

## 2 COMPETING ACCOUNTABILITIES

Anthropologists have long studied accountability and account giving as a part of the “general fabric of human interchange.”<sup>1</sup> While accountability is historically and culturally calibrated, taking different forms in everyday practice and institutional structures, Susanna Trnka and Catherine Trundle place issues of “responsiveness and answerability” at its heart. In their book *Competing Responsibilities: Moving Beyond Neoliberal Responsibilisation*, they show how multiple senses of responsibility, such as care for others and social contracts, exist alongside and sometimes in tension with dominant discourses steeped in more neoliberal notions of personhood emphasizing autonomy, entrepreneurialism, and risk taking.<sup>2</sup> While academics and my interlocutors often use the terms *responsibility* and *accountability* interchangeably—or define one in terms of the other—in this book I primarily employ *accountability*, as it more explicitly requires a specific person or group to whom one is answerable, whereas *responsibility* can be vaguer in not identifying particular persons or entities to whom one is responsible.<sup>3</sup>

Engineers’ accountabilities to others are theorized and vigorously debated in the fields of engineering ethics and engineering studies. Engineering ethics is primarily but not exclusively the domain of philosophers, who use theory and prominent case studies of ethics failures to make normative claims about how engineers ought to act professionally. Engineering studies is more disciplinarily diverse, emerging from social science and humanities scholars seeking greater engagement with engineering than was occurring through the growth of science and technology studies.<sup>4</sup> Scholars

working within and across these fields show that expectations for how engineers ought to practice accountability to their fellow colleagues and various publics are historically and culturally contingent.

This chapter provides a broad conceptual framework for understanding how accountability came to matter in the everyday lives of the engineers in my research. I argue for taking a practice-based approach that illuminates how engineers, in their daily life and professional decision making, navigate competing domains of accountability. The four domains I introduce here inform the rest of the book:

1. Formal accountabilities encoded in law, standards, professional ethics codes, and corporate policies
2. Accountabilities to professional ideals that, because of the history of the engineering profession in the United States, dovetail with institutional pressures to deliver and protect profit for corporate shareholders
3. Accountabilities to the publics that cohere around engineers' work
4. Accountabilities that are experienced as "personal" ethical frameworks but emerge from and reinforce broader histories and discourses, including industry

These domains often contradict one another, presenting engineers with vexing dilemmas. I argue that, in the absence of formal guidance for how to weigh, prioritize, or reconcile these domains, the engineers I came to know turned to two moral architectures that seductively promised to resolve the tensions among them: the ethic of material provisioning and the social license to operate.

## **EVERYDAY PRACTICES OF ACCOUNTABILITY**

Dominant engineering ethics instruction in US undergraduate programs walks students through prominent engineering disasters, teaches them the ethics codes of relevant engineering professional associations, introduces them to ethical frameworks, and asks them to reason through which course of action they would take if faced with a dilemma themselves. While valuable, this style of teaching and learning addresses only a small fraction of

the broad themes of ethics and accountability that engineers wrestle with in their professional lives. The engineers I came to know were called to account for their own decisions, as well as for their entire industries, on a daily basis. This calling to account happened when their family, friends, and acquaintances asked about their work in publicly maligned industries; when they wore clothing with company logos during off-work hours; when they encountered landowners or neighbors while visiting work sites; when they attended community meetings and public hearings; when they made presentations about their industries at schools or community organizations (figure 2.1); when they were approached by activists gathering signatures for legislation to more stringently regulate their industries; when they had to defend their decisions or proposals in team meetings; and when they were interviewed by me about their life and work. This account making also



**Figure 2.1**

An engineer who supervises fracking operations speaking to students during a high school chemistry class in Windsor, Colorado, in 2016. She demonstrated how the process works and argued to students that the technique, the accompanying chemicals, and the geological effects didn't harm the environment or public health. Students then got to handle the fracking fluid themselves. Photographer: Matthew Staver/Bloomberg via Getty Images, used by permission.

happened in more indirect and diffuse ways, such as when they read social media posts criticizing their industry, when they watched documentaries or news stories documenting their industry's flaws, and when they read summaries of grievance line calls or complaints lodged with the state oil and gas authority.

This book analyzes these *everyday practices of accountability*. By this term, I mean the practices in which the engineers became answerable to others for their actions, from their choices to pursue careers in controversial industries to their designs for the infrastructure to create natural resources, and they accepted, deflected, and reframed their own responsibility for matters of concern.<sup>5</sup>

This approach synthesizes an anthropological approach to accountability with the constructivist theory of social responsibility proposed by philosopher Deborah Johnson. She critiques dominant philosophical frameworks used to teach engineering ethics, arguing that they “decontextualize engineering and remain somewhat general in their implications for the social responsibilities of engineers” and instead advocating for viewing the “social responsibilities of engineers [as] constituted in social practices.”<sup>6</sup> This approach has the advantage of compelling us to consider specific rather than generalizable actors, such as particular citizen groups rather than an amorphous “public.” It also calls our attention to the specific expectations and understandings—shared and contested—through which explanation, justification, and judgment take place. Johnson identifies report issuing and whistleblowing as the two key arenas for engineers’ practices of accountability, yet she identifies their weaknesses as failing to construct engineers as directly accountable for the health, safety, and welfare of the public. She argues: “Engineers are not required to explain or justify their behavior to publics until something goes wrong or until engineers—in the act of whistleblowing—bring something to the attention of a public. This helps to explain why so much attention has been given to the highly visible cases of engineering or technological failures. It is in these cases that accountability practices can be observed.”<sup>7</sup>

My ethnographic research revealed myriad other moments in which engineers were asked to explain and justify their behavior to multiple publics,

from backyard barbeques to requests made of the companies they represented. These everyday moments of account making may not be documented in public records, but they are crucial for understanding accountability as a set of social practices that shape and are shaped by dominant frameworks, such as international performance standards or professional norms. Analyzing the accountabilities of corporations through the everyday practices of the engineers and other professionals who enact them treats corporate social responsibility (CSR) as a dynamic and contested *field of relational practice*, not primarily as a static set of codes, guidelines, or standards.

In these everyday practices of accountability, my interlocutors attempted to reconcile contradictions among the four domains introduced above. They each had to justify their decisions based on the corporate policies of their employers, as well as the legal and regulatory standards governing their industries—the first domain.<sup>8</sup> These frameworks rarely provided clear-cut answers to their dilemmas but could be marshaled to support a position on a particular debate.<sup>9</sup> For example, Joe, a geological engineer who managed an exploration team in sub-Saharan Africa, made daily decisions that required him to calibrate company resources with desired community engagement outcomes, from choosing which economic development programs his team invested in to determining appropriate use of the company's trucks to transport villagers to the nearest urban center. Far from being black-and-white decisions, he saw how the established company practice of providing gifts and frequent transportation to the local chief, for example, could be interpreted as violating US anti-bribery law and professional ethics codes (the first domain), as well as his own personal sense of right and wrong (the fourth domain).<sup>10</sup>

Joe's professional ideals (the second domain) undergirded his conviction that technical professionals such as himself should use their knowledge to improve the lives of the less fortunate, chiefly by promoting sustainable local economic development rather than lining the pockets of elites. What drew him to geological engineering as a graduate student, in contrast with the geology and chemistry he studied as an undergraduate, was what he called its "applied" nature. Specifically, he wanted to use his professional

skills to simultaneously create economic value for his company and the poor, rural communities who lived by their exploration projects. In recalling his time in Africa, he was most proud of the training he helped provide to local farmers to increase their yields, but felt frustrated that entrenched cronyism prevented his team from supporting broader economic transformations, such as by promoting the use of chicken manure rather than expensive imported fertilizer. It is through these daily decisions and activities—these *everyday practices of accountability*—on the part of engineers like Joe that a corporate form’s CSR takes shape.

The primary dilemma is that, like most of the other engineers I met, Joe lacked clear guidance on how to arbitrate among competing claims to accountability within and among those domains. When he raised his critiques of the company’s practices to his supervisors, he was told in no uncertain terms to drop the issue: “Don’t worry about it,” he recalled being told. Left on his own, Joe invested his efforts in activities and narratives that seemed to promise some reconciliation of those four domains. For example, he viewed the creation of economic value through farming and mining as not just the cornerstone of his employer’s interests (first domain) and engineering professional ideals (second domain), but also as a service to the public welfare of the local community (third domain) and his own sense of right and wrong (fourth domain). “I still believe that the best way I can make a difference for [rural communities] is to actually find a mine to do my job,” he said. “If I were to walk away and not find anything, it would be great for me to know that not only they remembered me fondly, but that also I had imparted some knowledge [about sanitation or farming] with them that would make their lives better.” Whereas he found some peace with this vision of reconciled domains of accountability, positioning his company’s interests and his professional ideals as indistinguishable from public interest marginalize other local calls for accountability or definitions of the public good. Indeed, Carl Mitcham provocatively argues that a “philosophical inadequacy” of engineering is that it holds an ideal of protecting public safety, health, and welfare without training its practitioners to know what public safety, health, and welfare actually are.<sup>11</sup>

## INTERTWINED FORMAL ACCOUNTABILITIES AND PROFESSIONAL IDEALS

Analyzing the four domains of accountability makes apparent the alignment between dominant formal accountabilities endorsed by corporate forms and the professional ideals for engineers. This alignment is a historically and culturally contingent achievement, not something “natural” to engineering itself. Formal accountabilities encompass regulatory standards, permits, corporate policies, negotiated agreements, international performance standards such as those endorsed by the World Bank and International Finance Corporation, and professional codes of ethics.<sup>12</sup> They are enforceable—though in different ways by different actors—and all have their own histories and exclusions that make them fundamentally political. Here I offer a brief overview of engineering codes of ethics because they are rarely considered in social science critiques of the mining and oil and gas industries yet provide a clear window from which to observe the coevolution of shifting professional norms for engineers and what scholars would identify as the economic interests of corporate forms.

The first engineers in Europe and the United States were military men, which engineering studies scholars argue embedded obedience to authority deep into the fabric of the profession. The link between engineering and the military was so prominent that the designation of “civil” engineers was precisely meant to signal nonmilitary applications of engineering practice. Historians and philosophers argue that, as engineers began moving from workshops and consulting firms into corporate employment around the turn of the nineteenth century, this ideal of obedience translated into loyalty to corporate employers.<sup>13</sup> In his fundamental *The Revolt of the Engineers: Social Responsibility and the American Engineering Profession*, Edwin T. Layton Jr. argues that the codes that first emerged during the Progressive Era ensconced the power of the pro-business engineers who advocated for loyalty to clients and employers at the expense of the more radical engineers who sought greater autonomy from corporations.<sup>14</sup> These codes of ethics were then translated into undergraduate engineering programs as early as the 1940s, when D. C. Jackson, an MIT engineering dean and consultant

to electric utilities, chaired the Committee on Principles of Ethics of the Engineering Council for Professional Development.<sup>15</sup> Loyalty to employers and clients remained at the top of the codes of ethics until the crises of public confidence shook the profession in the 1980s, as described below.

Beyond loyalty to employers and clients, a second broad professional ideal of technocratic efficiency sought to find an internal good to engineering.<sup>16</sup> For now more than a century, engineers in the United States have prided themselves in their efficiency, perhaps most notoriously captured by mechanical engineer Frederick Winslow Taylor's attempts to scientifically manage the labor process by breaking apart workers' accumulated knowledge into small, measurable tasks to be monitored by engineers. This ideal of efficiency manifests in dominant expectations for US engineers to spend their careers in private industry and to dedicate themselves to ensuring what Gary Downey terms the "low cost, mass use" of their employers' products.<sup>17</sup> Unsatisfied by limiting themselves to the efficient management of resources, engineers have also sought to become managers for societal problems in general. Claims to social responsibility have been key to justifying this position: "Responsibility was the faculty of judgment that distinguished [the engineer] from the skilled laborer, the scientist, and the businessperson as he brought social progress through efficiency and invention."<sup>18</sup> The codes of ethics played a key role in publicly asserting and establishing internal ideals for engineers' social responsibilities.

A third and more recent professional ideal is the paramountcy principle: engineers should hold paramount the safety, health, and welfare of the public. It began to appear in codes of ethics as the professional associations attempted to address growing criticism of engineering in the wake of highly publicized technological accidents and disasters, including the Three Mile Island nuclear incident (1979), the Hyatt Regency walkway collapse (1981), the Bhopal toxic gas release (1984), the Chernobyl nuclear incident (1986), the *Challenger* explosion (1986), and the *Exxon Valdez* oil spill (1989).<sup>19</sup> The National Society of Professional Engineers, a bastion of professional autonomy among the larger pro-business engineering societies, was the first to bring the paramountcy principle to the top of its list in 1981, followed in 1990 by the IEEE (Institute of Electrical and Electronics Engineers), which



in 2020 billed itself as “the world’s largest technical professional organization dedicated to advancing technology for the benefit of humanity.”<sup>20</sup>

Even as the paramountcy principle rose in importance, loyalty to corporate clients and employers remained. Matthew Wisnioski neatly summarizes this unresolved tension: “Lacking mechanisms of arbitration between employee and employer or even for upholding basic ethical codes, the rhetoric of responsibility in member societies elided conflict by portraying harmonious service to many masters at once.”<sup>21</sup> In other words, the paramountcy principle acknowledges that engineers have responsibilities beyond their employers but does not provide guidance about how to reconcile competing demands between those public responsibilities and loyalty to their employers—a dilemma that continues to resonate in the everyday lives of engineers.

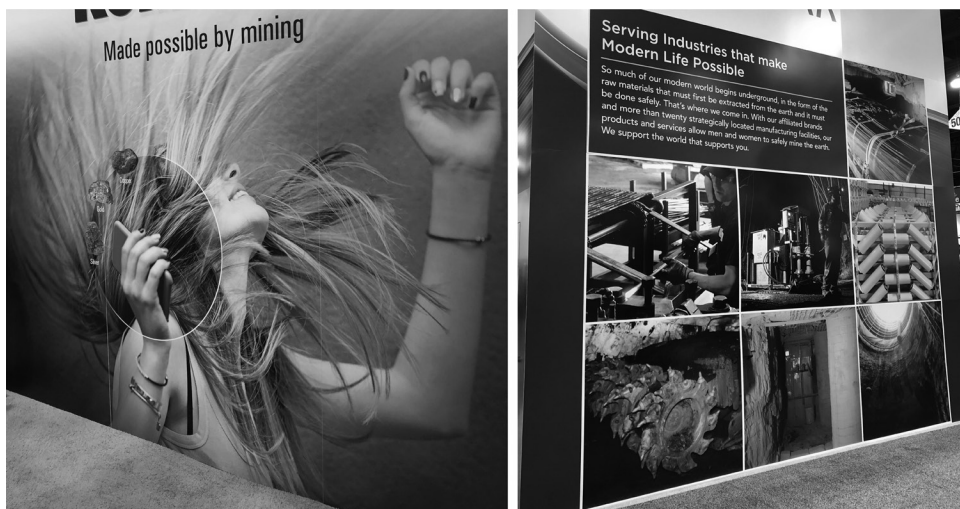
The tension between differing answers to the question of what engineering should be *for* remains unresolved nearly a century after the Progressive Era debates that seeded the first ethics codes. A persistent if underappreciated professional idealism has threaded through the history of the field.<sup>22</sup> In the 1960s and 1970s engineers critical of the military-industrial complex created professional spaces to link engineering directly with people seeking more sustainable local development.<sup>23</sup> In this period of social tumult, even “square” engineering scientists diversified their funding and research outside their traditional military and industrial sources to address the social problems of the day, from accessible technologies for people with disabilities to food poverty and renewable energy.<sup>24</sup> In the 1990s growing global attention to sustainable development began infusing curricular and extra-curricular engineering programs,<sup>25</sup> and engineering educators made a crucial distinction between microethics that focused on individual conduct and macroethics that addressed systemic inequalities.<sup>26</sup>

These different answers to the question of what and who engineering ought to be for remain a vibrant field of debate and testimony to the multiple professional norms that exist in the field.<sup>27</sup> In the next sections, I analyze two dominant moral architectures that appeal to engineers because, I suggest, they seem to offer at least a partial reconciliation of those accountabilities to formal frameworks, to their employers, to their profession, to

publics, and to their own senses of right and wrong: *the ethic of material provisioning* and the *social license to operate*.

## ETHIC OF MATERIAL PROVISIONING

A steadfast and pervasive “ethic of material provisioning” animated how my interlocutors judged the ethicality of their work: they viewed their work and the industries it supported as valuable in providing the material foundations for consumers around the globe.<sup>28</sup> It is difficult to overemphasize the significance of this ethical framework, which pervaded interviews, conversations, corporate materials, conference presentations, and more. It positions engineers and others who work in industry as providing the “conditions of possibility”<sup>29</sup> for the everyday lives of people around the world. This sentiment was succinctly captured in booths at the 2019 Society for Mining, Metallurgy, and Exploration (SME) exposition that described mining as “making modern life possible” and made visible the minerals necessary for everyday technologies, such as smartphones (figure 2.2). This ethic stretches beyond



**Figure 2.2**

The ethic of material provisioning on display at the 2019 Society for Mining, Metallurgy, and Exploration convention.

any particular company. The National Mining Hall of Fame and Museum in Leadville, Colorado, for example, dedicates an entire exhibit to illustrating the minerals that make everyday life possible. This framework is an ethical one, as it imbues natural resource development—and the people who make it possible—with a sense of moral goodness. But like other ethical frameworks, it is inherently political. In this case, the ethic of material provisioning advances the mining and oil and gas industries' interests by justifying past, current, and future extractive activity.

This ethic of material provisioning was so pervasive that each of the engineers I came to know expressed it in some way, with some reproducing it in light of their own histories and others struggling against it. Here I focus on petroleum engineers. Laura described truly investing herself in her work when looking at the quality of life in “countries that don't have oil and gas” where “their hospitals, the power shuts on and off, and they run on a generator. [Here] we're able to have babies in incubators twenty-four hours a day and people on respiratory devices and all this stuff because we have a consistent power source. Solar can't provide that. Wind can't provide that. We have a better society because of oil and gas and coal. They are the moral, responsible thing.” Laura's focus on sick newborns resonates with the discourses Hannah Appel critiques for positioning “hydrocarbon-based fossil fuels [as] the indispensable energy of social reproduction. . . . Without oil or coal—and by extension the people who produce them—birth itself, let alone transport, clothing, meals, electrical light, the entire American home, would be radically altered if not impossible as we know them.”<sup>30</sup>

Whereas dominant criticism of the extractive industries lays blame on the people who work in those industries, the ethic of material provisioning distributes blame for the harms of mining and petroleum production throughout a more expansive network of people who consume products that come from minerals and petroleum. Invoking the ethic of material provisioning, then, seeks to create a worldwide “community of complicity”<sup>31</sup> that extends beyond those directly employed by industry. Kim, for example, believed that the negative effects of oil production should not be blamed solely on oil companies. She argued that those negative effects were “just our problem as humans, because we just wanted more petroleum.”

She continued, “What I say to people is, ‘Well, do you like to drive a car? Fly in an airplane? Drink milk? Coffee? Do you use Amazon?’”<sup>32</sup>

My interlocutors took great care to point out that even the people who criticized their industries depended on them. River, a mid-career petroleum engineer, had thought about the ethical dimensions of his work deeply, as it had generated intense criticism from his family based on their environmental commitments. He imagined himself having a conversation with environmentalists, saying: “Do you know the resources, the things that come out of the extraction process? It’s your smart little socks. It’s your Patagonia jacket. It’s your skis. It’s your contact lenses. . . . It’s so integrated with society. It’s not just the gas in your car, stuff like that. . . . It’s not as evil as movies would portray.” David, who had transitioned from engineering to executive roles, refused to buy clothing and outdoor gear from Patagonia because he viewed the company as taking a hypocritical stance in publicly opposing oil while depending on it (and its investors) for its business. And Abigail, an engineer at the very start of her career, complained about college friends who “drove their gas-guzzling SUVs to ski at Vail,” a luxurious ski resort. Some were blunter in pointing out this dependence, such as a retired mining engineer who advised that critics of mining should be left to “live naked in the woods.” By invoking the ethic of material provisioning, these engineers simultaneously cast positive moral valence on their own work—they were providing materials even to people who did not recognize or appreciate them—while expanding the “community of complicity” responsible for its harms to encompass the people who called the engineers’ work into being by virtue of their consumptive practices.

As I analyze in chapters 5 and 7, some engineers who worked as consultants took a more critical stance on this widespread ethic of material provisioning, recognizing it as a defensive justification for their work. Yet even those who saw and critiqued the political narrowing of the framework continued to invoke it, using it as a justification for their own efforts to “steer the ship” and make mineral production as responsible as possible. It is telling that each of the professionals I met who sought to fundamentally rethink the ethic of material provisioning left industry entirely. In a sense, to work for industry—either as a full-time corporate employee or for a firm

that contracted for corporations—was to understand one’s accountability at least partially through this moral architecture.

### **Corporate Histories of Material Provisioning**

While the engineers I met felt the ethic of material provisioning as a deeply personal ethical framework, it has a complicated history of its own. Companies, trade groups, and professional associations have long invoked an ethic of material provisioning to improve their public reputation. As early as the 1920s, the Anaconda Copper Mining Company adopted the slogan “From Mine to Consumer,” and in the 1940s the company positioned copper as necessary for the suburbanization of the United States through advertisements such as, “There’s copper in your radio . . . copper and copper alloys in your refrigerator, plumbing, and heating equipment.”<sup>33</sup> By the at least the 1940s oil companies were engaging in similar public relations techniques, encouraging consumers to see how their everyday lives depended on petroleum products. After the boom in oil consumption by the US military in World War II, “the concerns of the industry shifted to the social construction of a ‘postwar’ American landscape that also was fundamentally dependent upon petroleum.” During the 1950s, petroleum products “effectively saturated the whole of living, a set of practices linked to particular visions of freedom, domesticity, and health.”<sup>34</sup>

Nearly a century since Anaconda’s ad campaign, the ethic of material provisioning remains alive and well—and markedly similar. A competition at the 2018 SME conference to improve public perceptions of mining began by showing a promotional video from the corporate sponsor that extolled the necessity of copper for Americans’ way of life, including “everything from wind turbines to diabetes test strips, cancer treatments, and car exhaust catalysts.” The emcee invoked this ethic by saying, “Judges will be logging their scores on an iPad, which, coincidentally, comes from mining. Everything in an iPad comes from mining, right? So we’re using the technology that comes from mining right here.” While walking around the trade show at that same conference, I picked up bumper stickers declaring “If It Can’t Be Grown It’s Gotta Be Mined,” “What’s Yours Is Mined,” and less subtle, “Ban Mining: Let the Bastards Freeze in the Dark.” These

were more humorous takes on the official posters, class lessons, museum exhibits, and other public outreach materials produced by the Minerals Education Coalition, the official education and outreach arm of the SME, that aimed to improve public perceptions of mining by making minerals more visible in everyday technologies and products.

The American Petroleum Institute also advanced the ethic of material provisioning by portraying oil and gas as providing “the molecular building blocks for products that Americans use throughout their day—from smartphones to fabrics to lifesaving pharmaceuticals. They’re also essential to technologies and innovations that help solve some of society’s greatest challenges.”<sup>35</sup> Individual companies also invoked this ethical framework in their own advertisements. For example, ExxonMobil’s “Enabling Everyday Progress” commercial showed the vast infrastructure and its attendant workers necessary to produce, package, and ship all the materials used by a middle-class woman boiling an egg in her kitchen on a natural-gas-fired stove.<sup>36</sup> The implication is that without ExxonMobil and its infrastructure Americans would not be able to engage in even the simplest of cooking activities.

### **The Politics of the Ethic of Material Provisioning**

The strength and ubiquity of this linking of resource production and consumer lifestyles call out for analytic attention. Like other claims of technological inevitability, the ethic of material provisioning can be deployed to dismiss or deflect broader questions of social and environmental responsibility.<sup>37</sup> Anthropologists who encounter this reasoning in the oil industry in particular critique it as a defensive “ideology of inevitability” that forecloses broader questions of energy conservation and potential changes in infrastructure and consumer behavior.<sup>38</sup>

The ethic of material provisioning does justify industry activities by foregrounding the necessity of meeting current energy and material demands. And debates about the place of mining and petroleum production in our lives must include broader questions about the environmental and social costs of such activities, including the urgent issue of climate change. But analyzing how engineers themselves understand their work and the industries reveals another dimension to this ethical framework that should be integrated into debates about resource futures. My interlocutors drew on

the ethic of material provisioning as part of their “deep story” about how they understand their place in the world.<sup>39</sup> It highlighted what they viewed as their noble contribution to the world they live in while critiquing their critics, specifically people who advocated for radical changes in energy and material production without understanding the material basis of their own privileged consumptive practices. While their senses of their profession and its place in the world were formed in the context of the wider messages disseminated by corporate employers and trade groups, their understanding of this ethical framework exceeded the official discourses.

The pervasiveness of the ethic of material provisioning may be attributable to how seamlessly it purports to reconcile the four domains of accountability. At the same time as it is felt and expressed as a deeply personal ethical framework that provides a positive moral valence to engineers’ work, it also upholds dominant professional norms. First, the ethic of material provisioning expresses the long-standing industrial metric of “low cost, mass use” that shapes engineering in the United States.<sup>40</sup> While engineers who work in mining and petroleum production do not directly create low cost, mass-produced consumer products, these outreach campaigns center precisely on making visible the minerals necessary for those consumer products, such as the smartphone at the SME tradeshow (figure 2.2). Second, the ethic of material provisioning casts a positive moral light on the corporations employing engineers: these corporate forms are in the business not simply of making profits but of providing energy and materials to people around the world. In effect, this framing proposes that the provision of energy and materials is a response to public demands and therefore is itself a public good. Where this interweaving of the four domains of accountability breaks down, of course, is when scholars and other publics assert different demands of corporations and the people who enact them: not to produce more materials but to slow or stop that production entirely.

## **SOCIAL LICENSE TO OPERATE**

The ethic of material provisioning is experienced primarily as an ethical framework that provides a positive moral valence for engineers’ work in the

mining and oil and gas industries without—in the view of its proponents—offending their accountabilities to formal standards, to their profession, and to the public. The concept of the social license to operate (SLO) similarly promises its adherents a reconciliation of those otherwise competing domains of accountability, but it is experienced more as a moral project more for industries and corporate entities rather than for the individuals who constitute them.

*Social license to operate* loosely refers to public acceptance, but the term is usually invoked without clear definition.<sup>41</sup> Advocates for the SLO define it as “the level of tolerance, acceptance, or approval of an organization’s activities by the stakeholders with the greatest concern about the activity.”<sup>42</sup> In the past two decades, the term *SLO* became “embedded within core mining industry vernacular,”<sup>43</sup> skyrocketed in academic attention,<sup>44</sup> and migrated to distant spheres such as synthetic biology.<sup>45</sup> A review of news articles for the term found that it appeared in fewer than ten articles a year from 1997 through 2002 but in more than two thousand articles in 2016 alone.<sup>46</sup> The seductive way in which the SLO offers to reconcile accountability to the public and the financial bottom line may help explain its quick uptake among industry actors.

Almost without exception, social scientists trace the genesis of the *SLO* phrase to 1997, when Jim Cooney, an executive at Placer Dome Inc. mining company, used it in a meeting with the World Bank.<sup>47</sup> Consultants specializing in managing community conflicts rapidly picked up the term,<sup>48</sup> which then became enshrined in the 2002 *Breaking New Ground: Mining, Minerals, and Sustainable Development* report commissioned by a group of the world’s largest mining companies. That publication is widely considered a watershed moment in which executives publicly acknowledged that the industry’s negative reputation was a problem and committed to sustainable development as a strategy to improve it. The term *SLO* appears six times in the report, though without definition.<sup>49</sup> The late 1990s also saw the first signs of SLO discourses in the oil industry. In the wake of the controversy surrounding Shell’s plan to dispose of the Brent Spar oil storage buoy in the North Sea and outrage over the execution of Ogoni anti-oil activist Ken Saro-Wiwa in Nigeria, the company published its pathbreaking first



CSR report: “Profits and Principles—Does There Have to Be a Choice?” (1998).<sup>50</sup> The report is credited with popularizing the “triple bottom line” concept but also affirms a need to “balance between ensuring the commercial success of investments and our long-term responsibilities to society and the environment” before arguing that “it is essential to have endorsement from society—what some call a ‘license to operate.’”<sup>51</sup>

By 2014 industry actors and academics publicized a business case for the SLO. The landmark “cost of conflict” study attempted to quantify how much money mining companies lost due to community strife, such as through shutdowns, delays, and opportunity costs for failed expansions. The staggering results—including the estimation that projects in operation phases lost \$20 million per week of a shutdown—were published in an academic article in the *Proceedings of the National Academy of Sciences* and in an extended report published by the Corporate Social Responsibility Initiative at Harvard’s Kennedy School.<sup>52</sup> Rachel Davis, a coauthor of the reports, was a fellow with that initiative after serving as a senior legal adviser for John Ruggie, the special representative of the UN secretary-general on business and human rights.<sup>53</sup> Coauthor Daniel Franks was a professor at the University of Queensland’s Sustainable Minerals Institute, the other key institutional sponsor of the study. Their findings quickly became a ubiquitous point of reference inside industry, especially for people seeking to legitimize CSR teams, their activities, and their budgets. At one of the mining conferences I attended, the CEO of one of the world’s largest consulting firms summarized the study for the audience by saying that it “translates environmental and social risks into real business costs and demonstrates that the loss of social license and ensuing cost of conflict really does have a financial implication.”

By the time of my research, the SLO was invoked by almost all of my interlocutors. By emphasizing a high degree of community acceptance, the concept seems to address public accountability beyond what was formally required by laws and standards. Holding up a vision of mines and oil and gas installations that communities would actually welcome, instead of protest, spoke to many industry actors’ personal ethical aspirations. And crucially, its basis in a business case seemed to suggest that engineers did

not have to choose between their personal ethical aspirations and what was best for the corporate forms employing them: community acceptance was good for business.

### **The SLO and Its Discontents**

There are compelling reasons why we ought to be skeptical of the SLO as a dominant image of accountability for these industries. Even academics and consultants who advocate for the utility of the SLO concept recognize its problems.<sup>54</sup> Whereas the concept draws its power from the formality and authority of legal licenses granted by governments, SLO proponents must go to great lengths to underscore the significant differences between them. The SLO, they argue, is not a tangible paper assigned through a standardized process but must be continually assessed and managed by gauging public perceptions. In the more sophisticated articulations of the SLO, public perceptions fall along a continuum of acceptance of the industrial project rather than being categorized as simple approval or disapproval.<sup>55</sup> The SLO is also vague when it comes to scale and to who ought to be granting it. While appeals to approval by “society” in general can marginalize the most vulnerable populations who bear the heaviest burdens of extractive activity, so too can locally focused stakeholder engagement efforts that ensconce the power of local elites.<sup>56</sup> The SLO requires companies to delineate—and, in the process, produce—a “community” that can deliver acceptance.<sup>57</sup>

Other social scientists offer more fundamental critiques of how the SLO gives the appearance of acknowledging broadened corporate responsibilities while ultimately bolstering the power of corporations. The SLO values the health of relationships with people—and sometimes people themselves—in terms of costs and benefits to companies and their investors, making it a form of private governance that entrenches market principles in domains that ought to be governed by rights-based frameworks.<sup>58</sup> It does not provide satisfying guidance on how to “navigate power inequalities, divergent interests, and diverse cultures of communication and governance.”<sup>59</sup> In particular, it can skirt the special rights and processes accorded to indigenous peoples, as do frameworks such as free, prior, and informed

consent.<sup>60</sup> Even John R. Owen and Deanna Kemp, known as constructive critics of mining, condemn the industry's use of the SLO on multiple counts. First, they argue that the SLO can provide a false sense of security by confusing the lack of observable dissatisfaction with approval. Second, and more damning, they argue that the SLO treats communities as a "risk" to manage in order to access land, which undermines the more meaningful stakeholder relationships necessary for sustainable development. They conclude, "Nothing short of a move away from social license at the project level is required to pave the way for a more proactive stance towards sustainable development."<sup>61</sup>

### **How the SLO Frames Engineers' Accountabilities**

This section and the next build on critical scholarship on the SLO by illustrating an underappreciated dimension of the term's rapid rise: how it shaped how engineers learned about and attempted to manage their and their companies' accountabilities to people outside of their companies.

Mining engineer Austin said his first serious consideration of what he called the "social realm" took place during a "trial by fire" of controversy when he began working at a mine in Central America soon after graduating with his undergraduate degree in the early 2000s. The mine was under intense international scrutiny surrounding accusations that its personnel had abused the human rights of the indigenous people who lived closest to it. Austin arrived halfway through the initial construction, when tensions were already running high. He vividly described a confrontation that took place a few months before he arrived and colored his view of the project. Some major machinery was being shipped from the port to the mine but was held up when the caravan encountered a pedestrian overpass that was too low to allow it to pass. While the equipment was stranded a few hundred kilometers from the mine, he said, villagers started a "rumor" that it would be used to drain a large lake of significant spiritual and touristic significance.<sup>62</sup> He recalled that the villagers "took control of the truck" and were about to burn it when the police arrived. "People got shot. I mean, it was just a bad situation," he said. He described the incident as "really probably the biggest eye-opener I've had in my career as far as working in

that kind of environment, where you really do need the social license to operate.” He explained:

I had never worked in an area with indigenous people. Adapting to their culture, to their values, was extremely important. I learned very quickly that the best way to relate with the people was, you go to their house. Even if you don't like it, you eat their food that they offer you. Drink their tea. A big piece of the social license is relating to the people, accepting their values, and something that was definitely not taught in school.

Many engineers wished that they had been offered more training as undergraduates on the thorny issue of community acceptance.<sup>63</sup> The SLO featured prominently in their descriptions of how they would explain the significance of the social dimensions of their work to novice engineers or students. Chris described himself as a “mining engineer at heart” despite having worked his way up to the executive level in health and safety, security, environment, and community relations. Though his first job in western Africa was a typical “technical” entry-level position for mining engineers, he soon found himself in charge of sociotechnical challenges he had not anticipated, including building roads and managing a large number of artisanal miners who were operating in his company's area. When asked how he learned about the “social” dimensions of his work, he candidly replied:

I didn't learn. It was, go and do it. There were not books or anything else. It was almost a baptism of fire. The new general manager said, “Here comes the graduate mining guy. Let's give him the shitty job.” I did give the blank look, but you didn't say no to your boss in those days. You just went there and you went, “Okay.” So you drive there, you sit in the car, you think a bit, and you get out and you start talking. There was no preparation, no planning. It was all off the cuff, and wow, I made massive mistakes. One thing in community relations I can really tell you all the big mistakes, mismanaging expectations, bad relationships—all that I've gone through and done it. I didn't have any guidance in the beginning and made all the mistakes.

Chris was critical of the proliferation of terms to talk about public accountability. He learned, by transitioning from fieldwork to executive offices, that terms such as *CSR* or *sustainability reporting* may resonate with

executives or investors but mean very little to communities. For him, *SLO* was one of the latest buzzwords. But when the conversation turned to teaching young industry professionals about the social dimensions of their work, the *SLO* and cost of conflict dominated his advice:

If I was speaking to a group of young mining engineers or geologists, I'd say, "You know what guys? When I was studying what you were studying, what was more important was what was in the ground, the engineering. The world has changed rapidly. Now what we're finding is, you guys can find an engineer and have a feasibility study for the best project in the world. If you don't have that CSR social license in place, it's going to stay there. That's proven now, if you look at the research, most mining projects now that are stalled are stalled because of social reasons. We're talking megaprojects, multi-billion-dollar projects. You can throw all the money in the world at them, but they're stalled." My message to these guys is, "It's gone from being an afterthought, just like health and safety in the environment was years ago, to kind of being, it has to be front-loaded, guys."<sup>64</sup> It's not just getting it. You guys have got to live and breathe this. You've got to be globally aware, not just very good at the maps or the engineering stuff. If you can't do this, you're not going to rise up the ranks in the mining industry or be in a company that's going to be successful."

Both Austin and Chris used the *SLO* framework to interpret how they learned about their own and their companies' accountabilities to multiple publics. The engineers I met also used the *SLO* framework to try to convince others inside their companies to place a higher priority on their collective accountabilities to the most vulnerable people they affected. John, a mining engineer who ended up spending most of his career working on performance standard compliance in the oil and gas industry, expressed a common sentiment that the cost of conflict was instrumental for teaching reticent high-level engineering managers and CEOs to take community acceptance seriously. Describing the conflict that plagued the early days of a major infrastructure project in the South Pacific, he said that the managers refused to reconsider the company's dominant engineering practices until they calculated the financial cost of the delay:

And when you're talking a day of delay in a gas project that ultimately will generate \$12 million a day in gas production, it doesn't take long to do the

mathematics and even the village idiot can come up and say, “We would have been better off moving the gas plant.” Had we simply moved the footprint to that plant, a couple of hundred meters to one side in the early stages, we could have avoided all of that. But the engineer said, “Wait, you can’t do that. We’ve already made all of the drawings,” and that sort of stuff. Now, in hindsight, they would have said, “Had we known what we know now, we would’ve done it differently.”

The SLO was also the cornerstone of petroleum engineer Aaron’s efforts to change how his colleagues thought about community engagement in the context of the fracking firestorm (figure 2.3; see chapter 1). He picked up the term from the CSR reports of international mining companies, but credited John Morrison’s *The Social License: How to Keep Your Organization Legitimate* with helping him theorize the concept. Aaron found it useful to counter what he perceived as the oil industry’s overreliance on the legal license (permits) and political license (political influence, e.g., through lobbying) to safeguard their ability to continue operating. By paying attention to public perception, he said, using the *we* of industry, “we started to see



**Figure 2.3**  
Anti-fracking rally in Erie, Colorado, June 2012. Photo by Brett Rindt, courtesy Erie Rising under a Creative Commons license.

that we could make grand strides in improving the compatibility of the oil and gas development to preclude the friction or the problems.” In speaking to my CSR course at the Colorado School of Mines, he described achieving the SLO as the key to addressing the “root cause” of the industry’s public reputation problems. By growing the social license, he said, his team hypothesized they could stay one step ahead of battles over the legal and political licenses rather than facing them anew each election cycle.

Aaron, his team, and the other employees they trained found the SLO framework to be effective in persuading their colleagues to take the well-being of the people they affected, from the first stages of feasibility studies to operations. Marie described the SLO as “not something that we choose to do . . . but is part of the business now to get things done in the United States and then in the communities we’re in.” A petroleum engineer, she described herself as an “especially loud advocate of social license” and said she brought in the stakeholder engagement team to talk with her department because “a lot of people did not understand it,” because they did not have experience working in places under intense scrutiny, such as Colorado. Marie argued for viewing safety, health, and social license as inseparable requirements of doing business. But she also underscored the financial dimension, linking the SLO with the “bottom line” and describing it as “a huge money driver for our company.” Her comments point to how the framework of public accountability cast in the mold of SLO hinges on a vision of complementarity between doing the right things for communities and doing the right thing for a company’s bottom line.

### **Harmony’s Limits**

The SLO provides a framework that helps industry actors make a variety of social concerns—from the most instrumental issues of public acceptance to more encompassing desires to promote long-lasting well-being—legible in corporate discourses that otherwise privilege financial accounting. In this way, the SLO seems to promise reconciliation of domains of accountability that could otherwise pull against each other: professional norms that position engineers as guarantors of profit for private industry as well as guardians of the safety, health, and welfare of the public; formal ethics

codes, company policies, and international performance standards; public demands; and personal senses of right and wrong. But where engineers and others desire to see and promote compatibility, critics would point to the coercive nature of harmony ideologies and caution that some competing interests cannot be made complementary.<sup>65</sup> Indeed, the harmony among corporate and public interests proposed by the SLO can privilege the corporate ones, a process captured by the term *universalization*, in which “capital’s interests come to subsume a range of issues raised by production and consumption.”<sup>66</sup>

In reflecting on his career, Austin moved between recognizing the intrinsic ethical value of learning about and respecting people who lived very different lives and the business case for doing so. He did not view these two sources of value as being contradictory. The escalating conflict at the mine in Central America prompted him to try to better understand the indigenous people who lived around the mine, especially what he called their “values.” While it was a personally meaningful experience for him to enter their homes, share food and drink, and learn about their lives, he also drew on the cost-of-conflict framework to justify those activities:

A big part of it is that the companies have seen that, at the end of the day, the financial returns are what people are interested in. I mean, that’s why the corporations exist. And they’ve come to realize that having a strong sustainability, community relations program actually pays dividends in the long term. You know, there’s much less chance that you’re going to have major issues, strikes, nationalization, things like that, if you have positive relationships with the people that work at your mine, that live around your mine, and the governments of the countries where you mine.

While Austin used the generic *people* to describe who was interested in financial returns, he specifically pointed to the importance of investors who would not invest in companies that did not have an SLO.<sup>67</sup> Using the *we* of the company, he said: “It comes down to money at the end of the day and what is our share price. And there’s a lot of investors and funds now that won’t invest in especially mining and oil and gas companies that can’t really prove that they’re being responsible. We’ve had representatives from



some of these funds come to the mines to see if we're actually living up to what we say we're doing."

While Austin was willing to concede that some mining had been done irresponsibly, he argued that the industry's "evolution" had largely harmonized not just the interests of mines and the people who lived close to them but also his own ethical commitments with those of the company for whom he worked. When asked specifically if he ever disagreed with something his company did, he first justified its decisions to operate in socially and environmentally risky places and then described the (at least partial) alignment he felt.

You obviously have to go where the resources are. You can't pick and choose where you want to build a mine. You can't pick and choose where the mineralization occurs. So in my experience, there hasn't really been a place we were mining that I feel wasn't a reasonable place to be mining. It's an industry where we do have an impact on the earth, and we can't always make it look the same when we're done . . . [but] I've been with this company [many] years now, and I guess I'm still with the company because their values are somewhat aligned with what my personal values are. I would say even more so today than when I started, because of this evolution that the mining corporations have had.

Toward the end of the interview, Austin took advantage of a pause in the conversation to note that his company had won various awards for its corporate sustainability reporting, suggesting that he seemed to view the interview as a chance to represent his company and perform his corporate identity (see chapter 4). Perhaps because of this, he was extra keen to portray the SLO as a harmonization of interests: by treating people and the environment well, the company could please its shareholders and maintain its own financial profitability. Randy, a senior mining engineer with significant international experience, made this harmonization clear when he offered a rare definition of the SLO in his interview: "We need to earn a social license to operate. So it means working with the communities and stakeholders that are impacted by our business or our operations, and earning their trust and proving ourselves as good neighbors, as a company that honors their heritage, their needs, but yet has a business operating."

Bev, a senior mining engineer turned executive who earned her stripes working on controversial projects around the world, also emphasized the importance of not just aligning interests but ensuring that potentially skeptical communities recognized the alignment of interests. She strongly believed that public perception was the industry's greatest risk:

Threatening endangered species doesn't stop a mine. It's the public perception of whether it's acceptable to kill those threatened endangered species. It's people that stop projects. That's the only time you ever get stopped. If you are in deepest, darkest Africa and you're ready to move forward with your exploration drills and they surround your drills with people with sabers saying, "You're not going to do that here." There are way too many examples of those things. Call it social license. Call it what you want. But as far as I'm concerned, you've got to demonstrate to the local communities that it's in everybody's interest, what value you have to them over the long term. . . . You've got to demonstrate to local communities that you're of value to them long term.

While Bev subtly critiqued the *SLO* term—"call it what you want"—she invoked its key tenets of managing the risks from social conflict, caricatured as African "people with sabers" stopping a drilling project. She universalized the interests of the company as serving the best interests of the community, saying that the company's success was in "everybody's interest." She believed that the legitimacy of mining companies rested on producing long-term economic value for local communities while minimizing environmental harms.

*Value* itself is a productively slippery term. While it can presumably encompass more than economic profitability, how mining companies operationalize the term often marginalizes social and environmental values.<sup>68</sup> As a case in point, the creation of economic value was also the primary "win" that engineers envisioned themselves as creating for affected communities in their efforts to quell the uproar surrounding fracking (see chapter 6). Aaron was pragmatic, saying, "You can either fight the social issues, or you can embrace them and try to solve them. But in the end, these companies are in it to make business and make money, and that's what they're there to do." His use of the term *they* instead of *we* subtly

signaled his own distancing from the financial imperative he attributed to the corporate form and the people with the most power to direct it.

Decisions that pitted financial and other values highlight the cracks and fissures in the harmonious images promoted by the SLO and its proponents. Concern about the financial bottom line importantly constrained how engineers listened to and empathized with the people who criticized their industries. Petroleum engineer Emma vividly remembered a confrontation with landowners who threatened to not allow a rig onto their property unless the company paid them more money and made other concessions. The rig was necessary to plug and abandon the well, ending its productive life. The upset landowners requested to meet with the engineer in charge of the project rather than the company's landman (who negotiated the lease agreements with mineral and surface owners). Emma thought the landowners would be civil to her, given that she was visibly pregnant at the time, but felt personally attacked in her role representing the company as a whole. She recalled:

It got very aggressive. I was very uncomfortable. When I told them I couldn't give them what they were asking for, they made a lot of direct, derogatory comments toward me. Then they tried to basically say, "Here are all the things we will take in exchange for letting the rig in." I told them I wasn't authorized to negotiate with them. And, "We don't cut deals like that and if you barricade the road, we will bring in the police. This is what will happen, because legally you can't do that. I can help educate you on where we are at and what we are doing, but I can't give you any money, I can't give you any pipe for your fence, I cannot give you gravel from the pad." They said to me, "Oh, you're one of them *smart* engineers."

The landowners insulted her professional expertise by sarcastically calling her "smart." Emma's use of the term *educate* suggests that she may have approached the landowner from a deficiency perspective, seeking to correct their knowledge or opinions of the engineering and legal dimensions of the decision that she and her colleagues had made. Whereas other engineers described direct engagement with people as stoking their desire to learn more about why they held the views they did, Emma's negative experience had

the opposite effect. She remembered telling her supervisors, “I don’t want to meet face to face with the landowners anymore. I think it’s great, but I don’t want to be in that situation again. It made me very uncomfortable.”

Emma then provided institutional backing for her preference by highlighting the distributed agencies through which decisions were made in the company and communicated to members of the public (analyzed in detail in chapter 4). She emphasized that it was a “collective we, but typically it’s an engineer’s decision and we look at price.” While she appreciated that the company had to maintain a good reputation in the community, she cautioned against going beyond their legal liabilities, as she worried that doing so was a financial burden and created heightened expectations that were difficult to standardize. To illustrate, she used the case of whether the company would extend power to its sites to run them off of electricity instead of generators. The benefit for landowners was a quieter site that had fewer emissions. After going to the county office and digging through files for every single permit approved in the past decade, Emma discovered that her company was the only one who proactively electrified each of its sites. This changed her and her team’s decision making during the downturn in oil prices that had put more financial pressure on companies such as hers. She said:

So when we come to a basis for a decision, if we are not required to electrify per the county regulations based on where we are located and where the power is, I’ve stopped proactively electrifying. Because it’s the nice thing to do, but we don’t have to do it. When we electrify a site we pay an additional \$60,000 to \$100,000 on a project to be the nice neighbor. So there’s a lot more cost scrutiny now [with the downturn], and we can’t afford to be that way—we won’t be in business. So we are trying to fall back to what are the regulations. We need to be compliant, we need to meet them, but if it makes a landowner upset, I’m sorry, but this is what we are required to do, and this is what we are going to do.

The financial downturn, in Emma’s view, provided justification for her philosophy that the company should focus on meeting their legal requirements rather than the specific requests of landowners that surpassed those regulations. In describing her experiences, she acknowledged limitations on the “win-win” solutions promoted by the engineers (see chapter 6) and

underscored an image of engineers as protectors of their companies' financial bottom line.

Katharine, who worked full-time on a stakeholder engagement team, also admitted that it was difficult to balance competing interests from different audiences, even for an oil and gas company that had committed itself to the SLO:

I think every business tries to reduce costs, the bottom line, but especially in our business, there's the short-term gains and the long-term gains. Yes, it may be cheaper now [to reduce drilling costs], but in the long run, are we even going to be able to operate? And that's where ballot initiatives and social license come in. Can we do enough now to mitigate our risks to actually show Colorado and show our communities that we will work with you? We have this duty to drill, you know, not only to our mineral owners but to our shareholders too. So we have to answer to a lot of people. Balancing that is hard sometimes, and sometimes there are things that we just cannot do. And making [those tough decisions] softer on the outside is our job.

These efforts at softening the impacts of industrial activity resonate with Marina Welker's description of CSR as one of the "ameliorative" disciplines that "cannot prevent the destruction of land, the pollution, and the waste production that are inherent in all mining. At best, they can mitigate these effects and help ensure that those affected are compensated. At worst, they facilitate more mining and the destruction that goes with it by overcoming resistance and unlocking 'high-value opportunities.'"<sup>69</sup> The "balancing" and "softening" that Katharine describes points to the contradictions obscured by the harmonious vision of shared economic, social, and environmental value promoted by the SLO.

## CONCLUSION

Each of the engineers described in this chapter engaged in work that facilitated major infrastructural projects that came under strident criticism from others, from new mining and oil and gas projects in the Global South to firestorms surrounding fracking in Colorado. In everyday conversations,

popular press, and academic scholarship, each of these projects has been attributed to named corporations, both large and small. While there are important rhetorical and legal reasons to attribute their ethical failures to “Corporation X” as a whole—for example, as many people refer to the “BP *Deepwater Horizon*” disaster of 2010 despite the vast archipelago of corporate forms implicated in it—this chapter argues for the importance of also disaggregating those corporate forms to see how “corporate accountability” emerges through the everyday actions of the people who constitute corporate forms.

When making decisions and making sense of their professional lives, the engineers I met grappled with multiple and sometimes competing accountabilities that emerged from the history of their profession itself. Dominant expectations for engineers in the United States hold that they work in private industry and provide economic value for their employers and clients. When a crisis of public confidence in engineers pushed members and leaders of the professional associations to include safeguarding public safety, health, and welfare in their ethics codes and expectations, they did so without providing guidance on how to reconcile this paramountcy principle with loyalty to their employers and clients. This meant that engineers continue to find themselves simultaneously accountable to corporate policies, to their profession, to the publics that cohered around their work, and ultimately to themselves. Oftentimes these accountabilities pull in different directions.

The engineers’ desires to reconcile those competing domains of accountability help explain the ubiquity of two dominant moral architectures: the ethic of material provisioning and the social license to operate. Both aspire to reconcile what is good for a company’s financial bottom line with what is good for the people affected by it. Like the field of CSR in general, they position companies as going above and beyond what is required by law for social and environmental performance. These moral architectures uphold dominant professional norms of engineers as protectors of corporate profit while expanding them slightly: in addition to their technical wizardry, engineers should nurture community acceptance to protect the financial bottom line. Yet even the ethic of material provisioning and the SLO do

not fully reconcile competing domains or claims for accountability. Engineers and their coworkers could “soften” difficult decisions for the people they affected, to use Katharine’s words, but they could not always meet both the demands of those publics and the expectations of their employers. The following chapters explore the variety of ways that engineers managed those irreconcilable differences, including detaching their sense of self and profession from the corporate form over the course of careers, projects, and conversations.

Social scientists would point out that both the ethic of material provisioning and the SLO may encourage engineers and others to speak *for* instead of *with* the publics that cohere around these projects. The ethic of material provisioning casts the public as in need of materials that engineers, through their work in private industry, can provide. The SLO ostensibly encourages deep stakeholder dialogue, but it ultimately aims at discussions of how such industrial activity can be done in a socially acceptable manner, not whether such activity should be happening in the first place. Chapter 3 shows that this framing of the social license as how, not if, industrial activity should occur was a deliberate goal of the engineers-turned-lawyers who in the 1960s and 1970s set out a business case for community acceptance, as they attempted to permit and plan controversial mining projects in the midst of the growing environmental movement and demands for greater public participation.





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# Extracting Accountability

## Engineers and Corporate Social Responsibility

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