be bought in a *toko* in the enclave for reduced prices. Three Chinese farmers and local Batin Sembilan farmers, furthermore, farmed plots of cleared forest to provide the enclave with fresh vegetables and fruit.[173] In the 1930s the Bajubang enclave had its own school, with one European teacher who replaced the wife of a NIAM employee as the provider of education.

[170] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag en balans over 1922, 8, 1923.
[171] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1930, 6, 1931.
[172] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1925, 3-4, 1926.
[173] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1925, 8, 1926

NIAM also built a swimming pool, tennis court, slaughterhouse, and hospital at Bajubang.[174] As production grew, the enclaves grew as well. The state of infrastructural flux required a constant supply of workers that could clear stretches of forests and build houses.

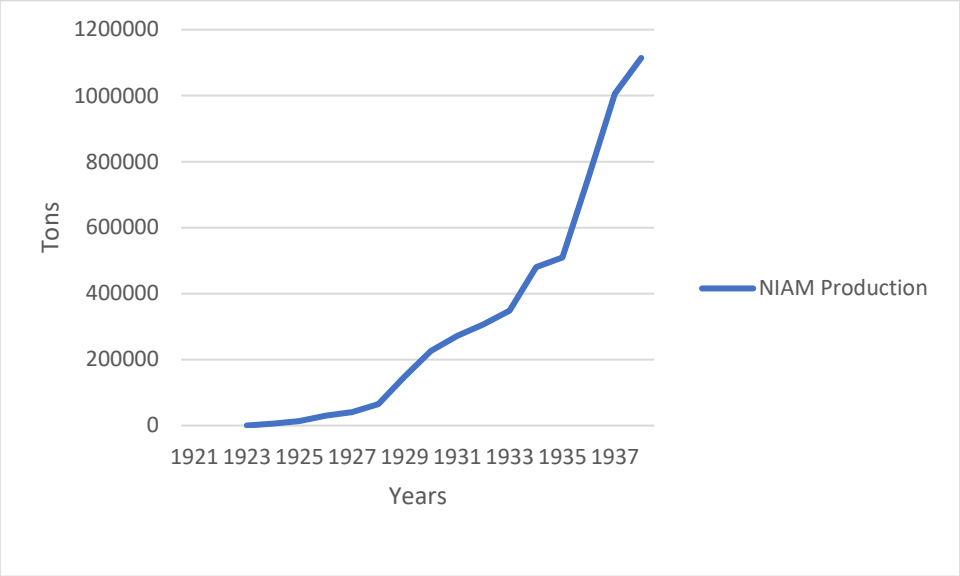
NIAM competed with the local rubber industry for access to labour to construct its infrastructural works. In 1922 rubber prices were low, following a boom in production after World War I. However, as the 1920s progressed the price of rubber climbed, following a British effort to limit global production.[175] In Jambi, where rubber trees grew easily, rubber cultivation was a non-European affair. The local elite owned the means of rubber production and as prices of rubber mounted, they paid workers handsomely for their labour.[176] The pull of rubber extended beyond Jambi Residency. People from the Strait Settlements and workers from mines located 150 km north of Jambi came to tap rubber. As a result, NIAM's executives had to contend with a diminished labour supply.[177] Even the workers that did come to work for NIAM on roads and pipelines would regularly disappear for days at a time to tap rubber and come back a few days later. In 1925 NIAM expected that on an average day 40% of its workforce would not come to work.[178] Indeed, rubber tapped into NIAM's pool of labour.

The rubber boom coincided with the moment NIAM moved out of the initial phase of setting up oil extraction. In 1922, the company produced 172 tons of crude oil, in 1925 this grew to 13.205 tons (see graph 3). The infrastructure laid down in 1922 did not suffice to transport this amount of oil. NIAM needed yet more pipelines. For the construction of a pipeline between Betung and Sumpal, a BPM production site in Palembang, separated by 63 kilometres of steep hills, NIAM estimated it would need 41.000 days of work.[179] Because of the large-scale absence of workers, it eventually took the company 64.800 days. Indeed, labour formed the bottleneck of production during the 1920s. NIAM explored the option to bind workers to the company with the threat of violence. However, the option of hiring coolies with a penal clause in their contracts was unappealing in Jambi because of the region's low population density.[180] Workers

[174] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1930, 9, 1931.
[175] Michitake Aso, *Rubber and the Making of Vietnam: An Ecological History, 1897-1975* (Chapel Hill: University of North Carolina Press, 2018), 72.
[176] Elsbeth Locher-Scholten, *Sumatraans sultanaat en koloniale staat,* 306-314.
[177] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1925, 3-4, 1926.
[178] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1925, 13, 1926.
[179] NL-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1925, 14, 1926.
[180] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1926, 10, 1927.

could walk into the forest without the police being able to track them down. In the large forest, corporate and state presence was still elusive.

Graph 3, NIAM's Oil Production in Metric Tons



Source: Annual Reports NIAM.[181]

Production

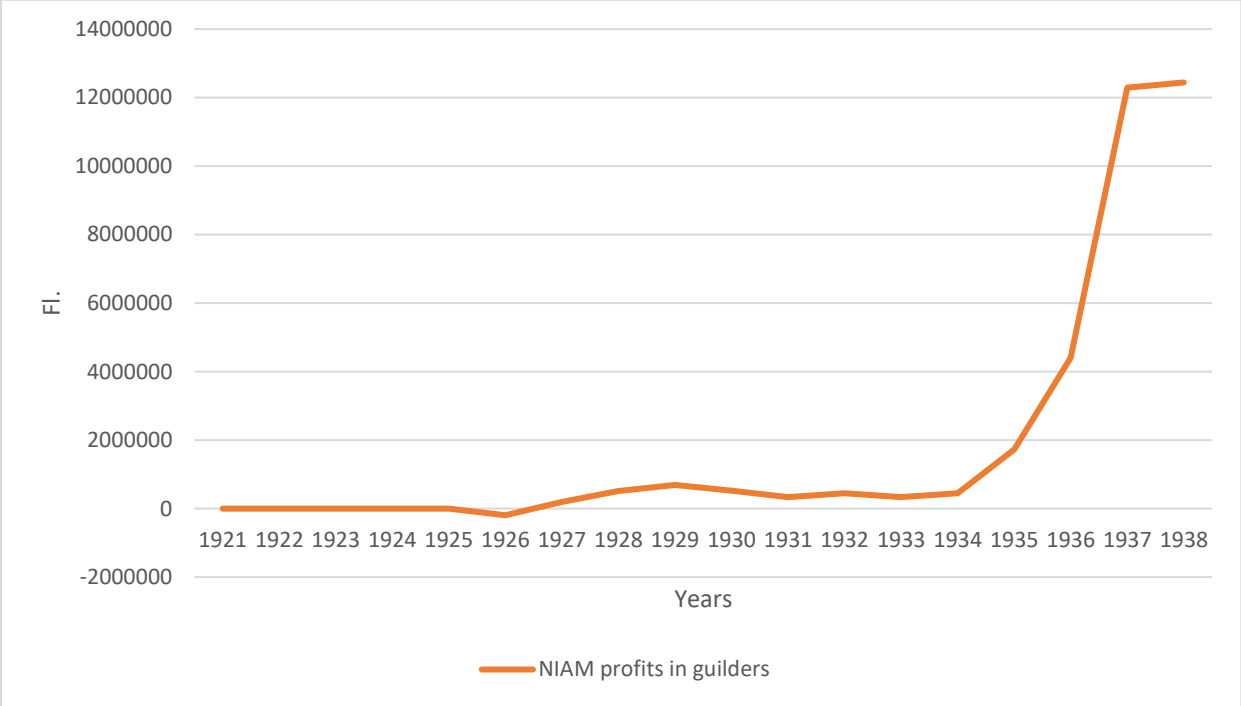
Extracting profit from the forest was an arduous task. In 1925 members of parliament in the Netherlands criticised NIAM for not delivering the profits they had expected.[182] NIAM's Oversight Board pointed in its annual report out that lack of local labour was a mitigating factor that partially justified NIAM's results.[183] However, even when labour would have been abundant, NIAM's lack of success stemmed from a structural feature of the oil industry: profits trail, with a few exceptions, substantial capital investments by a few years. Exploration of resources, the construction of infrastructure, and operating oil fields are necessary, yet expensive, preconditions for letting oil flow from well to markets. Before the market can slurp oil, oil wells slurp capital.

The Dutch state and BPM both held five million guilders worth of NIAM stocks. NIAM could call on the shareholders to deposit parts of this capital. Between 1921 and 1924 NIAM spent

[181] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639.
[182] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1925, 29-30, 1926.
[183] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1925, 29. 1926.

half of its capital endowment on pipelines, supplies, geological surveys, drillings, company towns, and the maintenance of infrastructure. From 1924 onwards NIAM started to sell oil to BPM. However, until 1928 the revenues of oil sales were barely enough to cover the losses inflicted by failed test drillings, unproductive oil wells, and production terrains that had to be abandoned (see graph 4). In 1925 the state and BPM had to inject both 500.000 guilders into NIAM to prevent the company from going bankrupt.[184] In 1928 the first profits appeared on NIAM's balance sheets. Finally, the state and BPM could divide the spoils of their investment: 519.507 guilders. With 10% going to the financial reserves of the company and another 10% to the directors of the company, the state received 257.156 guilders and BPM 163.644 guilders.[185]

Graph 4, NIAM's Profits in Guilders



Source: Annual Reports NIAM.[186]

The hope that after 1928 the profits would finally start to flow and that public money had not been wasted, however, vaporised when news of a global recession came from the United States. Global demand for petroleum slummed. The seven meagre years of 1922-1927 would not be followed by seven years of prosperity but by a few more years of slim profits. When the crisis

[184] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1925, 8-9, 1926.
[185] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1928, 10, 1929.
[186] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639.

waned and the global economy started to consume more petroleum, NIAM was in a good position to finally deliver on its promise of bringing money to the state and BPM. During the early 1930s, the company had not stopped investing in new oil wells. In 1930 the company extracted 186.434 tons of crude oil (see graph 3). By the end of the Great Recession in 1933 it extracted 309.146 tons of crude oil *per annum*. To bring this oil to BPM's refinery in Plaju, near Palembang, on Sumatra NIAM needed more pipeline capacity than it had at that moment. Constructing a new pipeline would, furthermore, allow for even more production. Eventually, the construction of the pipeline cost 2.72 million guilders, i.e. 43% of NIAM's total infrastructural investment between 1931 and 1938.[187]

The Pipeline of Progress

The construction of the pipeline took a year. During that year 3000 workers worked on the construction of the pipeline daily.[188] Most of these workers were employed by Chinese subcontractors. NIAM sent a photographer to document the construction of the pipeline. These photographs were meant to propagate the achievements of the company to outsiders and as a means to account for the expenses to NIAM's stakeholders. The photographs frame the process of constructing a pipeline as a major, technical achievement by NIAM. However, the photographs also testify to the damage NIAM's operations inflicted on the rainforest and how it altered the forest's ecosystem since the start of its operations.

The photographs show different phases of pipeline construction through the tropical rain forests of Jambi and Palembang: removing vegetation and regulating water, effacing height, and finalising the road. The photo album shows the construction of an "infrastructural zone" in which a landscape is stabilised to allow oil to move through space, seemingly, without friction.[189]

Firstly, the workers had to cut their way through the forest. 150 km of the 268 km long pipeline route passed through what NIAM thought of as "virgin forests."[190] Claiming this forest meant cutting down trees and eradicating all other vegetation that stood on a 40-meter-wide strip designated for the road and pipeline.[191] Although the road would not be broader than five meters and the pipeline would take up much less space, the workers cleared out a larger part of

[187] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, Jaarverslag over 1937 van de NV Nederlandsch-Indische Aardolie Maatschappij te 's-Gravenhage, 11, 1938.
[188] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, Jaarverslag over 1935 van de NV Nederlandsch-Indische Aardolie Maatschappij te 's-Gravenhage, 10, 1936.
[189] Andrew Barry, "Technological Zones," *European Journal of Social Theory* 9, no. 2 (2006): 240.
[190] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, Jaarverslag over 1935 van de NV Nederlandsch-Indische Aardolie Maatschappij te 's-Gravenhage, 10, 1936; Nl-HaNa, Koloniën/Politieke Verslagen Buitengewesten 2.10.52.01, inv.nr, 164, mailrapport 318geh/31, 31-12-1931.
[191] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM jaarverslag en balans over 1922, 4, 1923.

the forest to prevent falling trees from hitting the pipeline. In total NIAM cleared 6.000 km2 of forest, an area the size of the Dutch provinces South Holland and Zeeland combined, or 15% of the surface area of the Netherlands. According to NIAM, the workers had to cut down ca. 500.000 trees that stood in the area.[192] The forest, however, is an interconnected system. If one tree falls, it will take other trees with it in its fall and fatally damages others. One large tree might crush and mortally wound as many as seventeen other trees.[193] Assuming that between 1 and 5% of the downed trees fell to the side into the forest, between 85.000 and 425.000 additional trees died.

By cutting down all trees and removing vegetation near the road the workers eradicated the lowland rainforest ecosystem in a narrow track through the forest. The lively forest gave way to debris. Over time, however, new vegetation would pop up in the forest corridor created by NIAM. Wild banana trees, small weed vegetation, and floral plants of the ginger family come to fruition in the space between forest and road.[194] The trees that fell from the roadside into the forest, taking with them other trees, created gaps in the forest's canopy. Through these gaps light suddenly fell on the forest floor and this allowed other trees and plants previously confined to the dark to grow and expand their reach. Furthermore, the decomposing trees provided nutrients and minerals to the aspiring plants. Some of NIAM's tree casualties helped parts of the rainforest to regenerate.

In other ways, however, the state of the ecosystem surrounding the road deteriorated. The road needed to have a ditch that could drain rainwater, swamps, and redirect local streams. As image 1 shows, the forests in between Jambi and Palembang could be marsh-like. The heavy rainfall of the monsoon season would bring even more water to the region. The ditch had to drain this water from the road. Sometimes small streams had to be redirected because they cut across the pipeline's trajectory. For this purpose, NIAM's subcontractors built small concrete dams. The rudimentary ditch thus could become a more sophisticated feat of hydrological engineering. Water could no longer run its course; it was channelled to suit the needs of the oil industry.

[192] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, Jaarverslag over 1935 van de NV Nederlandsch-Indische Aardolie Maatschappij te 's-Gravenhage, 10, 1936. This seems to be a plausible number, because it falls in the range of the number of trees/ha presented in the following study: Thomas W. Crowther et al., "Mapping Tree Density at a Global Scale," *Nature* 525, no. 7568 (2015): 202.
[193] Whitten et al., *The Ecology of Sumatra*, 365.
[194] Whitten et al., 368.

Image 1, Forest Cleared by NIAM, Between Jambi and Palembang.

Source: Leiden University Library, KITLV Collection.[195]

In the dry season, combined with the water consumption of oil enclaves, NIAM's infrastructure could deprive parts of the rainforest of water. Streams and even small rivers would run dry because dams had redirected the water, or because all of it was immediately consumed by oil enclaves, for cleaning or injection into an oil well.[196] This made life in the parts of the forest that depended in the rainless months on these streams more precarious. In the wet seasons, on the other hand, NIAM's ditches and dams created puddles and pools filled with rainwater reaching into the forest. Almost nothing can live or thrive in these ponds, because the rainwater has very low concentrations of oxygen.[197] Tigers or elephants might drink from them, but trees and other original vegetation near these ponds tend to wither away. Within thirty meters of the pond grass, weed, and woody vegetation takes their place. Over time, however, these ponds can become

[195] *Ontgonnen bos tussen het stroomgebied van de Air Dawas en de Soepat voor de aanleg van de NIAM oliepijpleiding in Palembang*, Photograph, Leiden University Libraries Digital Collections, KITLV A86, 1935, http://hdl.handle.net/1887.1/item:921565.
[196] Nl-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 307, Bezoek administrateur en boorinspecteur aan de Djambiterreinen en de pijpleiding naar Sumpal, 20-3-1923, 7.
[197] Lars Schmidt, Djoko Prasetyonohadi, and Tom Swinfield, "Restoration of Artificial Ponds in Logging Concessions: A Case-Study from Harapan Rainforest, Sumatra," *Tropical Conservation Science* 8, no. 1 (March 1, 2015): 34–38.

home to animals. In the 1950s Dutch biologists walked along the Jambi pipeline and saw "hundreds of fish" swimming in the water near the pipelines.[198]

After plants and water no longer obstructed the construction of roads and pipelines, the physical geography of the region presented the next obstacle. Some hills accentuating the landscape between Plaju and Jambi proved to be too steep for the motorised vehicles of the time. NIAM's workers had to smoothen this angulating terrain and transform steep hurdles into gentle, rolling hills. This meant digging through the hills with the help of machines and by hand. Tractors and spades moved mounds of earth. Image 2 shows the passages created through the hills. On the right side, the wall of the earth has been manicured, whereas the left wall still shows the different layers of earth the workers had to dig through. The pillars standing in the middle of the road, presumably, are tree trunks. Other parts of the road were too low, instead of too high. A ditch could not protect these parts of the trajectory from rainfall and the flow of local streams. Hence these low-lying parts of the corridor were raised with earth. In the process of smoothing over the natural height differences of the landscape, the workers moved ca. 560.000 m3 of soil.[199] In the end, these workers moved mountains, not just mounds. Tropical soils are precarious soils. Seasonal rain flushed the little nutrients and minerals present in the forest's sandy soil away once it was exposed. Though infertile itself, the soil was home to a network of fungi that transported nutrients underground throughout the forest.[200] By spading through the earth, NIAM eradicated the underground networks that connected the forest standing at the two sides of its road.

[198] "Excusie Langs de Djambi Pijpleidng van de BPM Op 10 Mei 1953," *De Tropische Natuur*, 1953, 141–42.
[199] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, Jaarverslag over 1935 van de NV Nederlandsch-Indische Aardolie Maatschappij te 's-Gravenhage, 10, 1936.
[200] Samuel J. B. Robinson et al., "Soil Fungal Community Characteristics and Mycelial Production Across a Disturbance Gradient in Lowland Dipterocarp Rainforest in Borneo," *Frontiers in Forests and Global Change* 3 (2020); Nicole Brinkmann et al., "Intensive Tropical Land Use Massively Shifts Soil Fungal Communities," *Scientific Reports* 9 (2019): 3403.

Image 2, Hill Leveled by NIAM, Between Jambi and Palembang.

Source: Leiden University Library, KITLV Collection.[201]

With the geography of the region made suitable to the demands of the pipeline and road, the surface of the corridor had to be made suitable for the road. The debris of the initial forest clearing had to be removed. After that, tractors with caterpillars ploughed the earth to remove the elaborate root systems of the trees that used to stand there. The ploughed layer of earth was then straightened out by a shovel. After that, the caterpillar tractor returned to tow a road roller that would compress the earth to make it suitable for car use and resistant, up to a degree, to monsoon rain. Image 3 shows the first step of this part of the process. Image 4 shows the results of the ironing of the road surface. In the heart of the corridor now lay a firm, smooth surface. NIAM had paved the way for further progress.

[201] *Doorgraving tussen het stroomgebied van de Toengkal en de Kenawang voor de aanleg van de NIAM oliepijpleiding in Palembang*, Photograph, Leiden University Libraries Digital Collections, KITLV A86, 1935, http://hdl.handle.net/1887.1/item:925095.

Image 3, Tractor Working on NIAM's Road, Between Jambi and Palembang.

Source: Leiden University Library, KITLV Collection.[202]

[202] *Het ontginnen van bos met een rooter voor de aanleg van de NIAM oliepijpleiding bij Bajoenglentjir in Palembang,* Photograph, Leiden University Libraries Digital Collections, KITLV A86, 1935, http://hdl.handle.net/1887.1/item:924184.

Image 4, Finished Road, Between Jambi and Palembang.

Source: Leiden University Library, KITLV Collection.[203]

NIAM's pipelines and roads in Jambi and Palembang remade the landscape. What was once a thick rainforest was now scarred. Alongside the road, dense forest vegetation gave way to weeds and wild bananas. The army's villages for Batin Sembilan were connected to these roads from where Batin Sembilan farmers provided the oil enclaves with fresh vegetables. The roads and pipelines, however, also gave rise to new beastly encounters.

Early in a morning in 1927, a German ethnologist walked on one of NIAM's pipeline roads. A Batin Sembilan guide and two carriers accompanied him. "The grass was wet, the air hazy … when a monstrous roar penetrated our ears. … [T]he song of the tiger king in the sleepy jungle."[204] The ethnographer was petrified. The Batin Sembilan, after the initial shock, continued walking alongside the road while the tiger followed them at 50 meters distance. They knew that if tigers mean harm they attack silently from behind, aiming to suffocate the victim by

[203] *Afgewerkte weg bij Tamiang voor de aanleg van de NIAM oliepijpleiding bij Djambi,* Photograph, Leiden University Libraries Digital Collections, KITLV A86, 1935, http://hdl.handle.net/1887.1/item:921563.
[204] Paul Schebesta, *Orang-Utan: Bei den Urwaldmenschen Malanas und Sumatras* (Leipzig: F. A. Brockhaus, 1928), 236–37.

breaking its neck. Between 1900-1930 tigers killed 75 people in Sumatra.[205] Lowland rainforests had the highest tiger density per square kilometre. These tigers flourish near the edges of the forest where they blend in with the low, weedy vegetation. Hence they roamed NIAM's roads looking for prey. This brought them into the crosshairs of hunters. Humans killed 500 tigers on the island in the same period.[206] Picture 5 shows BPM employees gathered around a car after a hunt in the forests of Palembang with their trophy bound to the car's bumper. The mighty animal that made ethnographers shiver was in the eyes of a hunting party but a prey.

Image 5, A Dead Tiger and BPM Employees

Source: Leiden University Library, KITLV Collection.[207]

Oil Spills

Over two decades NIAM constructed a network of pipelines that was in some places a dense maze. In other places, it stretched thinly through the rainforest. As NIAM spread its infrastructure throughout the region, its infrastructure leaked oil through little cracks and decayed joints. NIAM could not oversee its pipeline network. A BPM engineer inspecting the

[205] Boomgaard, *Frontiers of Fear: Tigers and People in the Malay World, 1600-1950*, 208.
[206] Boomgaard, 208.
[207] *Een gedode tijger vastgebonden op een auto, tijdens een tijgerjacht van J. Heil, werkzaam bij de Bataafse Petroleum Maatschappij, in de omgeving van Palembang*, Photograph, Leiden University Libraries Digital Collections, KITLV A1322, 1933, http://hdl.handle.net/1887.1/item:724676.

facilities in 1927 noted in his report: "[t]he pipe network. Not very orderly. It could do with some maintenance."[208] Ten years later during a visit, a member of the Oversight Board agreed and wrote that "the continuous expansion of capacity and pipelines results in stations cluttered with a labyrinth of pipes."[209] Whereas the pipelines were the vital link that connected NIAM's oil fields to the oil market through the refinery in Plaju, the pipelines were not strictly managed.

Neither NIAM's operating personnel nor its stakeholders were concerned about the danger of leaking pipelines. Only in a few technical reports, the company reported on leaks and only one annual report speaks of spillage.[210] To the colonial participants in the oil industry leakages must have been a normal part of operating an oil field. Already in 1915, the Ministry of Colonies agreed with BPM that a competent oil company could be expected to lose 0.02% loss per litre of oil per kilometre of pipeline in Jambi.[211] Oil leaks were not accidents hidden from public view by oil corporations that feared an environmentally-minded public. On the contrary, the annual reports sent by NIAM to the minister of colonies and parliament include all the information needed to calculate the amount of oil spilled *per annum.* The attitude towards oil leaks betrays the colonial view of nature of the oil establishment and the stakeholders in the industry. To them, Jambi's rainforest was an empty space they could turn into a wasteland.

NIAM's corporate structure and contacts with BPM make the oil losses visible. In its annual reports, NIAM reported the amount of oil (noted in metric tons) coming out of its wells. BPM's contracts with NIAM stipulated that BPM should report on how much oil was transferred to BPM pipelines by NIAM. The difference between these two numbers minus the maximum storage capacity of NIAM gives the amount of oil lost in NIAM's pipelines. Subsequently, the annual reports show how much of NIAM's input into BPM pipelines arrived at the refinery in Plaju. The annual report of 1924 confirms that the difference between input and delivery at the refinery is "pipeline loss."[212] Using a conservative estimation that 1 kilo of Jambi crude is 1,02 litres, table 1 shows the amount of oil spilled by NIAM per year and the leaks as a percentage of total production. If Jambi crude oil is heavier than assumed here, for instance, if 1 kilo equals 1,2 litres, the number of litres could be as much as 15% too low.

[208] Nl-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 307, Bezoek aan Betoeng en Bajdoebang, 9, 5-8-1927.
[209] Nl-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 307, Reisaantekeningen van Prof. Mr. V.H. Rutgers, 7, 1937.
[210] Nl-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 307, Bezoek administrateur en boorinspecteur aan de Djambiterreinen en de pijpleiding naar Sumpal, 7-8, 20-10-1923,
[211] Nl-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr., 1108, Eerste alternatieve aanbieding BPM, 5, 1915.
[212] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, NIAM Jaarverslag met balans en V. & W. rekening over 1924, 7, 1925.

Table 1, Crude Oil Spilled by NIAM

Years	Litres of Crude Oil Spilled by NIAM	Spilled Crude Oil as % of Total Production
1924	706.769	12,2
1925*	465.570	3,4
1926*	1.397.739	4,5
1927	1.978.608	4,8
1928	4.256.100	6,5
1929	8.902.555	6,8
1930*	4.472.764	2,3
1931	5.947.673	2,6
1932†	1.375.216	0,6
1933	3.955.895	1,6
1934†	1.852.092	0,6
1935	7.217.971	1,9
1936	4.938.423	0,7
1937	8.732.873	1
1938	20.209.749	2

* = no data on oil leaked from NIAM's pipelines. † = no data on oil leaked from BPM's pipelines.

Source: Annual reports NIAM.[213]

NIAM spilled a significant volume of oil every year. Improvements in technology, such as the modern pipeline of 1935, brought the percentage of production that seeped away down. However, production increases outpaced these technological improvements. In the late 1930s, NIAM's spilling reached unprecedented heights. The pipelines and the adjacent roads might seem to be scars running through the forest, NIAM's annual reports show that pipelines were festering wounds – a source of continuous pain for the forest and its many inhabitants.

[213] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639.

Oil leaks had severe consequences for the forest. Crude oil is toxic, both with immediate effect and over longer periods of time. Flora covered in oil will be smothered. Birds can immediately die when their fathers are coated with crude oil.[214] Even if they are cleaned after an oil spill, dehydration, emaciation, and exhaustion caused by oil can be lethal for birds. Larger mammals are also vulnerable to oil spills. Pneumonia occurs when mammals inhale petroleum fumes.[215] The poison of crude oil, however, not only affects the body. It also alters crucial behaviour of mammals. Researchers in Canada observing a cow herd near continuously leaking pipelines found besides "evidence of immune and nervous system dysfunction," "above-average mortalities in cows and calves," and "lesions in lymph nodes," also "aggressive behaviour," "calves lack[ing] sucking instinct," and that "cows failed to nurture new-born calves."[216] Crude oil seems to suppress the caring instincts of large mammals, such as cows, and the vital instinct of the calf to feed. When oil leaks from the pipeline it touches the longs, harms lymphs and distorts the communal life of animals.

There is no direct evidence of what oil meant to the ecosystem of the forest spanning southern Jambi and northern Palembang. Based on general scientific insights, however, it is clear that all that lived near the pipelines was continuously at risk. Many flowers, plants, and trees must have died. Birds taking a bath in NIAM's ditches or near the company's dams could be covered in oil, the tiger straddling the edge of the forest clearing could get pneumonia, and the group dynamics of elephant or deer herds walking along the pipeline could deteriorate. All life, not only animal life, along NIAM's pipelines, became precarious. Batin Sembilan villages were located along the oil roads. A BPM engineer visiting NIAM wrote that "because of the vicinity of the *koeboe* villages along the pipelines, fresh vegetables are regularly available." The Batin Sembilan, erroneously grouped under the *koeboe* header, thus also lived immediately in the danger zone. Whereas their previous way of living would have enabled them to migrate to unspoiled parts of the forest, the colonial army had pinned them down along the pipelines. Losing their way of life and forced to farm and live in a poisonous corridor, the army and oil industry subjected the Batin Sembilan to cumulative forms of colonial violence.

NIAM's workers were also exposed to the dangers of crude oil. On the oil fields, they were experiencing the same hazards as the Batin Sembilan. Furthermore, the workers were eating the

[214] Robert C. Szaro, "Effects of Petroleum on Birds," in *Transactions of the 42nd North American Wildlife and Natural Resources Conference*, 1977, 374–81; Ana Balseiro et al., "Pathological Features in Marine Birds Affected by the Prestige's Oil Spill in the North of Spain," *Journal of Wildlife Diseases* 41, no. 2 (2005): 371–78.
[215] Robert W. Coppock and Ralph G. Christian, "Petroleum," in *Veterinary Toxicology: Basic and Clinical Principles*, ed. Ramesh C. Gupta (London: Academic Press, 2018), 623.
[216] Coppock and Christian, 627.

same vegetables. The effects of pollution become worse the higher up in the food chain an organism is situated. If a shrimp contains a very small amount of poison the animal that feeds on shrimps over time gets a higher concentration of poison in its body. This process of "biomagnification" hurts apex predators such as tigers in the Jambi forest even if they lived in parts of the forest not touched by the pipeline but ate deer that came near the pipeline and thus collected poison in their bodies.[217] The Batin Sembilan and oil workers that ate vegetables with small amounts of toxins over time accumulated dangerous levels of poison in their bodies. Even if these people did not get cancer from oil pollution, they were very likely to suffer from cardiac dysfunctions, problems with breathing, and chronic pain in their joints.[218] Oil pollution made the forest from one of the most biodiverse habitats of the world into a very dangerous area.

Jambi was but one of the many oil fields of the Dutch East Indies. Fields such as Pangkalan Brandan, Tarakan, and Balikpapan yielded much more oil than Jambi did. During the early years of production, Jambi produced 1% of total oil production, steadily growing to ca. 10% of the total oil output of the colony during the 1930s.[219] The total amount of oil spilled per year cannot be estimated for the entire archipelago, because all oil fields lay at different distances from refineries, yield different types of oil, and operated with different types of technologies depending on the year when they were established. However, extrapolating the Jambi case to the whole archipelago indicates that the oil industry was the largest industrial polluter and the most influential agent of environmental change and degradation in the Dutch East Indies.

Disregarding indigenous smallholding agriculture, the oil industry reordered the ecologies in which it operated at a scale and intensity not seen in other colonial enterprises. Plantation agriculture covered more space than the oil industry did, causing more deforestation and altering more hydrological profiles in the process of establishing the plantations.[220] Plantations altered complex ecosystems with the large-scale cultivation of monocultural crops. However, the plantations dispersed fewer toxic substances than the oil industry did. Without the pesticides developed after the Second World War, the environmental footprint of the plantations was less

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[217] John S. Gray, "Biomagnification in Marine Systems: The Perspective of an Ecologist," *Marine Pollution Bulletin* 45, no. 1 (2002): 46.

[218] Mark A. D'Andrea and G. Kesava Reddy, "The Development of Long-Term Adverse Health Effects in Oil Spill Cleanup Workers of the Deepwater Horizon Offshore Drilling Rig Disaster," *Frontiers in Public Health* 6 (2018); Jan Paul Zock, "Some Clues for Studying Long-Term Health Effects of Oil Spills," *Occupational and Environmental Medicine* 75, no. 3 (2018): 163–64 .

[219] Nl-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 397, Petroleum-productie van Ned. Indië, n.d..

[220] Anna Lowenhaupt Tsing, Andrew S. Mathews, and Nils Bubandt, "Patchy Anthropocene: Landscape Structure, Multispecies History, and the Retooling of Anthropology: An Introduction to Supplement 20," *Current Anthropology* 60, no. S20 (2019): S186–97; Gan et al., "Introduction: Haunted Landscapes of the Anthropocene"; Aso, *Rubber and the Making of Vietnam*.

intense than the toxic legacy of the oil industry. Mining, on the other hand, did spread toxic waste in ecosystems.[221] However, whereas one oil field could spread toxic waste over hundreds of kilometres through pipelines, mining corporations dumped their waste in the landscape they defaced, thus affecting a smaller area.

Conclusion

Oil devastated the rainforest of southern Jambi and northern Palembang. Contrary to what most environmental history would expect, NIAM's operations were not an instance of slow violence. NIAM's operations destroyed the local ecosystem. In other words, NIAM committed ecocide. The colonial army forced the Batin Sembilan to live in NIAM's zone of extraction, thus destroying their way of life, or committing cultural genocide. In Jambi's rainforest carbon colonialism showed its destructive potential. The next chapter tells the history of the decolonisation of Jambi and the surprising connections between Jambi and Drenthe. The findings of this chapter serve as the basis to understand how the environmental and social practices of the colonial oil industry shaped oil extraction in the Netherlands.

[221] Ross, "The Tin Frontier," 472-73.

Peat Bogs and Carbon Colonialism[222]

In 1943 colonial engineers struck oil in the south-eastern corner of the Netherlands. Mobilised by the occupying forces these engineers found the largest onshore oil field in north-western Europe. The German invasion prevented these engineers on leave from the Dutch East Indies to return to their tropical drilling sites. Instead of working on Borneo or Sumatra, they laid the foundations for what would become after the war the *Nederlandse Aardolie Maatschappij* (NAM) a joint venture of the *Bataafsche Petroleum Maatschappij* (BPM) and Standard Oil New Jersey. In the second half of the twentieth century, NAM would bring billions to the Dutch state, oil to industry, gas to homes, and doom to Groningen in the form of earthquakes. The corporation that partly defined Dutch post-war life rested on a colonial foundation.

I trace the spill-over effects from the tumultuous 1940s in Southeast Asia to the Netherlands. Existing scholarship has emphasised that political and economic decolonisation play out on different time scales.[223] After the end of Dutch political rule in the archipelago, Dutch companies could continue to work in Indonesia. After the political independence of Indonesia BPM remained active in the country, reserving its highest functions mostly for Dutch and European personnel. BPM's operations only came to an end in Indonesia in 1957 when Sukarno (1901-1970) nationalised the company. While it is true that up to 1957 Dutch BPM personnel could work in Indonesia, the German occupation of the Netherlands, the violent aftermath of the Japanese occupation of Indonesia, and the War of Independence restricted access to the Indonesian oil fields. As a result, BPM personnel found their way to the metropole.

The shadows of the colonial past loom large over the history of oil in the Netherlands. For oil extraction in the Netherlands, BPM and the Dutch state copied many practices from the colonial industry by now familiar from the *Nederlandsch-Indische Aardolie Maatschappij* (NIAM). To understand the history of oil extraction in the Netherlands the colonial past needs

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[222] This chapter is partly based on (archival research for) two papers I wrote earlier on Schoonebeek. Both the narrative and argument of this chapter differ, however: "Carbon Colonialism in Drenthe: The Political-Environmental History of Oil Extraction," submitted for The Business of Empire seminar at Leiden University 2021; and "Southeast Drenthe's Silent Spring: NAM's Oil Pollution (1945-1963)" submitted for the United States and the Global Environment seminar at Leiden University in 2021.

[223] J. Thomas Lindblad, *Bridges to New Business: The Economic Decolonization of Indonesia* (Leiden: KITLV Press, 2009); J. Thomas Lindblad and Peter Post, "An Introduction," in *Indonesian Economic Decolonization in Regional and International Perspective*, ed. J. Thomas Lindblad and Peter Post (Leiden: KITLV Press, 2009), 1–16; Keetie Sluyterman, "Decolonisation and the Organisation of the International Workforce: Dutch Multinationals in Indonesia, 1945–1967," *Business History* 62, no. 7 (2020): 1182–1201.

to be taken into account, something existing publications on NAM fail to do.[224] In this chapter, I show how the colonial industry shaped oil extraction in the Netherlands. NAM, however, was not a carbon copy of NIAM. In the transfer of carbon colonialism from the colony to the metropole many things changed. In this sense, this chapter is a genealogy of extractive practices.[225] The colonial origins of the oil industry did not determine or fix the course of extraction in Drenthe in a definitive way. Rather, carbon colonialism brought about colonial practices that changed in the encounter with rural life in Drenthe.

Carbon colonialism partly fuelled post-war recovery in the Netherlands. After the Second World War coal shortages crippled economic activity. Oil brought relief on that front. In this way, oil allowed for the (re)industrialisation of the Netherlands. NAM's domestically produced oil reduced reliance on oil imports from the United States and American oil companies, thus easing the severe pressure on the foreign exchange reserves of the Netherlands. In the immediate aftermath of the war, oil became a cornerstone of the Netherlands.

Aspects of the colonial oil industry came to the Netherlands. Charting this transfer is important for two reasons. Firstly, chapter 1 showed the colonial entanglement of the Dutch state and oil corporations. Social scientists today observe that the state is still enmeshed with the energy sector.[226] Especially in the context of gas extraction NAM is held up as the emblem of the blurred lines between public interest and private gains.[227] In this chapter, I connect the colonial origins of corporate-state interactions to the contemporary structure of the fossil-fuel economy by showing how NAM arose out of carbon colonialism.

Secondly, the colonial roots of NAM problematise a new periodisation of the twentieth century recently put forward by environmental historians. Historians studying the relationship between fossil fuels and climate change in the twentieth century point out that post-Second World War prosperity in the West came at severe ecological and climatological costs. Rising living standards and gloriously growing economies depended on unprecedented levels of fossil-fuel

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[224] Joep Schenk and Petra Timmer, *Groningen-gasveld vijftig jaar: Kloppend hart van de Nederlandse gasvoorziening* (Amsterdam: Boom, 2009); Ramon Veenker and Frank Vanclay, "What Did NAM Do to Get a Social Licence to Operate? The Social Impact History of the Schoonebeek Oil field in the Netherlands," *The Extractive Industries and Society* 8, no. 2 (2021): 100888.

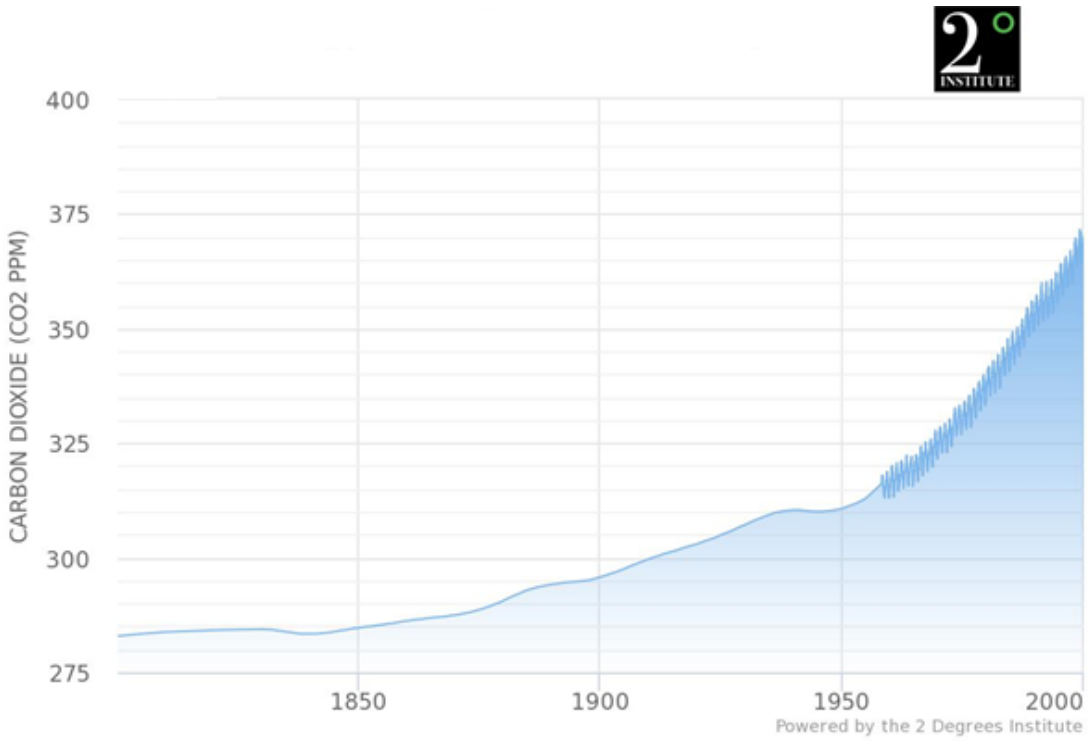
[225] Michel Foucault, "Nietzsche, Genealogy, History," in *Aesthetics, Method, and Epistemology*, by Michel Foucault, ed. James Faubion, trans. Donald Brouchard, vol. 2, Essential Works of Foucault 1954-1984 (London: Penguin Books, 2000), 369–93; Ann Stoler, *Duress: Imperial Durabilities in Our Times* (Durham: Duke University Press, 2016), 339–42.

[226] Sam Oxenaar and Rick Bosman, "Managing the Decline of Fossil Fuels in a Fossil Fuel Intensive Economy: The Case of The Netherlands," 139–65.

[227] Johannes Kester, "Energy Security and Human Security in a Dutch Gasquake Context: A Case of Localized Performative Politics," 12–20.

consumption. As a result, industry and consumption brought ever more greenhouse gasses into the atmosphere after the Second World War (see graph 5). The rapid increase of CO2 levels post-1945 is known as the Great Acceleration.[228] Based on this radical deviation from the earlier emissions trend, historians see this period as qualitatively different from other periods of the Anthropocene.[229] Emissions separate the post-war period from the past. However, the colonial foundations of the post-1945 rise of oil in the Netherlands I unearth in this chapter show that there is no clean break between the post-war era and what came before it. The increased emissions after the Second World War largely came from oil. The expansion of oil after the Second World War depended on practices fostered in the interwar period. Dutch society thus did not start with a clean slate after the Second World War; it could draw on colonial experience to reshape society. This reshaping drives rising temperatures today.

Graph 5, Global CO2 Levels



Source: 2 Degrees Institute.[230]

[228] Will Steffen et al., "The Trajectory of the Anthropocene: The Great Acceleration," *The Anthropocene Review* 2, no. 1 (2015): 81–98.
[229] J.R. McNeill and Peter Engelke, *The Great Acceleration: An Environmental History of the Anthropocene since 1945* (Cambridge, Massachusetts; London: The Bellknap Press, 2014); Elizabeth Chatterjee, "The Asian Anthropocene: Electricity and Fossil Developmentalism," *The Journal of Asian Studies* 79, no. 1 (2020): 3–24.
[230] "Global CO2 Levels," 2 Degrees Institute, 2022, https://www.co2levels.org/.

Drawing on captured documents of the Indonesian government, scientific and sociological studies, state, municipal, *Waterschap* archives and corporate records kept in the National Archives, this chapter begins in 1942 on the Jambi oil fields to narrate the Japanese occupation and the War of Independence in Indonesia from the perspective of oil. When in 1949 the Dutch colonial state transferred its NIAM shares to the Indonesian state this did not spell the end of the state's involvement in the oil industry. The chapter highlights the transfer of carbon colonialism to Drenthe and the imprint the colonial oil industry left on the peat landscape of Drenthe. The entanglement of the state and oil corporations, the experience of building company towns, and pervasive pollution came from the colony to the metropole. Indeed, I show how the social, political, and environmental practices of the colonial industry shaped oil extraction in Drenthe.

Jambi *ante* 1945

NIAM's directorate had ambitious plans for the company. The 1940s were meant to be the decade in which NIAM would venture north of the Batang Hari to expand its operations.[231] NIAM imagined a future of ever more petroleum and increasing profits – the world was waiting for Jambi's petroleum. Whereas the future looked bright from the perspective of the board room, the first signs of a changing atmosphere became already clear in Jambi in 1939. The land north of the Batang Hari could not unilaterally be appropriated by NIAM. The local elite owned and used part of the land for rubber cultivation and it was reluctant to give way to NIAM.[232] Although NIAM paid compensation to landowners, it fuelled resistance and discontent in northern Jambi. The situation did not become volatile, because NIAM's expansion into northern Jambi halted as the Second World War broke out. Nevertheless, local discontent signalled that NIAM's room to manoeuvre was shrinking.

In May 1940, NIAM's Oversight Board registered the company in Batavia to avoid handing discretionary powers to the Nazi regime in the Netherlands.[233] As the threat of a Japanese invasion loomed ever larger over the Dutch East Indies, the company's attention shifted from expanding operations to drawing up procedures and plans to disable the oil fields.[234] Jambi

[231] Nl-HaNA, Tweede Kamer, 1815-1945, 2.02.22, inv.nr. 639, Jaarverslag over 1938 van de NV Nederlandsch-Indische Aardolie Maatschappij te 's-Gravenhage, 4-6, 1939.
[232] Nl-HaNA, Losse Aanwinsten Indische Bestuursambtenaren, nummer toegang 2.22.09, inventarisnummer 12, Vervolg Memorie van overgave van den controleur der Onderafdeeling Djambi, 50-53, 1938.
[233] Nl-HaNA, Koloniën/Dossierarchief, 2.10.54, inv.nr. 307, Brief Sterkenborgh aan Beheerraad NIAM, 24-6-1941.
[234] Nederlands Instituut voor Militaire Historie (henceforth NIMH), Den Haag, Nederlands-Indië contra Japan, 508, inventarisnummer 668, Report of the demolition of the Djambi oil fields during the Japanese invasion of Sumatra, 1, n.d..

Residency was poorly protected. Some army detachments sent to defend against a possible Japanese invasion hardly knew the region, because they never went on a patrol.[235] Only the detachment defending Jambi city dug trenches and hid ammunition. The rest of the army presence waited passively for the Japanese to arrive.

Fleeing British soldiers and other refugees from Singapore were the first to come ashore in Jambi. The sight of the British army in flight put a dent in the troops' morale.[236] When news arrived of the onset of the Japanese invasion, the detachment quartered in Jambi retreated to the oil fields and put fire to all valuable supplies, only to return to the city in the days after to bring women and children to safety because the Japanese had not arrived yet.[237] Troops on the oil fields filled wells with debris and sealed them with concrete. Explosives were "100% effective, all the machinery being completely wracked, and in the case of the central pumping station a large fire was started by the explosion."[238] After light skirmishes with advancing Japanese forces, the Dutch colonial army abandoned Jambi and the smouldering oil fields.

Between 1942 and 1945 the Japanese empire took direct control over the petroleum resources of the Dutch East Indies. Initially, BPM's personnel was forced to operate the oil fields for the Japanese.[239] However, after that initial phase most European oil workers, engineers, and managers disappeared into prison camps or had to perform forced labour in other parts of the Japanese empire. This gave Indonesian workers the chance to gain more experience and climb higher on the corporate ladder than would have been possible under Dutch rule.[240] Despite the hardships of Japanese rule, the incorporation of the archipelago into the Japanese empire gave some Indonesians the chance to advance their careers in the oil industry.

1945-1948

Some of the Indonesians that rose in the oil industry's ranks before 1945 came to full prominence after the Japanese surrender and the proclamation of the *Republik Indonesia* on August 17, 1945. Under the terms of surrender to Allied forces negotiated with the Japanese

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[235] NIMH, Nederlands-Indië contra Japan, 508, inv.nr. 691, Gevechtsrapport, 1, 15-2-1947.
[236] NIMH, Nederlands-Indië contra Japan, 508, inv.nr. 691, Gevechtsrapport, 1, 15-2-1947.
[237] NIMH, Nederlands-Indië contra Japan, 508, inv.nr. 663, Gevechtsrapport, 1, 28-2-1942; NIHM, Nederlands-Indië contra Japan, 508, inv.nr. 668, Report of the demolition of the Djambi oil fields during the Japanese invasion of Sumatra, 1-3, n.d..
[238] NIHM Nederlands-Indië contra Japan, 508, inv.nr. 668, Report of the demolition of the Djambi oil fields during the Japanese invasion of Sumatra, 2-3, n.d..
[239] Ben de Vries, "Petroleumscape as Battleground: Pladjoe, Pearl in the Crown of the Bataafsche Petroleum Maatschappij (BPM/Shell) in the Dutch East Indies," in *Oil Spaces: Exploring the Global Petroleumscape*, ed. Carola Hein (New York: Routledge, 2021), 56.
[240] See for context of '*Indonesianisatie*': Lindblad, *Bridges to New Business: The Economic Decolonization of Indonesia*, 2–6.

army in Rangoon, the Japanese forces had to guard oil fields and leave them in their present state.[241] Japanese forces stayed in Jambi and Palembang, together with a small garrison of British marines, until the summer of 1946. However, the Japanese forces did not maintain the status quo of 1945. In Palembang and Jambi workers in the oil industry united under the banner of *Persatuan Pegawai Minjak* (PPM), or the oil workers union.[242] This semi-militarised union controlled de facto large parts of the oil industry in southern Sumatra.

The Dutch government appreciated the strategic importance of southern Sumatra's oil fields, however, it could not undertake military action to capture the petroleum resources after the Japanese withdrawal.[243] After having begged British forces without success to seize the petroleum wells of the region, there was nothing Dutch generals could do. Thus, the withdrawing Japanese forces handed the Jambi oil fields to the Republican government. The Republican government brought the oil industry of the region under the control of the *Perusahaan Minjak Republik Indonesia* (Permiri), or the Oil Corporation of the Indonesian Republic, led by Dr Mohamad Isa (1909-1979).[244] Permiri supplied the Republican army with fuel for its operations and smuggled petroleum to foreign markets to fund the Independence War.[245]

Prime Minister Sjahrir was concerned about the safety of Permiri's assets.[246] He probably suspected that the Dutch would seek to recapture the oil of southern Sumatra. Thus, he ordered the Republican governor of Palembang Adnan Kapau Gani (1905-1968) to reinforce the garrisons guarding pipelines, oil fields, and the refinery in Palembang. The Republican troops also included a group of soldiers that would destroy the oil industry's assets in the case of a Dutch attack. However, the Republican side did not intend to block indefinitely all Dutch involvement in the oil industry. From 1946 onwards PPM started to negotiate with BPM and Standard Oil over their return to the oil fields.[247] In exchange for giving access to the fields it controlled, PPM demanded free healthcare for its workers, higher wages, and a 40-hour work

[241] NL-HaNA, Algemene Secretarie van de Nederlands-Indische Regering en de daarbij gedeponeerde archieven, nummer toegang 2.10.14, inventarisnummer 3503, Schedule of information required and action to be taken for presenation to Japanese Plenipotentaries at Rangoon, 5, 28-9-1945.
[242] NL-HaNA, Alg. Secretarie Ned.-Ind. Regering, 2.10.14, inv.nr. 3503, Minutes and Resolution of the Committee of PPM (Oil Worker's Union), 1-2, 20-7-1946.
[243] NL-HaNA, Alg. Secretarie Ned.-Ind. Regering, 2.10.14, inv.nr. 3503, Memo Minister van Overzeesche Gebiedsdeelen aan Minister van Buitenlandse Zaken, 5-6, 26-4-1946.
[244] NL-HaNA, Netherland Forces Intelligence Service [NEFIS] en Centrale Militaire Inlichtingendienst [CMI] in Nederlands-Indië, nummer toegang 2.10.62, inventarisnummer 4311, Telegram M. Isa to Sjahrir, 22-6-1946.
[245] NL-HaNA, NEFIS en CMI, 2.10.62, inv.nr 3503, Memo Permiri, 5-1946.
[246] NL-HaNA, NEFIS en CMI, 2.10.62, inv.nr 3503, Memo Permiri, Telegram M. Isa to Sjahrir, 22-6-1946.
[247] NL-HaNA, Alg. Secretarie Ned.-Ind. Regering, 2.10.14, inv.nr. 3503, Brief gouverneur generaal aan generaal Koets, 10-9-1946.

week.[248] Furthermore, PPM stipulated that it would be in charge of hiring workers and that the oil companies should recognise the Republican authorities as the legitimate government of Indonesia.

BPM was willing to accept the terms of PPM, although it could not meet the demand for higher wages due to liquidity shortages in the archipelago.[249] These local negotiations stand for a larger bargain that took place between the Republican government and international oil companies in the 1940s. The Indonesians needed the technical knowledge and expertise of Western oil companies. By recognising the Republican government and pledging to operate independently of the Dutch state, American oil companies and BPM were readmitted to the oil fields. The parties involved formalised their settlement in 1948 in the so-called Let Alone Agreement.[250]

1948-1949

BPM did not cut all its ties to the Dutch state and the Dutch occupation efforts, though at specific moments the company started to pursue its interests regardless of Dutch plans and intentions. In 1947, during Operation Product the Dutch army captured Palembang and the region's oil reserves and facilities, while Permiri regrouped in Jambi. In 1948 the military intelligence agency reported to the Dutch military and government that a militant atmosphere was brewing among oil workers. Relaying observations from foreign military observers, it reported: "communist symbols and slogans are very conspicuous in the oil field area."[251] The slogan "better in flames than to be colonised" especially worried the Dutch establishment.[252] BPM and the military, however, read the slogan in two different ways. BPM thought that any attempt to recapture Jambi's oil fields would be a pyrrhic victory as the oil would go up in smoke.[253] Military planners, on the other hand, thought that a swift action of special forces could save the oil fields from destruction.[254] The military started planning accordingly, whilst BPM

[248] NL-HaNA, Alg. Secretarie Ned.-Ind. Regering, 2.10.14, inv.nr. 3503, Proposal BPM amendments, 1, n.d..
[249] NL-HaNA, Alg. Secretarie Ned.-Ind. Regering, 2.10.14, inv.nr. 3503, Brief gouverneur generaal aan generaal Koets, 10-9-1946.
[250] Lindblad, *Bridges to New Business: The Economic Decolonization of Indonesia*, 41.
[251] NL-HaNA, Alg. Secretarie Ned.-Ind. Regering, 2.10.14, inv.nr. 3509, Situatie op de olie-terreinen op Sumatra NEFIS, 2, 10-9-1948.
[252] NL-HaNA, Alg. Secretarie Ned.-Ind. Regering, 2.10.14, inv.nr. 3509, Situatie op de olie-terreinen op Sumatra NEFIS, 2, 10-9-1948.
[253] NL-HaNA, Alg. Secretarie Ned.-Ind. Regering, 2.10.14, inv.nr. 2505, Memo directeur Kabinet van de Gouverneur Generaal, 1, 2-8-1947.
[254] NIMH, Antoniëtti, 512, inventarisnummer 39, Operationele instructie Operatie 'Ekster,' 1, n.d..

pleaded against a campaign in Jambi. BPM even went as far as paying Republican forces to not destroy the oil fields and installations but to no avail.[255]

On December 29, 1948, two elite regiments of paratroopers flew towards southern Jambi. Well before the soldiers could see the oil fields, they knew that the revolutionaries had lived up to their promise. A thick column of black smoke penetrated the sheet of clouds covering southern Jambi (see image 6). As the mixed Dutch-Ambonese paratroopers landed near the oil fields they were met with little resistance. After initial skirmishes, they proceeded to "cleanse" the nearby villages.[256] When the special forces went door to door in Tempino twenty Republican soldiers tried to escape the village. The paratroopers shot them as they tried to flee. Another ten soldiers were captured and summarily executed.[257] The atrocities did not stop. After ransacking the homes of three Indian men who worked near the oil fields, the paratroopers asked the men to follow them to the command post.[258] The men would never arrive there. The soldiers executed them several hundred meters from their homes. A letter from one of the widows to the Dutch Ministry of Foreign Affairs testifies to the damage inflicted on the family. On behalf of her children, she wrote: "[w]e have been thrown to the wolves. I have become a widow and my children have become orphans. We are helpless."[259] For the widow, the events of December 29, had long-lasting consequences. For the paratroopers, however, it was but one day of a long and bloody campaign. Within 24 hours the 'para' regiments flew out to commit a massacre in Rengat a week later.[260]

[255] Vries, "Petroleumscape as Battleground: Pladjoe, Pearl in the Crown of the Bataafsche Petroleum Maatschappij (BPM/Shell) in the Dutch East Indies," 61.
[256] NIHM, Antoniëtti, 512, inv.nr 44, Actieverslag van de Para-actie te Tempino op 29-12-1948, 1, n.d..
[257] NIHM, Antoniëtti, 512, inv.nr 44, Actieverslag van de Para-actie te Tempino op 29-12-1948, 1, n.d..
[258] Nationaal Archief, Den Haag, Ministerie van Buitenlandse Zaken: Code-archief 1945-1954, nummer toegang 2.05.117, inventarisnummer 14900, Aide memoire, Ministery of External Affairs India, 1, 2-4-1949.
[259] NL-HaNA, Buitenlandse Zaken / Code-Archief 45-54, 2.05.117, inv.nr., Letter Mudan Takeezhil Aleema Umma to Dutch Consul General Batavia, 1, 19-5-1949.
[260] Rémy Limpach, *De brandende kampongs van generaal Spoor* (Amsterdam: Boom, 2016), 663.

Image 6, Smoke Column above the Jambi Oil Fields.

Source: Dienst voor Legercontacten Indonesië.[261]

At the end of 1949, when the Dutch state finally recognised the sovereignty of Indonesia, the shares that belonged to the colonial state were transferred to the Indonesian state. NIAM was thus lost to the Dutch state, while BPM continued to operate the Jambi oil fields in tandem with the Indonesians until 1957 when BPM's assets in Indonesia were nationalised. The story of carbon colonialism, however, is not confined to the Dutch East Indies and independent Indonesia. Colonial oil extraction spilled over to the Netherlands.

Colonial Oil in the Metropole

Before 1945 oil had limited uses in the Netherlands. It propelled a small number of planes, it served as a source of light, and cars used it. The fossil fuel that powered industry and heated homes was coal. In the late 1930s, the mines of southern Limburg produced enough coal to provide for national demand.[262] All oil was imported and refined around Pernis. These oil imports stopped in 1940 when Nazi Germany occupied the Netherlands. Without access to any

[261] Van Krieken, *Luchtopname*, Photograph, Nl-HaNa, Fotocollectie Dienst Legercontacten Indonesië (DLC), -negatieven serie 1, nummer toegang 2.24.04.02, inventarisnummer 5534, 1948, https://www.nationaalarchief.nl/onderzoeken/fotocollectie/8335060e-fb22-adce-7bf6-25d7706a73c1?searchKey=3d8709a39801d6f75d9da181d90817cc.

[262] Herman de Liagre Böhl, Jan Nekkers, and Laurens Slot, *Nederland industrialiseert!: Politieke en ideologiese strijd rondom het naoorlogse industrialisatiebeleid 1945-1955* (Nijmegen: Socialistiese Uitgeverij Nijmegen, 1981), 152–55.

of the major oil-producing regions of the world, the Third Reich looked for oil in its newly conquered territories. Already in the 1930s, a small BPM geological survey was underway in the East of the Netherlands.[263] The Germans intensified this search, adding colonial BPM personnel on leave from the Dutch East Indies to the chase for oil.[264] In 1943, BPM personnel under Nazi leadership found oil in southern Drenthe in the vicinity of the village Schoonebeek.[265] The Dutch Mining Council predicted, however, that "significant extraction" could only start after the war.[266] With everything in short supply Schoonebeek's wells yielded little to the occupying forces.

After 1945 oil gained a new status. The Dutch government perceived industry to be the road to progress.[267] The Netherlands could only regain strength if it reoriented its economy towards producing products for export. For this, the country needed a robust industry, powered by fossil fuels. Coal, however, could not drive the Netherlands in the immediate aftermath of the war. Due to attrition and casualties, there were not enough productive mineworkers in Limburg to mine energy for the reconstruction of the country. Hence, the Dutch government decided in 1947 to encourage the use of fuel oil in industry to substitute coal.[268]

Although oil was more easily available after the war, it was expensive to import. The majority of the oil supply available to Western Europe came from American oil companies and had to be paid for in dollars. The energy needs of the emerging Dutch industry put pressure on the foreign exchange reserves of the Dutch state.[269] After the Second World War and with the ongoing campaign to recolonise Indonesia, the foreign exchange position of the Netherlands was dire. An order to the army shows the desperation of the government in 1947.[270] To reduce oil consumption, only high-ranking officers from that moment onwards could use a government automobile under strict conditions. The rest of the troops had to find alternative means of

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[263] HTK, 1931-1932, 15-6-1932, https://repository.overheid.nl/frbr/sgd/19311932/0000049368/1/pdf/SGD_19311932_0001670.pdf, accessed.
[264] Gerard Borghuis, *Veertig jaar NAM: De geschiedenis van de Nederlandse Aardolie Maatschappij 1947-1987* (Assen: NAM, 1988), 6–8.
[265] NIOD Instituut voor Oorlogs-, Holocaust- en Genocidestudies (henceforth NIOD), Amsterdam, Generalkommissariat für das Sicherheitswesen (Höhere SS- und Polizeiführer Nord-West), 077, 845, Arbeitsreserven bei der Bataafsche Petroleum Mij., 24-09-1943.
[266] NIOD, Departement van Waterstaat, 216i, 35, Notulen van de Mijnraad, 4, 23-06-1944.
[267] Liagre Böhl, Nekkers, and Slot, *Nederland industrialiseert!: Politieke en ideologiese strijd rondom het naoorlogse industrialisatiebeleid 1945-1955*, 235; Merijn Oudenampsen and Bram Mellink, *Neoliberalisme: Een Nederlandse geschiedenis* (Amsterdam: Boom, 2022), 68–69.
[268] NL-HaNA, Centrale Dienst voor Invoer en Uitvoer, nummer toegang 2.06.088, inventarisnummer 69, Nota deviezencontingent, 5-7-1947.
[269] NL-HaNA, Rijksbureau voor Aardolieproducten, nummer toegang 2.06.076.05, inventarisnummer 32, Brief C. van de Poll aan minister van Economische Zaken, 12-6-1948.
[270] NL-HaNA, Centrale Dienst In- en Uitvoer, 2.06.088, inv.nr. 69, Brief minister van Economische Zaken aan Directoraat-Generaal voor Handel en Nijverheid, 1, 1947.

transportation. Only in 1948, the United States supplied Western Europe with dollars to buy oil from American oil companies under the Marshall plan.[271] This dollar liquidity provision solved the acute problems of the Netherlands.[272]

In the climate where oil was "as vital as coal" but costly to import domestic oil production around Schoonebeek became crucial.[273] After 1948, Schoonebeek continued to play an important role in the trade balance of the Netherlands with the United States: every ton of domestically produced oil would free dollars for the import of, for instance, heavy machinery for industry. As table 2 shows, Schoonebeek provided a significant share of oil for domestic consumption immediately after the Second World War. From 1948 onwards ca. 25% of the oil used to propel the Netherlands towards a bright future came from the depths of Drenthe.

Table 2, Dutch Petroleum Consumption and Production, 1945-1952

Years	Total Petroleum Consumption NL in Metric Tons	Schoonebeek Production in Metric Tons	Schoonebeek as % of total consumption
1945	n.d.	n.d.	n.d.
1946	1.453.789	60.076	4,1
1947	1.877.173	194.356	10,3
1948	2.105.972	495.541	23,5
1949	2.227.257	620.939	27,9
1950	2.485.195	704.840	28,4
1951	2.697.917	714.345	26,5
1952	2.658.216	715.124	26,9

Source: Directoraat-Generaal Industrie en Energievoorziening; Rijksbureau Aardolieproducten.[274]

[271] David S. Painter, "The Marshall Plan and Oil," *Cold War History* 9, no. 2 (May 1, 2009): 159–75.
[272] NL-HaNA, Rijksbureau Aardolieproducten, 2.06.076.05, inv.nr. 125, The Significance of the Marshall Plan for the Petroleum Industry in Europe, 6, 1951.
[273] NL-HaNA, Centrale Dienst In- en Uitvoer, 2.06.088, inv.nr. 69, Brief Minister Economische Zaken aan Directoraat-Generaal voor Handel en Nijverheid, 1, 1947.
[274] NL-HaNA, Ministerie van Economische Zaken: Directoraat-Generaal Industrie en Energievoorziening, nummer toegang 2.06.098, inventarisnummer 398; NL-HaNA, Rijksbureau Aardolieproducten, 2.06.076.05, inv.nr. 18-19.

Negotiations

BPM took over the production in Schoonebeek after the collapse of the Third Reich. Under the arrangements with the Nazi regime that persisted after the liberation of the Netherlands, BPM had to pay 1 fl. to the state for every ton of crude oil extracted from the oil field.[275] Already in the 1930s, Standard Oil and BPM agreed that if either company was to exploit an oil concession in the Netherlands it had to involve the other company in a joint venture. In 1947 the two oil corporations started to negotiate with the Dutch state to establish the terms of the concession.

The first round of negotiations was relatively short. The two companies only met with officials of the Ministry of Economic Affairs. The Schermerhorn-Drees cabinet (1945-1946) that took office immediately after the liberation of the Netherlands was in favour of the nationalisation of key sectors of the Dutch economy, such as mining and parts of the banking sector.[276] However, after the first post-war elections, the first Beel administration (1946-1948) came into office. L. Beel (1902-1977) handed the Ministry of Economic Affairs to early neoliberals who opposed nationalisation and sought to restore the market.[277] The neoliberals immediately ousted all social-democratic appointees at the upper levels of the ministry, replacing them with like-minded colleagues. Thus, when the two oil corporations offered the civil servants of Economic Affairs 10% of the net profits of their joint venture, they had little to fear.[278] Together with the standard 40% corporate tax, the joint venture would pay ca. 50% of its profits to the Dutch state. This was the first time the Dutch metropolitan state would receive a share of profits in return for a concession.[279] The civil servants accepted the offer without hesitation.

The Ministry of Finance, however, was in the hands of social democrats. After reading the results of the first round of negotiations, the mandarins of finance were less satisfied and impressed than their colleagues at the Ministry of Economic Affairs.[280] They had two concerns. Firstly, in the Dutch East Indies, the state received sometimes a profit share that was five times higher than the current offer. Indeed, when compared with NIAM the offer of the two oil corporations looked less generous. Secondly, if the profits of the joint venture were to slum the government might receive less than was the case under the German exploitation agreement.

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[275] NIOD, Departement van Waterstaat, 216i, 35, Notulen van de Mijnraad, 24, 3-06-1944.
[276] Oudenampsen and Mellink, *Neoliberalisme: Een Nederlandse geschiedenis*, 57.
[277] Oudenampsen and Mellink, 65.
[278] NL-HaNA, Ministerie van Economische Zaken: Centraal Archief, nummer toegang 2.06.087, inventarisnummer 817, Brief BPM aan minister van Economische Zaken, 25-3-1947.
[279] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 817, Advies Mijnraad, 14-6-1947.
[280] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 817, Brief Generale Thesaurie aan Ministerie van Economische Zaken, 17-10-1947.

The proposal of the corporations did not include a backstop guaranteeing that the financial contribution to the state's coffers would not fall under a minimum.

BPM did not agree with the comparison between Drenthe and the Dutch East Indies.[281] In the consecutive round of negotiations the corporate negotiators argued that because corporate taxes in the colony were lower, the state could claim a larger share of the profits of oil companies. Furthermore, because of higher wages, the costs of operating an oil field in the Netherlands would be significantly higher than in the colony. Hence, the oil corporation refused to grant a larger percentage of its joint venture's profits to the state. Without the backing of the attending civil servants of the Ministry of Economic Affairs, the representatives of the Ministry of Finance could not force the hand of BPM. The only result these civil servants obtained was a clause in the concession agreement stipulating that the state's share of the profits would never fall below 1 fl. per ton of extracted crude oil.[282]

After Standard Oil, BPM, and the financial and economic ministries had agreed to the financial side of the concession agreement, the environmental regulations had to be laid down. Some of the environmental aspects could be informally arranged. BPM wrote to the Ministry of Economic Affairs to complain about the demands of one of the local *Waterschappen* in Schoonebeek.[283] The *Waterschap,* the body in charge of regulating all activity related to water and made up by local inhabitants, wanted the concession to include an obligation for the oil company to ensure the ditches near its oil wells would remain clean. BPM asked Economic Affairs to ignore this demand. The word ditch would never appear in the concession's environmental paragraph.[284] The civil servants at the Ministry of Economic Affairs were more attentive to BPM's concerns than to those of local citizens.

Other environmental paragraphs had to be discussed in the cabinet. In a draft version of the concession, the Ministry of Economic Affairs had formulated weak regulations. According to the ministry, it sufficed if the concession holder would strive to filter all toxic substances from the wastewater the company released back into nature.[285] The Ministry of Traffic and Water management disagreed. H. Vos (1903-1972) elections lead this ministry, after having been

[281] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 817, Rapport over de concessievoorwaarden, 3-11-1947.
[282] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 817, Brief secretaris generaal Economische Zaken aan Minister van Economische Zaken, 5-11-1947.
[283] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 817, Brief BPM aan Ministerie van Economische Zaken, 18-6-1947.
[284] NL-HaNA, Ministerie van Economische Zaken: Directie Mijnwezen, nummer toegang 2.06.102, inventarisnummer 145, Concessie NAM, n.d..
[285] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 817, Brief Mijnraad aan minister van Economische Zaken, 5-11-1947.

ousted as Minister of Economic Affairs together with his senior staff after 1946. If he had been in charge of giving out the Schoonebeek concession, the deal would have looked very different. In the cabinet, Vos echoed the opinions of his predecessors that argued for the state exploitation of Jambi's petroleum resources.[286] Contrary, to the 1910s, however, the left could not build a coalition with left-leaning Catholics and liberals over oil in the 1940s. Vos' plea for a Dutch state-owned oil company was noted in a cabinet meeting but defeated in a vote.[287] The only amendment Vos could make to the concession was a stricter paragraph on wastewater dumping. The holder of the concession would be obliged to filter all toxic substances from the water it sought to dump.[288]

In 1947, Standard Oil and BPM founded the joint venture *Nederlandse Aardolie Maatschappij* (NAM), with 50-50 ownership. BPM provided the personnel and lead the daily operations of the new company, whereas Standard Oil supplied equipment and capital.[289] The supply of machinery from the United States was vital to the increase in production visible in table 2. Whereas the state held the majority of seats on NIAM's Oversight Board, in the case of NAM the state could only appoint a representative who should ensure that the state received its share of profits. In theory, the government representative could exercise oversight over the company, because he had access to all corporate financial administration and a seat at board meetings. In practice, however, the representative's oversight was not effective. The first representative fell ill and as a consequence hardly reported on NAM.[290] Furthermore, he wrote to the minister of Economic Affairs that "genuine control, by which I mean the ability to be able to check NAM's numbers, is not feasible."[291] With a government representative with little time on his hands and lacking the skills of a forensic accountant, NAM did not face direct state interference.

NAM embodies the continuation of the colonial interwovenness of the Dutch state and BPM. In the Dutch East Indies, the Dutch state pioneered negotiating special contracts for individual oil concessions. The state and BPM brought this practice to the metropole to decide the future of Drenthe's oil. Especially the civil servants of the Ministry of Finance were aware of the colonial precedent. The concession agreement reinforced the ties between the oil sector and

[286] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 817, Ministerraad, 17-3-1948.
[287] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 817, Ministerraad, 17-3-1948.
[288] NL-HaNA, EZ/Directie Mijnwezen, 2.06.102, inv.nr., 145, Concessie NAM, n.d..
[289] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 817, Letter from Standard Oil to Dutch Central Bank, 3-4-1947.
[290] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 817, Brief thesauris aan minister van Economische Zaken, 1-11-1954.
[291] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 818, Brief regeringsvertegenwoordiger aan minister van Economische Zaken, 30-8-1949.

the state. The colonial past, however, did not only influence the political economy of oil extraction, it also shaped the social side of the oil industry.

Schoonebeek Transformed

Schoonebeek became the centre of oil extraction. Before the arrival of oil corporations, the village was a small settlement along a road that led to Germany.[292] Farmers held life stock in the marshy bogs and brought swaths of the surrounding wetlands into cultivation to practice agriculture. The inhabitants of Schoonebeek were devout Protestants. Before 1945, Schoonebeek was remote, religious, and poor.

This all changed when BPM in the guise of NAM came to the village. The agrarian village could not accommodate the engineers, workers, and executives that came from Indonesia and the western parts of the Netherlands. To host its workforce and retain it in Drenthe, NAM drew on its experience of building company towns in the Dutch East Indies. NAM, however, tried to hide its colonial origins and brand itself as a Dutch, metropolitan company. P. de Jong, a sociologist who visited Schoonebeek in the early 1950s, observed that the company made as little mention of its "cosmopolitan" origins as possible.[293] The pictures decorating the company's walls only depicted activities of NAM and BPM in the Netherlands. This self-styling, or "enacting," of NAM as a purely Dutch company became successful over the following decades.[294] Today the colonial origins of NAM are forgotten. In the 1940s and 1950s, however, the colonial past was not past; it was palatable in Schoonebeek, despite NAM's efforts to hide it.

NAM employed between 600 and 700 people in Schoonebeek between 1950 and 1955.[295] To house the personnel not native to Schoonebeek, NAM built houses. The company's director asked his son-in-law Arno Nicolaï (1914-2001) to design and build the corporate quarter. The designs of the houses was modern and took into account the lack of building materials in the post-war period.[296] However, the houses reflected the hierarchy of the corporation. Managers lived in bungalows, skilled personnel in smaller houses, and unskilled labourers lived in the smallest. The three housing strata were separated by green lawns. Nicolaï also designed the recreational centre of the village, called the Bôo. The Bôo was a "tropical" element in

[292] Nieuw Instituut (henceforth NI), Rotterdam, Archive Nicolaï, A.C., d. 668, De Ned. Aardolie Maatschappij te Schoonebeek, 4.
[293] P. de Jong, *Schoonebeek: De ontmoeting tussen een oude Drentse boerensamenleving en de moderne aardoliewinning* (Utrecht: sociologisch Instituut der Ned. Herv. Kerk, 1954), 95.
[294] Marina Welker, *Enacting the Corporation: An American Mining Firm in Post-Authoritarian Indonesia*, (Berkeley: University of California Press, 2014), 3–4.
[295] Jong, *Schoonebeek: De ontmoeting tussen een oude Drentse boerensamenleving en de moderne aardoliewinning*, 33.
[296] NI, Archive Nicolaï, A.C., d. 668, Notitie, n.d., 2-3.

Schoonebeek.[297] NAM employees could swim, play tennis, squash, football, bowl, or gather for social events on its premisses. Schoonebeek's Protestant farmers did not practice sport and despised anyone who did, especially on Sunday.[298] NAM, however, had inherited sports as part of its DNA from its parent company BPM.

From the directorship of Henri Deterding (1901-1937) onwards, BPM started to construct sport and exercise facilities the Dutch East Indies.[299] In the Netherlands Royal Dutch/Shell founded a sports club called *Sport Houdt Elk Lichaam Lenig* (SHELL). Deterding encouraged physical exercise in his company because he believed that through exercise white bodies could retain their racial superiority in tropical climates.[300] As many men did during the interwar period, Deterding saw a link between racial degradation, virility, and empire.[301] As a consequence, BPM built sporting facilities everywhere it arrived, including Schoonebeek. Tellingly, NAM's football club was called *Minjak,* Indonesian for oil.

To the inhabitants of Schoonebeek who did not work for NAM, the company's buildings and leisure facilities were a "*Fremdkörper.*"[302] Exercise on Sunday and not admitting non-NAM staff to the Bôo made the company unpopular in the village.[303] During the annual festivities in honour of the Dutch Queen's birthday, children of NAM employees were not welcome at the parties and activities organised in the non-NAM neighbourhoods.[304]

Despite the discontent among the local population, NAM's operations in Schoonebeek became increasingly successful, as table 2 shows. To extract oil NAM needed a labour force. NAM hired its unskilled labour locally. It preferred to attract young men from southeast Drenthe who had just returned from the War of Independence in Indonesia. The government urged companies to hire demobilised soldiers. NAM heeded that call because it valued the "tropical" experience of returning soldiers. 97 of NAM's ca. 600 workers served in the Dutch army in Indonesia.[305] These ex-soldiers shared with BPM engineers and high-ranking personnel a sense of what life in the (former) colony was like. Unsurprisingly, during the Indonesian War of

[297] Jong, *Schoonebeek: De ontmoeting tussen een oude Drentse boerensamenleving en de moderne aardoliewinning*, 82–83.
[298] Jong, 82-83.
[299] Norman Joshua, "Worker's Paradise?," *Jurnal Sejarah* 1, no. 2 (2018): 13-16.
[300] Jelle Zondag, *Volkskracht: Sport, lichamelijke opvoeding en de versterking van Nederland 1880-1940* (Amsterdam: Boom, 2021), 144.
[301] Donna Haraway, "Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908-1936," *Social Text*, no. 11 (1984): 20–64.
[302] Jong, *Schoonebeek: De ontmoeting tussen een oude Drentse boerensamenleving en de moderne aardoliewinning*, 108.
[303] Jong, 106.
[304] Jong, 103.
[305] Jong, 82-83.

Independence Schoonebeek became a local hub for pro-colonial political mobilisation. The *Nationaal Comité Handhaving Rijkseenheid* held manifestations in Schoonebeek, distributed the newspaper *Het laatste nieuws uit Indië,* and sold photo albums of the colony.[306] After the collapse of Dutch recolonisation efforts, a form of postcolonial nostalgia took hold of the *oud-Indisch gasten.* A NAM nurse who had worked for BPM in Palembang before the Second World War spoke at length with them about the "*tempo doeloe,"* or the good old colonial days.[307] For these people, the nurse told Shell's company magazine, these conversations "were their only source of distraction."[308]

The colonial roots of NAM showed themselves in the slang spoken at drilling sites. De Jong observed that workers used "a peculiar English-American-Malay-Drenths oil slang ... crucial for drilling activities."[309] Workers warned each other not to fall into the *"parrit,"* using the Indonesian word for ditch.[310] The overseers also had not lost their colonial bearings. Some of them behaved as "coolie drivers" and mistreated their inferiors.[311] This provoked a furious backlash amongst workers with two possible outcomes. Either the workers succeeded in "taming" the "coolie driver," or NAM had to rotate the manager out of Schoonebeek, possibly sending him back to the oil fields of Indonesia.[312]

Ecology and Environment

NAM operated in a different environment than BPM or NIAM in Indonesia. Schoonebeek used to be surrounded by wetlands. The southeast of Drenthe was a peat bog. In the nineteenth century this wetland, stretching into Germany, still covered a few thousand square kilometres.[313] Water defined this landscape and what humans could do before they started cultivating and draining the bogs. Today the Schoonerbekerdiep is a well-regulated stream, but up until the 1940s, it could flood adjacent grounds. As image 7 shows, these local floodings made the fields next to the Schoonerbekerdiep unsuitable for agriculture. Hence the local farmers let their cattle roam near the river. During the nineteenth and twentieth-century farmers drained bogs at an increasing pace. Around 1940 only 50 square kilometres of intact wetland were still present in southeast Drenthe.

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[306] NL-HaNA, *Stichting Nationaal Comité Handhaving Rijkseenheid,* nummer toegang 2.19.262, inventarisnummer 15, Lijst bijeenkomst in Schoonebeek, n.d..
[307] "Interview," *Olie,* 1951.
[308] "Interview," *Olie,* 1951.
[309] Jong, *Schoonebeek: De ontmoeting tussen een oude Drentse boerensamenleving en de moderne aardoliewinning*, 91.
[310] Jong, 91.
[311] Jong, 95.
[312] Jong, 95.
[313] Auke van der Woud, *Het landschap, de mensen: Nederland 1850-1940* (Amsterdam: Prometheus, 2020), 44.

Image 7, Flooding near Schoonebekerdiep, ca. 1930.

Source: Drents Archief.[314]

Water is omnipresent around Schoonebeek because a thick layer of clay undergirds the village and the surrounding area.[315] Laying several meters deep in the soil, this clay layer prevents any water from seeping into the earth. Water can percolate through the layers of sand that lie on top of the clay, but it cannot sink. Water-retaining peat forms the top layer of Schoonebeek's soil. Unless it follows the course of the Schoonerbekerdiep west in the direction of the IJsselmeer, water will always re-emerge in the area.

Image 7 shows the typical vegetation of the region. On cold and grey days Schoonebeek's surroundings can look desolate. Only birch trees punctuate the flat landscape and separate the different agricultural fields from each other. The wind howls over what today are mostly grass meadows but in the twentieth century, these could be potato fields. On a warm day, the water of the bogs reflects the light of the sun, forming bright patches between grass polls and the occasional tree. On a darker day the yellow, blond heath grass contrasts sharply with the dark water.

[314] J.B. Schröer, Meester Jules G. Renardus kijkt uit over het water op het weiland bij het Schoonebekerdiep, Photograph, Drents Archief, Collectie Schröer, DA2030512, 1925-1935, https://www.drentsarchief.nl/onderzoeken/beeldbank/zoeken/detail/9ddadc0d-73b0-fbdd-1e3a-5bbfec949499/media/97000e71-225f-cbc8-744d-58ab56f5aec7?mode=detail&view=horizontal&q=Schoonebekerdiep&rows=1&page=3.

[315] J.W. Bosch and S.M. Slabbers, "Basisdocument natuur, bos, landschap en fauna: Herinrichting Schoonebeek" (Den Haag: Ministerie van Landbouw, Natuurbeheer en Visserij, 1992), 5–9.

When the wetlands near Schoonebeek were still intact it must have been "an ornithologically valuable place."[316] In the late 1950s observers still found traces of what was once an ecosystem enlivened by the tweeting of many a bird. They saw birds with names as beautiful as their surroundings *blauwborst, wintertaling, tjitjaf, graspieper, tapuit, veldleeuwerik.*[317] Walking from Schoonebeek to the west they also saw a *tureluur, gele kwikstaart,* and a *braamsluiper* as well as the iconic *grutto.*[318] Before the large-scale draining of the bogs, Schoonebeek's landscape was bustling with avian life. Once, wolfs would have been the apex predators in the area, however, since the nineteenth century foxes occupied that position. The local novelist E. Karst (1900-1962) wrote with affection about the foxes that lived around Schoonebeek and that kept him company during his stays in a remote hunting lodge.[319] Whereas wolfs keep their distance from humans, foxes come very close. They, however, do not threaten the largest mammals in the area: deer. Deer only had to fear human hunters, such as Karst.

NAM also contributed to the draining of the wetlands near Schoonebeek. It brought patches of the bog into cultivation to build facilities, a transport station, and roads. Furthermore, NAM started to use water from Schoonebeek's wetlands for its production. The oil of Schoonebeek is asphalt-like. To get the thick and heavy oil out of its reservoirs NAM had to inject water into the ground.[320] NAM used methods that are very similar to fracking. The company sometimes injected natural gas into the ground creating pressure that drove the oil up, hence this method is called "gas drive."[321] More often, however, the company injected steam into the ground that made Drenthe's crude less viscous. The water for the steam injections, up to 400.000 litres per day, came from the surrounding wetlands.[322] Following the guidelines of the concession, NAM built a facility that filtered its production water that was contaminated with oil after having been injected, before it was released into the Schoonebekerdiep.

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[316] NL-HaNA, Staatsbosbeheer: Centrale Organisatie, nummer toegang 2.11.5144, inventarisnummer 5144, Rapport excursie Schoonebekerveld, 23-4-1959.
[317] I decided to include the Dutch vernacular names of the birds, because these are the most familiar to the readers of this text. English or Latin names would force my readers to either look up the names of each individual bird or ignore them.
[318] NL-HaNA, Staatsbosbeheer/Centrale Organisatie, 2.11.5144, inv.nr. 5144, Excursie-rapport gebied tussen Stieltjeskanaal en weg Coevorden-Schoonebeek, 23-4-1959.
[319] E. Karst Jr., *In En Om de Jachthut* (Meppel: M. Stenvert, 1948), 46–50.
[320] B.P. Tammeling, *Energie uit de diepte: Winning van olie en gas* (Assen: Wolters-Noordhoff, 1972), 26–28.
[321] NL-HaNA, EZ/Directie Mijnwezen, 2.06.102, inv.nr. 147, Tweede rapport regeringsvertegenwoordiger NAM, 3, 19-10-1955.
[322] Waterschap Vechtstromen (henceforth Vechstromen), Almelo, Archief Waterschap Bargerbeek, 994, Brief Waterschap Schoonebeek aan NAM, 11-9-1963.

Pollution

NAM's personnel from the Dutch East Indies/Indonesia did not only bring colonial attitudes towards labour but also towards nature to Drenthe. Just as some drillmasters saw their workers as "coolies," colonial personnel might also have seen Drenthe's bogs and meadows as unproductive lands waiting to be put to use by white men. The fact that ditches in Drenthe and Jambi were called by the same name, *parrit,* suggests slippage between the colony and metropole. Jambi's rainforest, in the eyes of NIAM, was a wasteland. Schoonebeek's landscape, located in the periphery of the Netherlands, received a treatment that differed in intensity from Jambi, but not in kind.

NAM extracted oil from Schoonebeek's subterranean depths with pumpjacks. Every pumpjack covered one well and was placed 400 meters apart from its neighbouring pumpjacks. 400 pumpjacks nodded around Schoonebeek. NAM chose to drill on agricultural land. Thus, the company had to construct small sideroads to allow for the construction and maintenance of its wells.[323] This involved cutting down trees, sometimes redirecting a ditch, or placing concrete fundaments under already existing passages over a ditch. NAM collected all the oil from its wells at a storage and transport facility just north of Schoonebeek. A network of small pipelines connected the pumpjacks to this storage facility. From the NAM collection site, a train transported the oil to Royal Dutch/Shell's refinery in Pernis.

These pipelines were the source of Schoonebeek's pollution. Oil leaked, trickled, and spilled from the transport pipelines. Leaks were not rare accidents, they happened almost daily. Because NAM's pipelines ran through ditches, over agricultural land, and through bogs, the entire environment around Schoonebeek was affected by oil. In 1955 the corporation managing Drenthe's heath and bog landscapes wrote to the *Waterschap* to complain about the oil pollution around Schoonebeek.[324] The year after that NAM received a letter from the *Waterschap* pointing to the severe pollution of ditches.[325] Already in a short story from the late 1940s E. Karst casually noted that the soil around Schoonebeek was "imbued with oil."[326] Over time NAM's pollution made agriculture impossible in the fields touched by its pipelines. Thus, NAM would buy land to bury the polluted soil it had scraped from the fields.[327] NAM dumped

[323] Vechtstromen, Archief Waterschap Bargerbeek, 888, Brief BPM aan Waterschap Schoonebeek, 1-6-1947.
[324] Vechtstromen, Archief Waterschap Bargerbeek, 898, Brief Heidemij. aan Waterschap Schoonebeek, 15-10-1955.
[325] Vechtstromen, Archief Waterschap Bargerbeek, 898, Brief Waterschap Schoonebeek aan NAM, 26-4-1956.
[326] E. Karst Jr., "1946 Radio Rede," Oud-Schoonebeek, http://oud-schoonebeek.nl/index.php/e-karst-jr/21-1946-radio-rede-e-karst-jr.
[327] Vechtstromen, Archief Waterschap Bargerbeek, 970, Brief NAM aan Waterschap Schoonebeek, 24-11-1960.

and buried its toxic products. Hidden underneath the earth, however, the toxic waste would seep into the sand layers. The percolating water in those layers picked up pollutants and spread them throughout the ecosystem. In the 1980s the Drenthe provincial government cleared NAM's dumping grounds to prevent more pollutants from being absorbed by the groundwater and stop the contamination of adjacent agricultural fields.[328]

The ecosystems around Schoonebeek bore the brunt of oil extraction. Depending on the quantity, oil leaking from pipelines reduced the growth of plants or smothered them.[329] In 1946 E. Karst in a radio address to his fellow inhabitants of Schoonebeek noted that the deer had fled Schoonebeek since the advent of petroleum extraction.[330] Fewer birds flew through the skies because to pave the way for oil many trees with bird's nests were cut down. Furthermore, given that oil pollution increases mortality rates amongst birds the dwindling of *grutto, tjitjaf,* and *braamsluiper* populations was not only the result of reduced habitats.[331] NAM's leaking pipelines put a nail in the avian coffin.

NAM also endangered the health of Schoonebeek's inhabitants, including its workers. Today a painting by an unknown artist in Schoonebeek's local museum depicts the flaring of gas near Schoonebeek. NAM often found small gas deposits and burned their contents.[332] Flaring is dangerous for people because it exposes them to benzene which in turn increases the risk of blood, or blood-related, disorders.[333] Furthermore, farmers still farmed heavily polluted agricultural fields, because NAM would only rent the part of the plot occupied by its pumpjack (see image 8). Potatoes and other crops thus absorbed the poison dripping from the pipelines. The people who consumed the fruits of Schoonebeek's earth over time accumulated dangerous amounts of toxins in their bodies.

[328] "Ontwerp Bodemsanering Programma '89-'93," (Assen: Provincie Drenthe, 1988), appendix 3.
[329] S. de Haan, "Onderzoek Naar de Invloed van Ruwe Aardolie Uit Schoonebeek Op de Groei van Gewassen En de Kwaliteit van Grondwater" (Haren: Instituut voor bodemvruchtbaarheid, 1986), 4–10.
[330] E. Karst Jr., "1946 Radio Rede."
[331] Mason D. King, John E. Elliott, and Tony D. Williams, "Effects of Petroleum Exposure on Birds: A Review," *Science of The Total Environment* 755 (2021): 142834.
[332] NL-HaNA, EZ/Centraal Archief, 2.06.087, inv.nr. 817, Rapport staatstoezicht op de mijnen, 31-8-1949.
[333] Mark A. D'Andrea and G. Kesava Reddy, "Health Effects of Benzene Exposure among Children Following a Flaring Incident at the British Petroleum Refinery in Texas City," *Pediatric Hematology and Oncology* 31, no. 1 (2014): 1–10.

Image 8, Farmer and Pumpjack, Schoonebeek 1969.

Source: Drents Archief.[334]

The difference between oil's impact on Jambi's environment and Drenthe's ecosystems lies in the scale and intensity of pollution. NIAM's operations in Jambi were significantly larger and thus impacted a larger area. Drenthe's landscape lent itself more easily to oil extraction. No forest had to be cut down to connect the oil well to the refinery. Furthermore, in Drenthe state regulation mitigated oil pollution. The environmental paragraph on wastewater filtering introduced by minister Vos, for instance, prevented toxic wastewater from entering Drenthe's wetlands. The regulatory regime, however, was not perfect. Because of interventions by the Ministry of Economic Affairs, NAM was not bound to strict regulations on ditch pollution. Consequently, the ditches were heavily polluted and started to look like Jambi's *parrits.* In general, however, because of state intervention, pollution in Drenthe was less severe. NAM did not commit ecocide in Drenthe – it harmed the local ecosystem but did not destroy it.

[334] Een ja-knikker met op de voorgrond een onbekende landbouwer achter een eg getrokken door een paard in het landschap bij Schoonebeek, Photograph, Drents Archief, Dienst Landelijk Gebied, LG1766308, 1969, https://www.drentsarchief.nl/onderzoeken/beeldbank/zoeken/detail/15c06b62-e1b2-73f6-6605-fa3037150e18/media/0fee8fa6-a591-33ef-142b-30b614264d55?mode=detail&view=horizontal&q=jaknikker&rows=1&page=18.

Conclusion

This chapter showed how carbon colonialism travelled from the Dutch East Indies to the Netherland. The occupation of the Netherlands by Nazi Germany, the Japanese invasion of the Dutch East Indies, and the decolonisation (temporarily) restricted access to the oil fields of the Indonesian archipelago. This brought colonial engineers and their companies to oil fields in the Dutch periphery in Drenthe. The political economy of oil in the Netherlands followed the colonial pattern and structure, albeit with less state involvement. This chapter thus showed how the colonial industry laid the foundation for the contemporary corporate-state entanglements in the energy sector.

BPM built its oil enclave following a colonial example and made Drenthe's wetlands into a wasteland. By pointing to the interwar, Asian roots of oil in the Netherlands, this chapter undermined the idea of the Great Acceleration as a unique, new period. The arrival of carbon colonialism gave the Dutch state the power to withstand pressure on foreign exchange reserves, build towards the transformation of the economy, and reduce reliance on coal. The landscape, ecosystem, and village of Schoonebeek paid the price for the rise of oil in the Netherlands.

Conclusion

Empire shaped the fossil-fuel economy of the Netherlands. In this thesis, I mapped how the environmental, political, and social practices of oil extraction in the Dutch East Indies shaped hydrocarbon extraction in the Netherlands. To capture the way in which the colonial oil industry operated I introduced the concept 'carbon colonialism.' The different chapters charted different aspects of carbon colonialism and the transfer of carbon colonialism to the metropole.

The first chapter investigated the political economy of the colonial oil industry. By following the course and fate of the Jambi oil fields it became clear that the Dutch state and fossil-fuel corporations became interwoven and institutionally entangled in the colony. In order to understand the role of oil in the Dutch empire it proved to be important not to solely think of commodities in financial or monetary terms. Oil is more than a source of revenue – it has uses. The state became the central locus for debates over the value and use of oil. The state's participation in the *Nederlandsch-Indische Aardolie Maatschappij* (NIAM) reflected this new role and the interwovenness of BPM and the state. Not everyone could participate on equal terms in the debate over oil's future. Whereas political parties in the Netherlands could influence oil policy, colonial subjects in the Dutch East Indies suffered the consequences. Despite political activism in the archipelago, the state chose to promote the commodification of oil over the supply of affordable oil.

Before oil can be used or sold, however, it has to be extracted. Chapter 2 showed the social and environmental history of oil extraction in Jambi. The cost of oil was high for the inhabitants of Jambi's rainforest. For the Batin Sembilan, oil exploration meant the poisoning of their surroundings. The oil industry remade the ecology of Jambi in an unprecedented way. NIAM committed ecocide in southern Jambi by spilling millions of litres of crude oil and cutting down hundreds of thousands of trees. The intersection of colonialism and fossil fuels, or carbon colonialism, showed its destructive potential in Jambi's rainforest.

After violent attempts to regain control over Jambi's oil after 1945, carbon colonialism retreated to Drenthe. The transformation of NIAM into the *Nederlandse Aardolie Maatschappij* (NAM) speaks to the importance of empire to the history of fossil fuels in the Netherlands. The Dutch state, under pressure from many sides after the Second World War, used Drenthe's oil to its advantage. Carbon colonialism contributed to the reconstruction of the Netherlands in the

aftermath of the war and influenced NAM and its operations in Drenthe. The negotiations over Schoonebeek's oil followed the colonial structure of special concession contracts. The state maintained its central role in deciding the future of oil and through the concession perpetuated the interwovenness with BPM. In Schoonebeek NAM drew on BPM's colonial experience and colonial personnel to enable oil extraction. The drill masters mistreating their inferiors were the clearest example of the colonial influences in Schoonebeek. NAM also polluted Drenthe's landscape through oil leaks and the dangerous disposal of toxic waste. The wanton interaction with the environment suggests a spill over of colonial attitudes towards nature to the metropole. In Jambi, NIAM saw the rainforest as a wasteland and in Drenthe NAM's actions suggest it did not hold the peat bogs to be valuable. The intensity of pollution in Drenthe differed from Jamb, however, because of state regulation.

I introduced the concept of carbon colonialism to overcome human-centred notions of power that dominate the historiography of the Dutch East Indies. Carbon colonialism denotes a form of power produced at the intersection of empire, state, energy corporations, and oil. It was shaped by the asymmetrical relations between colony and metropole and between the coloniser and indigenous people. Furthermore, carbon colonialism revolved around extracting and transporting oil and putting oil to use. Indeed, oil was a source of power. The concept underscores that colonial power was built on non-human foundations, for instance oil, and shaped the more-than-human world of empire through pollution and extraction.

Carbon colonialism did not remain confined to the Dutch East Indies, it shaped the Dutch, metropolitan fossil-fuel economy. This novel insight emphasises the importance of studying the dialectic between empire and energy. This type of research will show how our current ecological and climatological predicament came into being. This thesis ends in the 1950s. The story of NAM, however, does not end there. In 1959 the company found in Groningen what was at that moment the largest known gas field in the world. The rise of gas transformed the Netherlands profoundly. Dutch industry and society became dependent on cheap gas. The people of Groningen see this dependency in the cracks in their homes. The late 1950s and early 1960s also saw the definite end of the Dutch empire in Asia. With the decolonisation of New Guinea in 1962, Dutch involvement in the archipelago came to an end. The story of the relations between empire, decolonisation, and fossil fuels in the metropole thus does not stop in the 1940s. The climate is ripening for more research.

Bibliography

Primary Sources

Archival Sources:

Het Nieuwe Instituut, Rotterdam

NICO, Nicolaï, AC.

Inventarisnummers: d. 668

Nationaal Archief, The Hague

Algemene Secretarie van de Nederlands-Indische Regering en de daarbij gedeponeerde archieven, nummer toegang 2.10.14.

Inventarisnummers: 2505, 3503, 3509.

Centrale Dienst voor Invoer en Uitvoer, nummer toegang, 2.06.088.

Inventarisnummer: 69.

Koninklijke Paketvaart Maatschappij en de Koninklijke Java-China Paketvaart lijnen, nummer toegang 2.20.35.

Inventarisnummers: 179, 381, 382.

Losse Aanwinsten, afkomstig van Indische Bestuursambtenaren, nummer toegang, 2.22.09.

Inventarisnummer: 12.

Ministerie van Buitenlandse Zaken: DEZ-dossiers, nummer toegang, 2.05.37.

Inventarisnummer: 1793.

Ministerie van Buitenlandse Zaken: Code-archief 1945-1954, 2.05.117.

Inventarisnummer: 14900.

Ministerie van Economische Zaken: Centraal Archief, nummer toegang, 2.06.087.

Inventarisnummers: 817, 818.

Ministerie van Economische Zaken: Directie Mijnwezen, nummer toegang, 2.06.102.

Inventarisnummers: 145, 147.

Ministerie van Economische Zaken: Directoraat-Generaal Industrie en Energievoorziening, nummer toegang, 2.06.076.05.

Inventarisnummers: 18, 19.

Ministerie van Koloniën en opvolgers: Dossierarchief, nummertoegang, 2.10.54.

Inventarisnummers: 307, 397, 1107, 1108.

Ministerie van Koloniën: Geheim Archief [periode 1901-1940], nummer toegang, 2.10.36.51.

Inventarisnummers: 205, 281.

Ministerie van Koloniën: Politieke Verslagen en Berichten uit de Buitengewesten, 1898-1940, nummer toegang, 2.10.52.01.

Inventarisnummers: 162, 164.

Ministerie van Koloniën: Openbaar verbaal, nummer toegang, 2.10.36.04.

Inventarisnummer: 1466.

Netherlands Forces Intelligence Service [NEFIS] en Centrale Militaire Inlichtingendienst [CMI] in Nederlands-Indië, nummer toegang, 2.10.62.

Inventarisnummers: 3503, 4311.

Tweede Kamer der Staten-Generaal, 1815-1945, nummer toegang, 2.02.22.

Inventarisnummer: 639.

Rijksbureau voor Aardolieproducten, 2.06.076.05.

Inventarisnummers: 32, 125.

Staatsbosbeheer: Centrale Organisatie, nummer toegang, 2.11.5144.

Inventarisnummer: 5144.

Nederlands Instituut voor Militaire Historie, The Hague

Antoniëtti, 512.

Inventarisnummers: 39, 44.

Nederlands-Indië contra Japan, 508.

Inventarisnummer: 663, 668, 691.

NIOD Instituut voor Oorlogs-, Holocaust- en Genocidestudies, Amsterdam

Departement van Waterstaat, 216i.

Inventarisnummer: 35.

Generalkommissariat für das Sicherheitswesen (Höhere SS- und Polizeiführer Nord-West),077.

Inventarisnummer: 845.

Stadsarchief, Amsterdam

Archief van de Nederlandse Commissie voor Internationale Natuurbescherming, de Stichting tot Internationale Natuurbescherming en het Office International pour la Protection de la Nature, 1283.

Inventarisnummer: 341.

Archief van Dr. J.W. IJzerman, 742.

Inventarisnummer: 175.

Vechtstromen, Almelo

Archief Waterschap Bargerbeek.

Inventarisnummers: 888, 898, 970, 994.

Photographs:

J.B. Schröer. *Meester Jules G. Renardus kijkt uit over het water op het weiland bij het Schoonebekerdiep*. Photograph. Drents Archief, Collectie Schroer, DA2030512, 1925-1935, https://www.drentsarchief.nl/onderzoeken/beeldbank/zoeken/detail/9ddadc0d-73b0-fbdd-1e3a-5bbfec949499/media/97000e71-225f-cbc8-744d-58ab56f5aec7?mode=detail&view=horizontal&q=Schoonebekerdiep&rows=1&page=3

Van Krieken. *Luchtopname*. Photograph. Nl-HaNa, Fotocollectie Dienst Legercontacten Indonesië (DLC), - negatieven serie 1, nummer toegang 2.24.04.02, inventarisnummer 5534, 1948, https://www.nationaalarchief.nl/onderzoeken/fotocollectie/8335060e-fb22-adce-7bf6-25d7706a73c1?searchKey=3d8709a39801d6f75d9da181d90817cc.

Ontgonnen bos tussen het stroomgebied van de Air Dawas en de Soepat voor de aanleg van de NIAM oliepijpleiding in Palembang. Photograph. Leiden University Libraries Digital Collections, KITLV A86, 1935, http://hdl.handle.net/1887.1/item:921565.

Doorgraving tussen het stroomgebied van de Toengkal en de Kenawang voor de aanleg van de NIAM oliepijpleiding in Palembang. Photograph. Leiden University Libraries Digital Collections, KITLV A86, 1935, http://hdl.handle.net/1887.1/item:925095.

Het ontginnen van bos met een rooter voor de aanleg van de NIAM oliepijpleiding bij Bajoenglentjir in Palembang. Photograph. Leiden University Libraries Digital Collections, KITLV A86, 1935, http://hdl.handle.net/1887.1/item:924184.

Afgewerkte weg bij Tamiang voor de aanleg van de NIAM oliepijpleiding bij Djambi. Photograph. Leiden University Libraries Digital Collections, KITLV A86, 1935, http://hdl.handle.net/1887.1/item:921563.

Een gedode tijger vastgebonden op een auto, tijdens een tijgerjacht van J. Heil, werkzaam bij de Bataafse Petroleum Maatschappij, in de omgeving van Palembang. Photograph. Leiden University Libraries Digital Collections, KITLV A1322, 1933, http://hdl.handle.net/1887.1/item:724676.

Een ja-knikker met op de voorgrond een onbekende landbouwer achter een eg getrokken door een paard in het landschap bij Schoonebeek. Photograph. Drents Archief, Dienst Landelijk Gebied, LG1766308, 1969, https://www.drentsarchief.nl/onderzoeken/beeldbank/zoeken/detail/15c06b62-e1b2-73f6-6605-fa3037150e18/media/0fee8fa6-a591-33ef-142b-30b614264d55?mode=detail&view=horizontal&q=jaknikker&rows=1&page=18.

Putbrand op het boorterrein van de Nederlandsch-Indische Aardolie Maatschappij te Pangkalansoesoe bij Pangkalanbrandan. Photograph. Leiden University Library Digital Collections, KITLV 16735, ca. 1925, http://hdl.handle.net/1887.1/item:787555.

Published Sources:

Bosch, J.W., and S.M. Slabbers. "Basisdocument natuur, bos, landschap en fauna: Herinrichting Schoonebeek." Den Haag: Ministerie van Landbouw, Natuurbeheer en Visserij, 1992.

Casperz, G. P. J. "Het Brandstoffenvraagstuk in Indië met betrekking tot de spoor- en tramwegen aldaar." *De Ingenieur*, 10-12-1921, https://resolver.kb.nl/resolve?urn=dts:2963069:mpeg21:0003.

Colijn, H. "Onze staatskunde ten aanzien van de buitenbezittingen." In *Neerlands Indië: Land en volk, geschiedenis en bestuur, bedrijf en samenleving*, edited by H. Colijn, 2nd ed., 2:4–33. Amsterdam: Elsevier, 1912.

De Bruin, J., and G. Puchinger, eds. *Briefwisseling Kuyper-Idenburg*. Franeker: T. Wever, 1985.

De Intrekking van Den Duurtetoeslag Sedert 1 Januari 1920 Verleend Aan de Landsdienaren in Nederlandsch-Indië. Weltevreden: Indonesische drukkerij, 1922.

Deen, D. *De Djambi-concessies: Baas in eigen huis.* Amsterdam: Blikman & Sartorius, 1912.

Dongen, G. J. van. "De Koeboes in de onderafdeeling Koeboestreken der Residentie Palembang." *Bijdragen tot de Taal-, Land- en Volkenkunde van Nederlandsch-Indië* 63, no. 2 (1910): 187–335.

Dongen, G.J. van. "Nog een en ander over de Koeboes." *Bijdragen tot de Taal-, Land- en Volkenkunde van Nederlandsch-Indië* 67, no. 1 (1913): 73–110.
"Excusie Langs de Djambi Pijpleidng van de BPM Op 10 Mei 1953." *De Tropische Natuur*. 1953.
Haan, S. de. "Onderzoek Naar de Invloed van Ruwe Aardolie Uit Schoonebeek Op de Groei van Gewassen En de Kwaliteit van Grondwater." Haren: Instituut voor bodemvruchtbaarheid, 1986. https://library.wur.nl/WebQuery/wurpubs/fulltext/274259.
Handelingen Eerste Kamer, 1912-1913. Staten-Generaal digitaal. https://repository.overheid.nl/frbr/sgd/19121913.
Handelingen Tweede Kamer, 1907-1908. Staten-Generaal digitaal. https://repository.overheid.nl/frbr/sgd/19071908.
Handelingen Tweede Kamer, 1910-1911. Staten-Generaal digitaal. https://repository.overheid.nl/frbr/sgd/19101911.
Handelingen Tweede Kamer, 1915-1916. Staten-Generaal digitaal. https://repository.overheid.nl/frbr/sgd/19151916.
Handelingen Tweede Kamer, 1916-1917. Staten-Generaal digitaal. https://repository.overheid.nl/frbr/sgd/19161917.
Handelingen Tweede Kamer, 1917-1918. Staten-Generaal digitaal. https://repository.overheid.nl/frbr/sgd/19171918.
Handelingen Tweede Kamer, 1920-1921. Staten-Generaal digitaal. https://repository.overheid.nl/frbr/sgd/19201921.
Handelingen Tweede Kamer, 1931-1932. Staten-Generaal digitaal. https://repository.overheid.nl/frbr/sgd/19311932.
Handelingen van den Volksraad, 1919. Tweede Zitting. KITLV Electronic Documents. https://kitlv-docs.library.leiden.edu/open/TS/volksraad/1919-1%20zitting-2.pdf.
Handelingen van den Volksraad 1920. Eerste Zitting. KITLV Electronic Documents. https://kitlv-docs.library.leiden.edu/open/TS/volksraad/1920-1%20zitting%201.pdf.
Handelingen van den Volksraad, 1920. Tweede Zitting. KITLV Electronic Documents. https://kitlv-docs.library.leiden.edu/open/TS/volksraad/1920-1-zitting%202.pdf.
"Levens-Standaard En Duurte-Toeslag." *Het nieuws van den dag voor Nederlandsch-Indië*. 26-6-1922.
Idenburg, A.W.F. *De waarheid over Djambi: Overzicht van de officieele gegevens betreffende het ontwerp tot oprichting der Nederlandsch-Indische Aardolie-Maatschappij*. Amsterdam: De Standaard, 1921.
Jong, P. de. *Schoonebeek: De ontmoeting tussen een oude Drentse boerensamenleving en de moderne aardoliewinning*. Utrecht: sociologisch Instituut der Ned. Herv. Kerk, 1954.
Karst Jr., E.. "1946 Radiorede." Oud-Schoonebeek. http://oud-schoonebeek.nl/index.php/e-karst-jr/21-1946-radio-rede-e-karst-jr.
———. *In En Om de Jachthut*. Meppel: M. Stenvert, 1948.
Keereweer, H. H. "De Koeboes in de Onder-Afdeeling Moesi Ilir En Koeboestreken." *Bijdragen Tot de Taal-, Land- En Volkenkunde van Nederlandsch-Indië* 99, no.
"Ontwerp Bodemsanering Programma '89-'93," Assen: Provincie Drenthe. 1988.
Schebesta, Paul. *Orang-Utan: Bei den Urwaldmenschen Malanas und Sumatras*. Leipzig: F. A. Brockhaus, 1928.
Snelleman, F. *Bijdragen tot de kennis der fauna van Midden-Sumatra*. Vol. 1. Reizen en onderzoekingen der Sumatra-expeditie, uitgerust door het Aardijkskundig Genootschap 1877-1879 4. Leiden: E. J. Brill, 1887.
Stork, P.J.C. van der. "Gouvernements-exploitatie in Nederlandsch-Indië." PhD diss.. Leiden University, 1913.
Verbond van vereenigingen van landsdienaren. *Stenografisch verslag van de openbare vergadering*. Weltevreden: Indonesische drukkerij, 1922.
Wellenstein, E.P. *Het Indische Mijnbouwvraagstuk*. 's Gravenhage: Martinus Nijhoff, 1918.
Wenckebach, H.J.E. *Indisch Genootschap. Vergadering van 13 Maart 1916. De Djambi-contracten en hoe nu verder met de aardolie-ontginning in Nederlandsch-Indië.* 's-Gravenhage: Martinus Nijhoff, 1916. https://kitlv-docs.library.leiden.edu/open/355580829.pdf.
Waterschoot van der Gracht, W. A. J. M. van. *Rapport over de opsporing van delfstoffen in Nederlandsch Indië.* 's-Gravenhage: Algemene Landsdrukkerij, 1915.

Secondary Sources:

Akuirene, Omatseye Alero, Josiah O. Adjene, Nkemdilim I. Obi, and Ezekiel Uba Nwose. "Impact of Gas Flaring in Ubeji Metropolis of Delta State Nigeria: A Comparative Survey of Environment Health Effects," 2019.

Alberts, A. *Een kolonie is ook maar een mens*. Amsterdam: Van Oorschot, 1989.

Aso, Michitake. *Rubber and the Making of Vietnam: An Ecological History, 1897-1975*. Chapel Hill: University of North Carolina Press, 2018.

Bakema, Melanie M., Constanza Parra, and Philip McCann. "Analyzing the Social Lead-up to a Human-Induced Disaster: The Gas Extraction-Earthquake Nexus in Groningen, The Netherlands." *Sustainability* 10, no. 10 (2018): 3621.

Bakker, H. "Het economisch belang van Noord-Sumatra tijdens de Atjehoorlog, 1873-1910." In *Het belang van de buitengewesten: Economische expansie en koloniale staatsvorming in de buitengewesten van Nederlands-Indië 1870-1942*, edited by J. Thomas Lindblad and A.H.P. Clemens, 41–66. Amsterdam: NEHA, 1989.

Balseiro, Ana, A. Espi, I. Marquez, V. Perez, M. C. Ferreras, JF Garcia Marin, and José M. Prieto. "Pathological Features in Marine Birds Affected by the Prestige's Oil Spill in the North of Spain." *Journal of Wildlife Diseases* 41, no. 2 (2005): 371–78.

Barak, On. *Powering Empire: How Coal Made the Middle East and Sparked Global Carbonization*. Oakland, California: University of California Press, 2020.

Barry, Andrew. "Technological Zones." *European Journal of Social Theory* 9, no. 2 (2006): 239–53.

Beckert, Sven, Ulbe Bosma, Mindi Schneider, and Eric Vanhaute. "Commodity Frontiers and the Transformation of the Global Countryside: A Research Agenda." *Journal of Global History* 16, no. 3 (2021): 435–50.

Bijl, Paul. *Emerging Memory: Photographs of Colonial Atrocity in Dutch Cultural Remembrance*. Amsterdam: Amsterdam University Press, 2015.

"Bird Species." Hutan Harapan. N.d.. https://hutanharapan.id/en/birds-species/.

Black, Megan. *The Global Interior: Mineral Frontiers and American Power*. Cambridge, Massachusetts: Harvard University Press, 2018.

Bloembergen, Marieke. *Uit zorg en angst: De geschiedenis van de politie in Nederlands-Indië*. Amsterdam; Leiden: Boom; KITLV Uitgeverij, 2009.

Bond, David. "Oil in the Caribbean: Refineries, Mangroves, and the Negative Ecologies of Crude Oil." *Comparative Studies in Society and History* 59, no. 3 (2017): 600–628.

Boomgaard, P. *Frontiers of Fear: Tigers and People in the Malay World, 1600-1950*. New Haven: Yale University Press, 2001.

Borghuis, Gerard. *Veertig jaar NAM: De geschiedenis van de Nederlandse Aardolie Maatschappij 1947-1987*. Assen: NAM, 1988.

Boyer, Dominic. "Energopower: An Introduction." *Anthropological Quarterly* 87, no. 2 (2014): 309-333.

Brinkmann, Nicole, Dominik Schneider, Josephine Sahner, Johannes Ballauff, Nur Edy, Henry Barus, Bambang Irawan, et al. "Intensive Tropical Land Use Massively Shifts Soil Fungal Communities." *Scientific Reports* 9 (March 4, 2019): 3403.

Bruisch, Katja. "Nature Mistaken: Resource-Making, Emotions and the Transformation of Peatlands in the Russian Empire and the Soviet Union." *Environment and History* 26, no. 3 (2020): 359–82.

Butler, Judith. *Frames of War: When Is Life Grievable?* London; New York: Verso, 2009.

Campo, J.N.F.M. à. *Koninklijke Paketvaart Maatschappij: Stoomvaart en staatsvorming in de Indonesische archipel 1888-1914*. Hilversum: Verloren, 1992.

———. "Steam Navigation and State Formation." In *The Late Colonial State in Indonesia: Political and Economic Foundations of the Netherlands Indies 1880-1942*, edited by Robert Cribb, 11–29. Leiden: KITLV Press, 1996.

Chatterjee, Elizabeth. "The Asian Anthropocene: Electricity and Fossil Developmentalism." *The Journal of Asian Studies* 79, no. 1 (2020): 3–24.

Clemens, A.H.P., and J. Thomas Lindblad. *Het belang van de buitengewesten: economische expansie en koloniale staatsvorming in de buitengewesten van Nederlands-Indië, 1870-1942*. Amsterdam: NEHA, 1989.

Colombijn, Freek. "Dried-up Dragon's Blood and Swarms of Bees'nest Collectors: Non-Timber Forest Products in Sumatra 1600-1870." In *Muddied Waters: Historical and Contemporary Perspectives on Management of Forests and Fisheries in Island Southeast Asia*, edited by David Henley and Peter Boomgaard, 259–76. Leiden: KITLV Press, 2005.

———. "Uiteenlopende spoorrails. De verschillende ideeën over spoorwegaanleg en ontginning van het Umbilin-kolenveld in West-Sumatra, 1868-1891." *BMGN-Low Countries Historical Review* 107, no. 3 (1992): 437–58.

Coppock, Robert W., and Ralph G. Christian. "Petroleum." In *Veterinary Toxicology: Basic and Clinical Principles*, edited by Ramesh C. Gupta, 615–39. London: Academic Press, 2018.

Corden, W. Max, and J. Peter Neary. "Booming Sector and De-Industrialisation in a Small Open Economy." *The Economic Journal* 92, no. 368 (1982): 825–48.

Cribb, Robert. "Introduction: The Late Colonial State in Indonesia." In *The Late Colonial State in Indonesia: Political and Economic Foundations of the Netherlands Indies 1880-1942*, edited by Robert Cribb, 1–9. Leiden: KITLV Press, 1994.

Crook, Martin, and Damien Short. "Marx, Lemkin and the Genocide–Ecocide Nexus." *The International Journal of Human Rights* 18, no. 3 (2014): 298–319.

Crowther, Thomas W., Henry B. Glick, Kristofer R. Covey, Charlie Bettigole, Daniel S. Maynard, Stephen M. Thomas, Jeffrey R. Smith, Gregor Hintler, Marlyse C. Duguid, and Giuseppe Amatulli. "Mapping Tree Density at a Global Scale." *Nature* 525, no. 7568 (2015): 201–5.

Crutzen, Paul J. "The 'Anthropocene.'" In *Earth System Science in the Anthropocene: Emerging Issues and Problems*, edited by Eckart Ehlers and Thomas Krafft, 13–18. Heidelberg: Springer, 2006.

D'Andrea, Mark A., and G. Kesava Reddy. "Health Effects of Benzene Exposure among Children Following a Flaring Incident at the British Petroleum Refinery in Texas City." *Pediatric Hematology and Oncology* 31, no. 1 (2014): 1–10.

D'Andrea, Mark A., and G. Kesava Reddy. "The Development of Long-Term Adverse Health Effects in Oil Spill Cleanup Workers of the Deepwater Horizon Offshore Drilling Rig Disaster." *Frontiers in Public Health* 6 (2018). https://www.frontiersin.org/article/10.3389/fpubh.2018.00117.

Edwards, Elizabeth. *Raw Histories: Photographs, Anthropology, and Museums*. Oxford: Berg, 2001.

Ekwurzel, Brenda, James Boneham, Mike W. Dalton, Richard Heede, Roberto J. Mera, Myles R. Allen, and Peter C. Frumhoff. "The Rise in Global Atmospheric CO2, Surface Temperature, and Sea Level from Emissions Traced to Major Carbon Producers." *Climatic Change* 144, no. 4 (2017): 579–90.

Erman, Erwiza. *Miners, Managers and the State: A Socio-Political History of the Ombilin Coal-Mines, West Sumartra, 1892-1996*. PhD diss., University of Amsterdam, 1999.

Fasseur, C. *Wilhelmina: De jonge koningin*. Amsterdam: Balans, 1998.

———. "Graaff, Simon de (1861-1948)." *Biografisch Woordenboek van Nederland*. 12-11-2013. http://resources.huygens.knaw.nl/bwn1880-2000/lemmata/bwn3/graaff.

Foucault, Michel. "Nietzsche, Genealogy, History." In *Aesthetics, Method, and Epistemology*, by Michel Foucault, 369–93. Edited by James Faubion, translated by Donald Brouchard. Essential Works of Foucault 1954-1984. London: Penguin Books, 2000.

———. *The Birth of Biopolitics: Lectures at the Collège de France, 1978-79*. Basingstoke; New York: Palgrave Macmillan, 2008.

———. "The Subject and Power." *Critical Inquiry* 8, no. 4 (1982): 777–95.

Gales, Ben. "Mijnbouw." In *Delfstoffen, machine- en scheepsbouw, stoom, chemie, telegrafie en telefonie*, edited by Harry Lintsen, 13–36. Geschiedenis van de Techniek in Nederland: 4. Zutphen: Walburg Pers, 1993.

Gan, Elaine, Anna Lowenhaupt Tsing, Heather Anne Swanson, and Nils Bubandt. "Introduction: Haunted Landscapes of the Anthropocene." In *Arts of Living on a Damaged Planet: Ghosts of the Anthropocene*, edited by Anna Lowenhaupt Tsing, Heather Anne Swanson, Elaine Gan, and Nils Bubandt, 1–17. Minneapolis; London: University of Minnesota Press, 2017.

Gattey, Emma. "Global Histories of Empire and Climate in the Anthropocene." *History Compass* 19, no. 8 (2021): 1–13.
"Global CO2 Levels." 2 Degrees Institute. 2022. https://www.co2levels.org/.
Gordon, Deborah. *No Standard Oil: Managing Abundant Petroleum in a Warming World*. New York: Oxford University Press, 2022.
Gray, John S. "Biomagnification in Marine Systems: The Perspective of an Ecologist." *Marine Pollution Bulletin* 45, no. 1 (September 1, 2002): 46–52.
Gruskin, Rebecca. "The Value within Multiform Commodities: North African Phosphates and Global Markets in the Interwar Period." *Journal of Global History* 16, no. 3 (November 2021): 315–35.
Haraway, Donna. "Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908-1936." *Social Text*, no. 11 (1984): 20–64.
Harrison, Rhett D., and Tom Swinfield. "Restoration of Logged Humid Tropical Forests: An Experimental Programme at Harapan Rainforest, Indonesia." *Tropical Conservation Science* 8, no. 1 (March 1, 2015): 4–16.
Hein, Carola, and Alan Lessoff. "The Original North American Petroleumscape: Oil-and-Gas Empire, Petrochemical Nation." In *Oil Spaces: Exploring the Global Petroleumscape*, edited by Carola Hein, 21–42. New York: Routledge, 2021.
Hesse, Herman. *Autobriographische Schriften I*. Edited by Volker Michels. Sämtliche Werke 11. Frankfurt am Main: Suhrkamp, 2014.
Hobbes, Thomas. *Leviathan*. Edited by J.C.A. Gaskin. Oxford; New York: Oxford University Press, 1998.
Hölsgens, Rick. "Resource Dependence and Energy Risks in the Netherlands since the Mid-Nineteenth Century." *Energy Policy* 125 (February 1, 2019): 45–54.
———. "Sustainability Challenges of the Mid-Nineteenth-Century Dutch Energy System." *TSEG-The Low Countries Journal of Social and Economic History* 13, no. 3 (2016): 29–50.
Joshua, Norman. "Worker's Paradise?" *Jurnal Sejarah* 1, no. 2 (2018): 1–24.
Kester, Johannes. "Energy Security and Human Security in a Dutch Gasquake Context: A Case of Localized Performative Politics." *Energy Research & Social Science*, Conflict, Cooperation, and Change in the Politics of Energy Interdependence, 24 (February 1, 2017): 12–20.
Kheraj, Sean. "A History of Oil Spills on Long-Distance Pipelines in Canada." *Canadian Historical Review* 101, no. 2 (2020): 161–91.
King, Mason D., John E. Elliott, and Tony D. Williams. "Effects of Petroleum Exposure on Birds: A Review." *Science of The Total Environment* 755 (2021): 142834.
Kloos, David. "A Crazy State: Violence, Psychiatry, and Colonialism in Aceh, Indonesia, ca. 1910–1942." *Bijdragen tot de Taal-, Land- en Volkenkunde/Journal of the Humanities and Social Sciences of Southeast Asia* 170, no. 1 (2014): 25–65.
Knaap, G. J. *Cephas, Yogyakarta: Photography in the Service of the Sultan*. Leiden: KITLV Press, 1999.
Knight, G. Roger. "Descrying the Bourgeoisie: Sugar, Capital and State in the Netherlands Indies, circa 1840-1884." *Bijdragen tot de Taal-, Land- en Volkenkunde/Journal of the Humanities and Social Sciences of Southeast Asia* 163, no. 1 (2007): 34–66.
Köhne, Michiel, and Elisabet Dueholm Rasch. "Belonging to and in the Shale Gas Fields. A Case-Study of the Noordoostpolder, the Netherlands." *Sociologia Ruralis* 58, no. 3 (2018): 604–24.
Kreike, Emmanuel. *Scorched Earth: Environmental Warfare as a Crime against Humanity and Nature*. Princeton; Oxford: Princeton University Press, 2021.
Kuitenbrouwer, M. *Nederland en de opkomst van het moderne imperialisme: Koloniën en buitenlandse politiek 1870-1902*. Amsterdam: De Bataafsche Leeuw, 1985.
LeMenager, Stephanie. "The Aesthetics of Petroleum, after Oil!" *American Literary History* 24, no. 1 (2012): 59–86.
Liagre Böhl, Herman de, Jan Nekkers, and Laurens Slot. *Nederland industrialiseert!: Politieke en ideologiese strijd rondom het naoorlogse industrialisatiebeleid 1945-1955*. Nijmegen: Socialistiese Uitgeverij Nijmegen, 1981.
Liboiron, Max. *Pollution Is Colonialism*. Durham North Carolina: Duke University Press, 2021.
Limpach, Rémy. *De brandende kampongs van generaal Spoor*. Amsterdam: Boom, 2016.

Lindblad, J. Thomas. *Bridges to New Business: The Economic Decolonization of Indonesia*. Leiden: KITLV Press, 2009.
———. "Economische aspecten van de Nederlandse expansie in de Indonesische archipel ten tijde van het moderne imperialisme, 1870-1914." In *Imperialisme in de marge: De afronding van Nederlands-Indië*, edited by J. van Goor, 227–66. Utrecht: HES, 1986.
———. "The Petroleum Industry in Indonesia before the Second World War." *Bulletin of Indonesian Economic Studies* 25, no. 2 (August 1, 1989): 53–77.
Lindblad, J. Thomas, and Peter Post. "An Introduction." In *Indonesian Economic Decolonization in Regional and International Perspective*, edited by J. Thomas Lindblad and Peter Post, 267:1–16. Leiden: KITLV Press, 2009.
Lindgren, Tim. "Ecocide, Genocide and the Disregard of Alternative Life-Systems." *The International Journal of Human Rights* 22, no. 4 (2018): 525–49.
Locher-Scholten, Elsbeth. *Sumatraans sultanaat en koloniale staat: De relatie Djambi-Batavia (1830-1907) en het Nederlandse imperialisme*. Leiden: KITLV Uitgeverij, 1994.
Luttikhuis, Bart. "Negotiating Modernity: Europeanness in Late Colonial Indonesia, 1910-1942." PhD diss., European University Institute, 2014.
Malm, Andreas. *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming*. London; New York: Verso, 2016.
Manse, Maarten. "Promise, Pretence and Pragmatism: Governance and Taxation in Colonial Indonesia, 1870-19140." PhD diss., Leiden University, 2021.
Marx, Karl. *Capital: A Critique of Political Economy*. Vol. 1. 3 vols. London: Penguin, 1990.
McNeill, J.R., and Peter Engelke. *The Great Acceleration: An Environmental History of the Anthropocene since 1945*. Cambridge, Massachusetts; London: The Bellknap Press, 2014.
Meer, Arnout van der. *Performing Power: Cultural Hegemony, Identity, and Resistance in Colonial Indonesia*. Ithaca: Cornell University Press, 2020.
Merijn Oudenampsen, and Bram Mellink. *Neoliberalisme. Een Nederlandse geschiedenis*. Amsterdam: Boom, 2022.
Mitchell, Timothy. *Carbon Democracy: Political Power in the Age of Oil*. London; New York: Verso, 2011.
Moore, Jason W. "The Capitalocene, Part I: On the Nature and Origins of Our Ecological Crisis." *The Journal of Peasant Studies* 44, no. 3 (2017): 594–630.
Morrison, Kathleen D. "Empires as Ecosystem Engineers: Toward a Nonbinary Political Ecology." *Journal of Anthropological Archaeology* 52 (2018): 196–203.
Nixon, Rob. *Slow Violence and the Environmentalism of the Poor*. Cambridge, Massachusetts: Harvard University Press, 2011.
Ouwehand, Liesbeth. "Van Een Reconstructieruzie Tot Een Afscheid Boordevol Albums: Enkele Albums Uit de Collectie van Het KITLV." *Indische Letteren* 26 (2011): 61–72.
Oxenaar, Sam, and Rick Bosman. "Managing the Decline of Fossil Fuels in a Fossil Fuel Intensive Economy: The Case of The Netherlands." In *The Palgrave Handbook of Managing Fossil Fuels and Energy Transitions*, edited by Geoffrey Wood and Keith Baker, 139–65. Cham: Palgrave Macmillan, 2020.
Painter, David S. "The Marshall Plan and Oil." *Cold War History* 9, no. 2 (May 1, 2009): 159–75.
Protschky, Susie, ed. *Photography, Modernity and the Governed in Late-Colonial Indonesia*. Amsterdam: Amsterdam University Press, 2015.
Rentsch, Thomas. *Martin Heidegger, Sein Und Zeit*. Vol. Band 25. Klassiker Auslegen. Berlin: De Gruyter, 2015.
Robinson, Samuel J. B., Dafydd Elias, David Johnson, Sabine Both, Terhi Riutta, Tim Goodall, Noreen Majalap, Niall P. McNamara, Robert Griffiths, and Nick Ostle. "Soil Fungal Community Characteristics and Mycelial Production Across a Disturbance Gradient in Lowland Dipterocarp Rainforest in Borneo." *Frontiers in Forests and Global Change* 3 (2020). https://www.frontiersin.org/article/10.3389/ffgc.2020.00064.
Ross, Corey. *Ecology and Power in the Age of Empire: Europe and the Transformation of the Tropical World*. Oxford: Oxford University Press, 2017.
———. "The Tin Frontier: Mining, Empire, and Environment in Southeast Asia, 1870s–1930s." *Environmental History* 19, no. 3 (2014): 454–79.

Ruiter, Peter de. "Het Mijnwezen in Nederlands-Oost-Indië 1850-1950 = The Mining Bureau in the Dutch East Indies 1850-1950." PhD Diss., Utrecht University, 2016.
Santiago, Myrna I. *The Ecology of Oil: Environment, Labor, and the Mexican Revolution, 1900–1938*. Cambridge: Cambridge University Press, 2006.
Schebesta, Paul. *Orang-Utan: Bei den Urwaldmenschen Malanas und Sumatras*. Leipzig: F. A. Brockhaus, 1928.
Schenk, Joep, and Petra Timmer. *Groningen-gasveld vijftig jaar: Kloppend hart van de Nederlandse gasvoorziening*. Amsterdam: Boom, 2009.
Schmidt, Lars, Djoko Prasetyonohadi, and Tom Swinfield. "Restoration of Artificial Ponds in Logging Concessions: A Case-Study from Harapan Rainforest, Sumatra." *Tropical Conservation Science* 8, no. 1 (March 1, 2015): 33–44.
Schot, J.W., H.W. Lintsen, A. Rip, and A. A. Albert de la Bruhèze, eds. *Delfstoffen, energie, chemie*. Techniek in Nederland in de Twinstige Eeuw 2. Zutphen: Walburg Pers, 2000.
Schrauwers, Albert. *Merchant Kings: Corporate Governmentality in the Dutch Colonial Empire, 1815-1870*. New York: Berghahn, 2021.
Seow, Victor. *Carbon Technocracy: Energy Regimes in Modern East Asia. Carbon Technocracy*. Chicago: University of Chicago Press, 2022.
Seto, Karen C., Steven J. Davis, Ronald B. Mitchell, Eleanor C. Stokes, Gregory Unruh, and Diana Ürge-Vorsatz. "Carbon Lock-in: Types, Causes, and Policy Implications." *Annual Review of Environment and Resources* 41, no. 1 (2016): 425–52.
Sjahrir. *Wissel op de toekomst: Brieven van de Indonesische nationalist aan zijn Hollandse geliefde*. Edited by Kees Snoek. Amsterdam: Van Oorschot, 2021.
Sluyterman, Keetie. "Decolonisation and the Organisation of the International Workforce: Dutch Multinationals in Indonesia, 1945–1967." *Business History* 62, no. 7 (2020): 1182–1201.
Spivak, Gayatri Chakravorty. "Can the Subaltern Speak?" In *Can the Subaltern Speak?: Reflections on the History of an Idea*, edited by Rosalind Morris, 21–78. New York: Columbia University Press, 2010.
Steffen, Will, Wendy Broadgate, Lisa Deutsch, Owen Gaffney, and Cornelia Ludwig. "The Trajectory of the Anthropocene: The Great Acceleration." *The Anthropocene Review* 2, no. 1 (2015): 81–98.
Steinebach, Stefanie. "'Today We Occupy the Plantation - Tomorrow Jakarta': Indigeneity, Land and Oil Palm Plantations in Jambi." In *Adat and Indigeneity in Indonesia: Culture and Entitlements between Heteronomy and Self-Ascription*, edited by Brigitta Hauser-Schäublin, 63–79. Göttingen: Universitätsverlag, 2013.
Stoler, Ann. *Carnal Knowledge and Imperial Power: Race and the Intimate in Colonial Rule*. Updated ed. with a new preface. Berkeley, CA: University of California Press, 2010.
———. *Duress: Imperial Durabilities in Our Times*. Durham: Duke University Press, 2016.
Stuurman, Siep. *Verzuiling, kapitalisme en patriarchaat*. Nijmegen: SUN, 1983.
Szaro, Robert C. "Effects of Petroleum on Birds." In *Transactions of the 42nd North American Wildlife and Natural Resources Conference*, 374–81, 1977.
Tagliacozzo, Eric. "Before the Gangrene Set In: The Dutch East Indies in 1910." In *Asia Inside Out: Changing Times*, edited by Eric Tagliacozzo, Helen Siu, and Peter Perdue, 226–49. Cambridge, MA: Harvard University Press, 2015.
Tammeling, B.P. *Energie uit de diepte: Winning van olie en gas*. Assen: Wolters-Noordhoff, 1972.
Taselaar, Arjen. *De Nederlandse koloniale lobby: ondernemers en de Indische politiek, 1914-1940*. Leiden: Research School CNWS, School of Asian, African, and Amerindian Studies, 1998.
Trouillot, Michel-Rolph. *Silencing the Past: Power and the Production of History*. Boston: Beacon Press, 2015.
Trung, Ho Dinh, W. Van Bortel, T. Sochantha, K. Keokenchanh, N. T. Quang, L. D. Cong, and M. Coosemans. "Malaria Transmission and Major Malaria Vectors in Different Geographical Areas of Southeast Asia." *Tropical Medicine & International Health* 9, no. 2 (2004): 230–37.
Tsing, Anna Lowenhaupt, Andrew S. Mathews, and Nils Bubandt. "Patchy Anthropocene: Landscape Structure, Multispecies History, and the Retooling of Anthropology: An Introduction to Supplement 20." *Current Anthropology* 60, no. S20 (2019): S186–97.

Tyrrell, Ian. *Crisis of the Wasteful Nation: Empire and Conservation in Theodore Roosevelt's America*. Chicago, IL: University of Chicago Press, 2015.
Unruh, Gregory C. "Understanding Carbon Lock-In." *Energy Policy* 28, no. 12 (October 1, 2000): 817–30.
Vanhaute, Eric, and Hanne Cottyn. "Into Their Land and Labours. A Comparative and Global Analysis of Trajectories of Peasant Transformation." *ICAS Review Paper Series* 8 (2017): 1–21.
Veenker, Ramon, and Frank Vanclay. "What Did NAM Do to Get a Social Licence to Operate? The Social Impact History of the Schoonebeek Oilfield in the Netherlands." *The Extractive Industries and Society* 8, no. 2 (2021): 100888-100905.
Veraart, Frank, Jan-Pieter Smits, and Erik van der Vleuten. "Connected by Oil: A Framework to Analyze the Connected Sustainability Histories of the Niger and Rhine Deltas, 1950-2015." *The Extractive Industries and Society* 7, no. 1 (2020): 50–67.
Vitalis, Robert. *Oilcraft: The Myths of Scarcity and Security That Haunt U.S. Energy Policy*. Stanford, California: Stanford University Press, 2020.
Voyles, Traci Brynne. *Wastelanding: Legacies of Uranium Mining in Navajo Country*. Minneapolis; London: University of Minnesota Press, 2015.
Vries, Ben de. "Petroleumscape as Battleground: Pladjoe, Pearl in the Crown of the Bataafsche Petroleum Maatschappij (BPM/Shell) in the Dutch East Indies." In *Oil Spaces: Exploring the Global Petroleumscape*, edited by Carola Hein, 43–65. New York: Routledge, 2021.
Welker, Marina. *Enacting the Corporation: An American Mining Firm in Post-Authoritarian Indonesia*. 1st ed. Berkeley: University of California Press, 2014. https://doi.org/10.1525/j.ctt5vjzm0.
Whitten, Tony, Sengli Damanik, Janzanul Anwar, and Nazaruddin Hisyam. *The Ecology of Sumatra*. The Ecology of Ineonesia Series 1. Hongkong: Periplus, 2000.
Wlasiuk, Jonathan. *Refining Nature Standard Oil and the Limits of Efficiency*. History of the Urban Environment. Pittsburgh, Pa.: University of Pittsburgh Press, 2017.
Woud, Auke van der. *Het landschap, de mensen: Nederland 1850-1940*. Amsterdam: Prometheus, 2020.
Wright, Gwendolyn. "Tradition in the Service of Modernity: Architecture and Urbanism in French Colonial Policy, 1900-1930." In *Tensions of Empire: Colonial Cultures in a Bourgeois World*, edited by Ann Stoler and Frederick Cooper, 322–45. Berkeley: University of California Press, 1997.
Zanden, Jan Luiten van, and Daan Marks. *An Economic History of Indonesia: 1800-2010*. London: Routledge, 2012.
Zanden, Jan Luiten van. "Economic Growth in Java 1815-1939: The Reconstruction of the Historical National Accounts of a Colonial Economy." Reconstruction National Accounts: Economic Growth in Java 1815-1939 (2018), 26. Data distributed by Utrecht University. https://i-lab.public.data.uu.nl/vault-indonesian-economic-history/Reconstruction%20National%20Accounts%5B1536739924%5D/original/jvz-reconstruction.pdf/.
Zanden, Jan Luiten and Joost Mellegers. "Expenditure Neth East Indies 1848-1940." Public Finance of Indonesia (2018). Data distributed by Utrecht University. 10.24416/UU01-ER9ZDI.
Zock, Jan Paul. "Some Clues for Studying Long-Term Health Effects of Oil Spills." *Occupational and Environmental Medicine* 75, no. 3 (2018): 163–64.
Zondag, Jelle. *Volkskracht: sport, lichamelijke opvoeding en de versterking van Nederland 1880-1940*. Amsterdam: Boom, 2021.